Spring-Summer 1986

ITEMS

From the Institute of Technology, University of Minnesota

SPECIAL ARCHITECTURE AND LANDSCAPE ARCHITECTURE ISSUE

The School of Architecture and Landscape Architecture

Bridgebuilders at Work

By Nancy Lewis

Consider several facts relevant to the practice of architecture in the United States:

■ For the past 20 years, architecture has been the fastest-growing profession in the country;

■ The three best-known American architectural communities are San Francisco, Boston, and the twin cities of Minneapolis and St. Paul;

■ Eight of every ten notable Twin Cities architects took their degrees in the Institute of Technology's architecture school.

A number of conclusions might be drawn from these figures. Certainly one is that the School of Architecture and Landscape Architecture enjoys an enviable position in its field.

Harrison Fraker, the school's fourth head, is not only determined to maintain that position, he intends to improve it. Fraker, a distinguished practitioner, researcher, and teacher from Princeton's School of Architecture and Urban Planning, arrived in the autumn of 1984 to replace Ralph Rapson, who retired after heading the school for 30 years.

Under Rapson's dedicated guidance, the school was best known for the design capabilities of its graduates, but was something of an artistic island in IT. Fraker shares Rapson's dedication to fine design, saying "The school is and will remain a design school." But Fraker also believes that greater emphasis on theoretical studies and research, technological expertise, multidisciplinary learning, and social understanding and responsibility is needed in the education of architecture students.

Fraker's degree from a school specializing in urban planning and his work as former chair of the American Institute of Architects' energy committee and cofounder of the Princeton Energy Group imply a new perspective on cultural and technological issues. His agenda for the school's future puts that perspective into action, and casts the school into an exciting period of evolution that is consistent with recent shifts of emphasis in the field of architecture.

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The Minnesota Campaign

NELSONS ENDOW NEW MILLION-DOLLAR CHAIR

Richard Nelson (ME, B.A. '52, M.A. '53), a software specialist for Cray Research Corp., and Barbara Nelson, a homemaker and voice teacher, who reside in Bloomington, Minn., have demonstrated their personal commitment to maintaining quality education at the University of Minnesota by establishing the Richard K. and Barbara L. Nelson Land Grant Chair in Mechanical Engineering.

The Nelson's gift of $700,000 was matched by the Permanent University Fund for a total endowment of $1.4 million. The Nelsons will provide $70,000 annually from a combination of personal contributions and a trust established for the University Foundation. Visiting as well as tenure-tracked faculty may be invited to occupy the chair, but appointments will be for no more than four years.

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Photo by Mary Perkins

Barbara Nelson signs papers establishing the Nelson Chair as her husband, Richard, looks on. Other interested observers include, from right rear, acting academic affairs vice president V. Rama Murthy, alumni relations associate vice president Steve Roszell, Dean Ettore Infante, and the very, very happy head of mechanical engineering, Richard Goldstein.

Eileen Kiely IT's new alumni relations officer

Eileen Kiely (pronounced like 'Riley'), formerly a U.S. Navy communications officer and recruiter, has been selected to serve as IT's new alumni relations and placement officer. Kiely also has a strong background in theater, having written, directed, and performed in theater productions. She holds a bachelor's degree in directing from Wright State University in Dayton, Ohio, and has done graduate work at Tulane University.

She will work with the Minnesota Alumni Association and the IT Alumni Society, with the institute's placement office staff, and with departments and administration to organize and strengthen IT's placement and alumni programs.

Eileen Kiely *Photo by Mary Perkins*

From Alumni Relations

By Eileen Kiely

As of this writing, I've been on the job for several months as IT's alumni relations and placement director. I thought May would be the perfect time to start because I'd have a taste of the end of the school-year rush, then have plenty of time to ease into the job during the summer slow period. I'm still waiting for that slow period to begin.

My first weeks were filled with two IT Alumni Society (ITAS) events, the Minnesota Alumni Association's annual meeting, two class reunions, and IT's June graduation ceremonies. My initiation period was brightened by the dedication and enthusiasm of alumni volunteers.

The ITAS board's two successful events were the premiere of our new seminar series, and the Dean's annual report to alumni and friends. I'd particularly like to commend John Kugler, ITAS first vice president, for arranging for Stewart Harris of Woods Hole Oceanographic Institution to visit the campus and bring our alumni and University community up to date on the Titanic discovery and the future of underwater exploration using submersibles and robotics.

Len Mayeron of Edina, Minn., and Charles Sampson of Covington, La., mounted a superhuman effort to locate and motivate their fellow 1936 mines and metallurgy classmates. Twelve of the 23 original graduates attended the festivities at the Radisson University Hotel, which were preceded by a tour of the new Civil and Mineral Engineering building and included some very special photographs (uncovered by the classmates) from the 'old days'.

The civil engineering class of '31 also returned to campus in June to dedicate the site for a sundial, their gift to the civil and mineral engineering department. A tall, two-color granite structure, it will rest in the courtyard of the Civil and Mineral Engineering building as a reminder of the basic principles of engineering—time, space, and energy.

This year's Minnesota Alumni Association annual meeting was a landmark occasion. Last year's event was attended by 150 people; in contrast, this year 925 alumni, staff, and friends filled the indoor football complex to mingle, spin the 'wheel of fortune' for prizes such as football tickets and free memberships to the Alumni Club, and to hear our keynote speaker, Art Buchwald. The reason for this dramatic increase? The volunteer board members decided they wanted a major event, and mounted a massive sales and publicity campaign to bring more alumni to their own meeting.

The majority of IT alumni I have met have expressed their strong desire to stay in touch with the University and to help our students. We currently need alumni volunteers to implement a mock interview program for the placement office and lower division studies. While our students are excellent technical graduates, they sometimes lack the communications skills that will make them truly competitive in the interviewing process for jobs and fellowships. We are instituting workshops to help them improve these skills, but we need volunteers to conduct mock interviews with the students and give them valuable practice and feedback. If you would like to contribute your expertise, contact my office at (612) 624-1030, or at 107 Walter Library, 117 Pleasant Street S.E., Minneapolis, MN, 55455.

Finally, I thank those of you I have met and worked with during these past months for making my 'initiation' such a pleasant experience. I'm happy to be a part of IT, and look forward to a long association with IT and its alumni.

Landscape architecture: invisible art

By Nancy Lewis

Landscape architects may be the least-recognized artists of our time. Their work is all around us—along highways, in parks, housing developments, and cities—but we are seldom aware of it. We simultaneously see, and don't see, landscape architecture wherever we go.

People are often more aware of an undesigned landscape. For example, the sight of a dirty, decaying inner city is a depressing reminder that those who live there lack access to the renewing perspective provided by more pleasing environments. Any landscape is an important factor in its residents' sense of self and well-being, which are restricted to the extent that their environmental reference points are artificially limited or skewed.

Natural surroundings have exerted a powerful social influence throughout history. Every culture's early creation myths describe how the environment was formed, then how people were formed by it. Each ethnic group's rituals, art, customs, and even laws were shaped by its natural environment; these ultimately became the group's cultural identity. Though much of today's society is no longer so vulnerable to or aware of nature's rhythms, our history of life with nature remains evident in humanity's agreement that natural forms are the standard for what is right and beautiful.

Photo by Fred Leverentz

Chair of landscape architecture Roger Martin with a design studio project.

A landscape architect must develop a deep understanding of the minute structures and connections that make nature seem so right and beautiful, and of how people will be affected by his or her work, because that work has a direct and pervasive influence on the viewer. It is meant to be fully experienced: to be walked in and upon, seen, heard, smelled, felt. This artist explains our relationship with nature by creating a complete physical environment.

According to Roger Martin, chair of landscape architecture at the University, the profession is descended from the planned gardens and parks of ancient civilizations. By the time of the Renaissance, architects were responsible for complementary development of landscapes surrounding the villas and palazzi they designed.

Landscape architecture in the U.S. had its formal beginning in 1850, when Frederick Law Olmsted, designer of New York's Central Park and Golden Gate Park in San Francisco, first defined the specific elements and problems of the field. Olmsted was mainly interested in social issues—how people use land, cities' problems with immigrant populations, and the use of urban public space. Olmsted's student, Horace Cleveland, used Olmsted's principles in designing metropolitan parks and parkways in the Twin Cities.

Landscape architecture has gone well beyond Olmsted's focus, into the planning and design of large national and regional parks and forests, the siting of highways, and large-scale urban development. Martin said that the public is increasingly aware that land is limited and fragile, and the landscape architecture program trains its designers to be sensitive to these issues.

Martin organized architecture's design-oriented landscape architecture degree program in 1966, using faculty from the architecture school. A landscape architecture program already existed in the College of Agriculture's horticulture department, but was focused primarily on land sciences. Over time, sharing of faculty and facilities grew between the horticulture and architecture programs, and in 1970-71 they were combined. The landscape architecture program is jointly administered and funded by IT and the School of Agriculture, and its faculty members are drawn from both units.

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LANDSCAPE from page 3

Martin is the man who must balance this double loyalty, which isn't always easy. Several years ago the program was moved to the St. Paul campus, closer to horticulture, and "the distance worked against maintaining close ties to architecture," Martin said. He and architecture head Harrison Fraker are determined to recapture some of those lost connections, especially in areas where architecture and landscape architecture share responsibility.

architecture are constantly changing," Martin said, "and such a wide range of skills will be required of them as professionals that we are continually challenged to keep their training both focused and broad in scope."

Education in landscape architecture stresses a rational, creative approach to problem-solving tasks. Students are taught to ask and then answer questions like 'What do people want from this project? How will they want to feel here, how will they use it, how can it be designed to give them what they want

The successful landscape architecture student has a deep concern for and sensitivity to the land, and to the people who will use the land.

Martin and Fraker are planning a studio-space exchange for next year in which some first-year design studio students will switch campuses, and are also planning to offer annual combined design studios at several levels of skill. Landscape and architecture will also collaborate on urban design and social needs projects.

Martin says that landscape architecture, like architecture, is one of today's fastest-growing professions. But unlike architects, who create highly visible and permanent structures, landscape architects keep quite a low profile. The landscape architect's work is often nearly indistinguishable from nature's, will take anywhere from five to 30 years to reach completion, and, given the vagaries of plant growth, weather, and usage, its outcome can never be fully predicted.

So the University's landscape architecture students need to be creative individuals who want to make a meaningful contribution to their society but don't require much public recognition. Martin described the program's students as generally highly motivated, slightly older than the average undergraduate, and with carefully thought-out career goals.

"The successful landscape architecture student arrives in the program with a deep concern for and sensitivity to the land, beyond the merely decorative, and to the people who will use the land. Formal education in landscape architecture begins with and enhances these qualities," said Martin.

But educating these committed students properly requires a lot of faculty energy. "The media and materials of landscape

and still flourish under their use?' and, 'To what extent can the created landscape be designed to maintain itself?'

The curriculum emphasizes design skills, communications skills, science and environmental studies, mathematics, and introductory applied studies in civil engineering and horticulture; these are all built upon a broad liberal arts base. Like architecture students, landscape architecture students learn how art conveys social messages and how to express social values in their work. Since they must also acquire an understanding of peoples' needs, habits, and unconscious desires, and how these affect and are affected by the natural world, "psychology, sociology, and anthropology are important landscape architecture courses," added Martin.

"Our program is unique in its particularly strong focus on design," said Martin. "Our students spend at least three years in the design studio, and do a lot of work in studio arts, in design and freehand drawing—learning to see and then interpret the environment on paper."

During the initial studio year, Martin says the students acquire "the skills and tools to work with the land as a palette to create space," then explore methods of design. In the second year specific projects broaden their understanding of both the land and people. Real problems of work are assigned that begin with family dwellings and move on into public urban areas.

Third-year design students choose two hands-on, specialized studies from four key areas: site planning, regional planning and design, recreational planning and design, and urban design. The intensive experience gained in these projects helps students determine their career directions while still at the undergraduate level.

In addition, students are encouraged to join in projects with other students from architecture, engineering, environmental, forestry, agriculture, and horticulture studies to prepare for interdisciplinary professional work.

Landscape architecture graduates have a wide range of career possibilities. They can follow the tradition of working in private partnership with other professionals in related areas, like architects and civil engineers, graphic artists, horticultural or construction specialists. Many go into public practice and work for cities, states, or the federal government. Some become academics in one of this country's 55 accredited landscape architecture schools. And opportunities in developing countries are increasing for landscape architects.

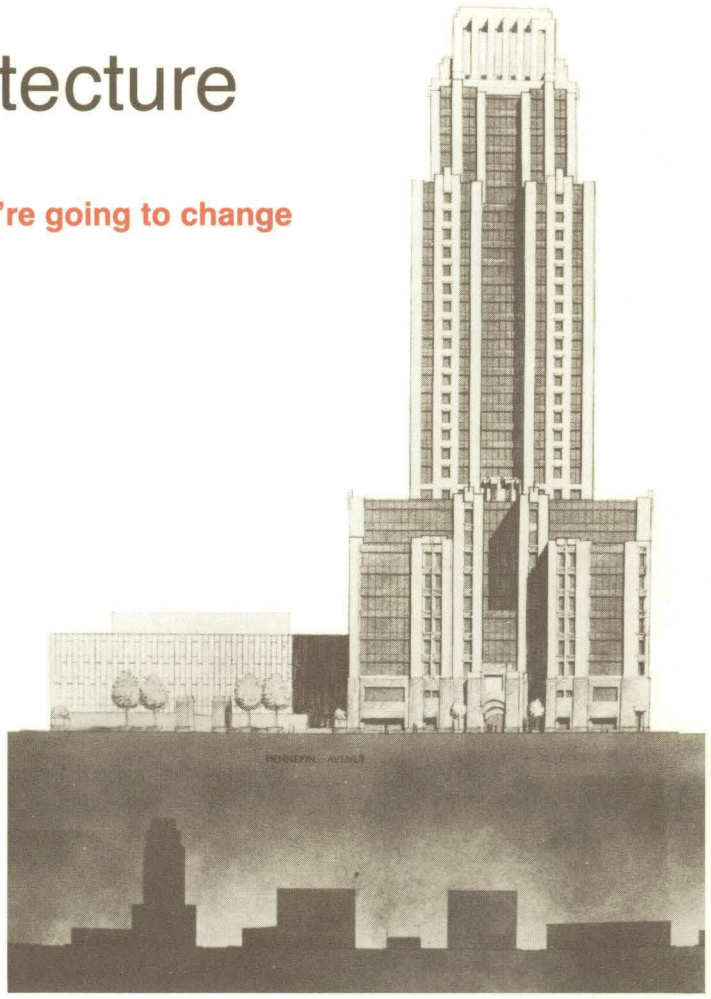
Historical work provides a relatively new field for landscape architects. In response to researchers' needs, they have begun to work with archaeologists to identify, reconstruct, and preserve historical places, especially gardens and farms. It is often difficult to know how a very old place was originally designed and used. For instance, the gardens of Versailles can be used for historical reference because they have been maintained exactly as designed, but Tivoli's gardens have been allowed to change so much that no one is sure what they originally looked like.

In this country, faithful restoration of Williamsburg's landscape is a major research project. For historical accuracy, landscape specialists must determine precisely how the original gardens were laid out and used, and exactly which plant varieties were grown at that time, and duplicate them.

The variety of areas in which landscape architects work and the diverse ways in which their work enriches our lives are so numerous that an article like this can only begin to suggest their range. But for University of Minnesota alumni, an especially meaningful experience of landscape architecture is surely present in memories of the campus. Like other institutions, the University depends strongly on its landscape architects for site planning and grounds design. A leisurely walk across Northrop mall or the beautiful St. Paul campus inspires both pride in and gratitude for the University's landscape architecture program.

A cautionary review of 20th century architecture

or, the more things stay the same the more they're going to change



By Nancy Lewis

At the turn of the century, when the University of Minnesota's School of Architecture was founded, nineteenth-century industrialism had already begun to inspire a general belief in the power of the machine to effect social change. Frank Lloyd Wright declared that its "wonderful cutting, shaping, smoothing, and reinterpretive capacity" would soon make fine architecture available to everyone, regardless of social or financial standing.

Bright, sootless electric lighting brought a different kind of illumination to spaces and objects, and made white or light-colored interiors practical for the first time. Handcrafted wood or stone components of buildings were giving way to manufactured materials like steel, glass, and concrete. By the end of the First World War, earlier lush styles were on their way out; machine-made building components were becoming machine-like in design — spare and simple.

In succeeding decades architectural designers exchanged flowing, decorative human symbology for precise, rectangular edges and planes that reflected their growing infatuation with all things mechanical and streamlined for speed.

In 1935, 16 years after Walter Gropius founded the innovative Bauhaus school of architecture, the University's architecture school was grouped with engineering, mines, and chemistry under Dean Samuel Lind to form the new Institute of Technology. IT's other departments and schools soon joined the new institute.

Then came World War II, and a new partnership between science and engineering. Engineers began to see the importance of basic research, and scientists became much more aware of potential applications for their research. When the war ended, the nation was involved in a mass love affair with technology. There seemed little doubt that science would soon domesticate nature and end disease and scarcity. With the public's blessing, scientists confidently embarked on a quest for the Grail of ultimate knowledge, all unaware that the industrial age was nearing its close or of the consequent social upheavals to follow.

The seductive power of the new overturned convention in architecture, as in so many other fields. Postwar modernism, with its reliance on social and technical determinism, came into full flower. Architecture logically concerned itself with functionalism (how a building fulfills its purpose), but also focused strongly on the social basis of the design.

Architects in the first half of the century believed the Machine Age had initiated global evolution toward a one-world, utopian society for which austere, unornamented buildings would be appropriate—purely utilitarian structures that Le Corbusier called "machines for living in." Since they also felt that the influence of a 'correct' architectural style would hasten this evolutionary process, architects of this period worked from a keenly felt sense of responsibility. Beginning with the Bauhaus, the anonymity of industrialization was adopted as an inherent virtue to be expressed through design.

Before this time, as artists with a profound philosophic and historical tradition, architects had always found inspiration in earlier works. Students of the beaux-arts tradition spent their first years of training sketching the familiar buildings they had grown up with, learning to see how each building's form arose from its context and what cultural values it conveyed.

But in the Bauhaus era, past concepts seemed so irrelevant to the issues of the day that modernist architects abandoned historical theory and design models. They strove to invent new design archetypes that avoided reference to the past, that looked instead toward the anticipated technology-inspired reorganization of human society. Every effort was made to purify architecture students of any historic-cultural 'baggage' in the belief that their resulting innocence would enable them to design buildings totally unrelated to past architectural traditions.

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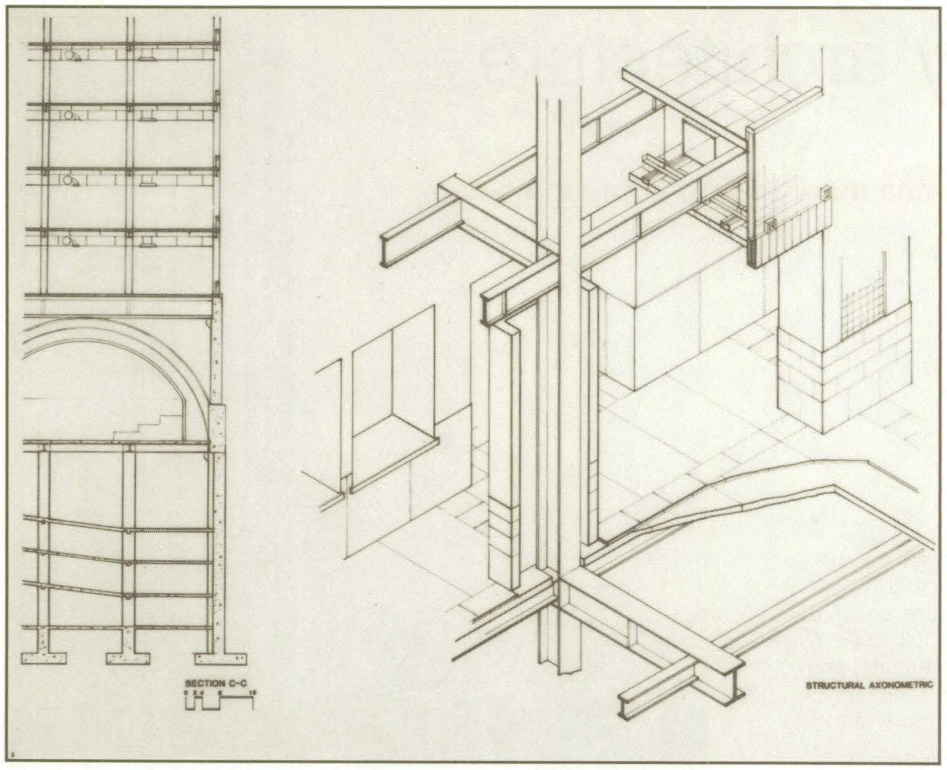
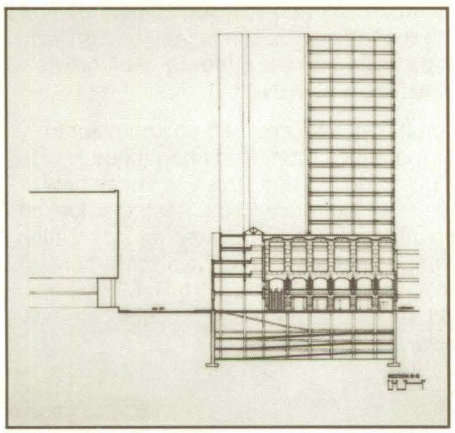
REVIEW from page 5



History tells us that such extremism could not last; in the midst of the modernist flourish, seeds of synthesis that would combine elements of classicism and modernism were taking root. As time went on, society not only remained stubbornly non-utopian, but was increasingly disgusted by this "styleless style" whose glass and steel surfaces reflected no personal meaning back to the viewer, and which tired the mind's eye with its confusingly identical doors and windows, its flat, unremitting linearity. Modernist designs were copied so often and badly in schools, shopping centers, and urban 'strips' that people came to believe that any new building would be worse than the building it replaced.



Ultimately, academics and even practitioners had to conclude that architecture can't be made out of social diagrams. In the 1960s, a quiet revolution in architectural theory began. It crept slowly from one center of practice to the next, from one school to another, and is still gaining adherents.

A few key people began the revolution by questioning both the fundamental theory of modernism and its architectural products. Robert Venturi started things off with his 'mild manifesto', *Complexity and Contradiction*. Architectural modernism was oversimplified, he said, and, as a vision of social conditions that never materialized, incorrect.

Christopher Alexander was one of many who responded to the call. In *Notes on the Synthesis of Form*, he suggested that architects engage in serious self-examination to see that they no longer possessed the innocent unconsciousness they desired. He called for acquisition of a knowledge base for buildings, and for a return to a nonheroic, rational basis for form.

In the resulting explosion of inquiry architects began to re-examine the theoretical bases of their programs in light of human needs and behavior (to determine how real, non-utopian people respond to their environments), and to search for ideas beyond the mechanical and functional aesthetic of modernism. It has now been more than 20 years since a consensus has existed in architecture.

As the movement took shape, it developed differing philosophical fronts. Putting it very simplistically, the two principal points of view have diverged over whether the meaning of a building is intrinsic to that structure, or is imputed from without by the cultural and social experience of the beholder. Architects who hold the first point of view have turned to the social sciences for models that would support designs expressive of humanist values, and found especially useful ones in cultural anthropology. Others, seeing language as the principal transmitter of culture, have adopted a semiotic approach that bases architectural theory on a formal linguistic framework.

Architects also re-examined the entire design process. With the gates to history open once more, they have regained a sense of the continuity of their art with that of the past. Today's architectural designs often use historical building types as starting points of reference for new kinds of building designs. In architecture school head Harrison Fraker's view, "these exploratory approaches issue serious challenges to modernist tenets, challenges that invite further change."

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ITEMS

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This issue was prepared with the assistance of University Relations.

New television stars Roger Clemence and Judith Martin, with "Meanings of Place" producer Brent Johnson, center. *Photo by Geoff Hansen*

The meanings of place: the psyche and the world

By Nancy Lewis

Why is it that some places have special meaning, while we only remember the rest as a scenic backdrop along life's path?

Professor of architecture and landscape architecture Roger Clemence and Judith Martin, director of the Urban Studies Program in the College of Liberal Arts, can answer that question. With the help of geography Ph.D. student Deborah Karasov, they have created an independent study television course, "The Meanings of Place," to explain why we feel the way we do about and in different settings. The program aired in the Twin Cities on public television station KCTA during spring quarter; it was so popular that it will run again in the fall on Saturdays and Wednesdays on public television channels in the Twin Cities and Duluth, in Appleton, Wis., and on up to eighteen cable channels as well. A videotape of the program can also be viewed, for credit or for pleasure, in Walter Library's Learning Resources Center.

"The Meanings of Place" shows how people develop an individual place-awareness that forms the basis for their very personal emotional responses to varied environments. For instance, an infant's first awareness of place is "mother, the essential shelter." Over time, the growing, curious child identifies and attaches labels to new places as part of a specific, individual, and increasingly complex conceptual scheme. During this lifelong process of placemaking, each person develops layers of memories and beliefs that become associated with many types of spaces and places. And, since remembered connections are triggered by familiar place-forming elements in an environment, even new environments are greeted (initially, at least) by learned responses.

"We used personal observations, both our own and those of others, to help explore the many meanings of our surroundings, our environmental settings — our places," Clemence said. The course materials define place as a center of meaning, which is created by one's experiences and ways of thinking. Clemence says that in all places "meanings are there to be plucked out, but the quality of the pluckings depends on how well we can see."

Clemence and Martin have organized and taught urban studies projects together for several years. Though their backgrounds differ, they share a fascination with the ways in which change and continuity in the artifacts of culture affect people. As a historian, Martin is primarily interested in how the things we value were created, and in how our caretaking contributes to their survival or disappearance. Clemence, who is both an architect and a landscape architect, looks with an artist's eye at components of environments—the spatial elements like water, color, textures, changes of level, vegetation, light and shadow—and assesses how they contribute to our feelings of well-being.

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Clemence and Martin, feeling they have learned to see with more acuity and with a broader perspective through understanding each other's point of view, designed the class to share their insights with others. "We wanted to put the things we have learned about seeing before a bigger audience, an audience larger than our typical campus-based class," said Clemence, "and television seemed a marvelous medium for that purpose."

The class demonstrates Clemence's fascination with the possibilities that visualization technology offers to architects and landscape architects: "Computers give us new ways of perceiving and new modes for expressing those perceptions. With computer graphics we can play Superman and fly all over the world. Television gives us similar freedoms in our acts of viewing. It's a great expander."

Clemence is also an inveterate photographer; many of the slides used in the class are from his own large collection. "Photos often enable us to see more than the eye sees alone. The telephoto lens redefines the sense of place found 15 to 25 feet away from one's vantage point, while the macro lens reveals paint textures on a door or the remarkable interior of a flower," he said. "For this class we could generate images with computers, video equipment, and single-lens reflex cameras, then take those images to large numbers of people through television. Although the face-to-face contact of the classroom was lost, the potential for a broader outreach was mindboggling."

The program is designed "to help people who aren't and won't be architects to see as an architect or landscape architect might—though we do also want it to be useful to practicing architects," Clemence said. "While designers can make a major difference in the way the world looks, each of us actually has a role to play." Clemence offered the example of a woman he once saw carefully positioning a pot of geraniums on her front porch steps: he recalled realizing that "her chosen arrangement was a special message of greeting to those approaching her home, a vital personalization of her already handsome dwelling."

It's in this spirit of showing how places gain personalized meaning that Clemence and Martin not only explore such complexities as how cities are centers of human-use meaning, or why rural vistas often produce a nostalgic desire for simpler times, but also seek to show that a single pot of geraniums can say "you're welcome here."

Beyond helping viewers to see more clearly, Clemence and Martin also hope to instill a heightened awareness of how individuals can shape the environment to enrich their own lives and those of others. "Each of us makes daily decisions that affect the surroundings in which we work, relax, experience important events. I hope our program will inspire people to a higher level of caretaking," Clemence said.

Though the televised class carries college credit, it can also be viewed simply for pleasure. "We hope to persuade people to enlarge their visions," said Clemence, "not by clubbing them over the head with our views, but by enticing them to uncover new ways of seeing—assisted in part by the perspectives our program offers."

Clausen appointed assistant dean

New Assistant Dean for Unclassified Students John Clausen with unclassified IT sophomore Kristin Silvi.

On July 1, Professor John Clausen became Assistant Dean for Unclassified Students, in recognition of his effective, efficient, and thoughtful development and operation of tutorial and unclassified advising services for lower-division students.

Dean Clausen has directed the lower-division program since 1968. Under his leadership the tutorial program grew to include all dormitories and several local high schools. His advising program provides faculty and peer advising for over 600 unclassified students. This year his office also undertook the supervision of graduate math tutors and computer science peer advisors. He developed the very popular Industry Advisor Program and student tours of various Honeywell divisions. In addition, he produces the annual IT Student Guide and is advisor to the *Minnesota Technolog* and the *IT Connection*.

Over the years, Dean Clausen's students and colleagues have expressed their gratitude to him through the Gordon L. Starr, George F. Taylor Teaching and Distinguished Service, Student Leadership and Service, Student Assembly Faculty Recognition, and Student Alumni Association Recognition awards.

BRIDGEBUILDERS from page 1

Fraker is mapping out programs to connect the needs and talents of the school's students and faculty with the wealth of adjacent resources in IT, other University schools and centers, and the architecturally rich Twin Cities community.

Internally, efforts already are under way to encourage greater unity in the architecture and landscape architecture programs, increase faculty development, and clarify degree programs.

Unification

Although the present landscape architecture program actually began in the architecture school, it is now co-administered and funded by IT and the College of Agriculture (through its horticultural science and landscape architecture department). For this and various other reasons, the two halves of the architecture and landscape architecture school have drifted apart over the years.

Fraker and Roger Martin, the chair of the landscape architecture program, are working to bring the two programs closer together through joint and exchanged design studios and other projects, since where one discipline ends, the other usually begins. And, just as in some areas it is difficult to divide landscape architecture from horticulture, a separation between the functions of architecture and landscape architecture is sometimes artificial.

Faculty Development

Fraker calls IT's architecture faculty "generally the equal of any in this country," but adds that a few adjustments and additional people are needed in key areas.

For one thing, the school has a history of hiring its own students—an understandable policy for a school whose graduates are among the best in the nation. Fraker believes it is important to balance that tradition by also hiring faculty from outside to keep the program vital.

And the school's faculty must include people who can teach skills that reflect the field's rapid diversification and changing philosophical stance. An architect now must add management skills to his or her practice. There are new technological products and construction materials and techniques to learn. Computerized information management and design programs must be mastered and improved. As architecture's role in urban planning and design becomes more sophisticated, so must the instruction.

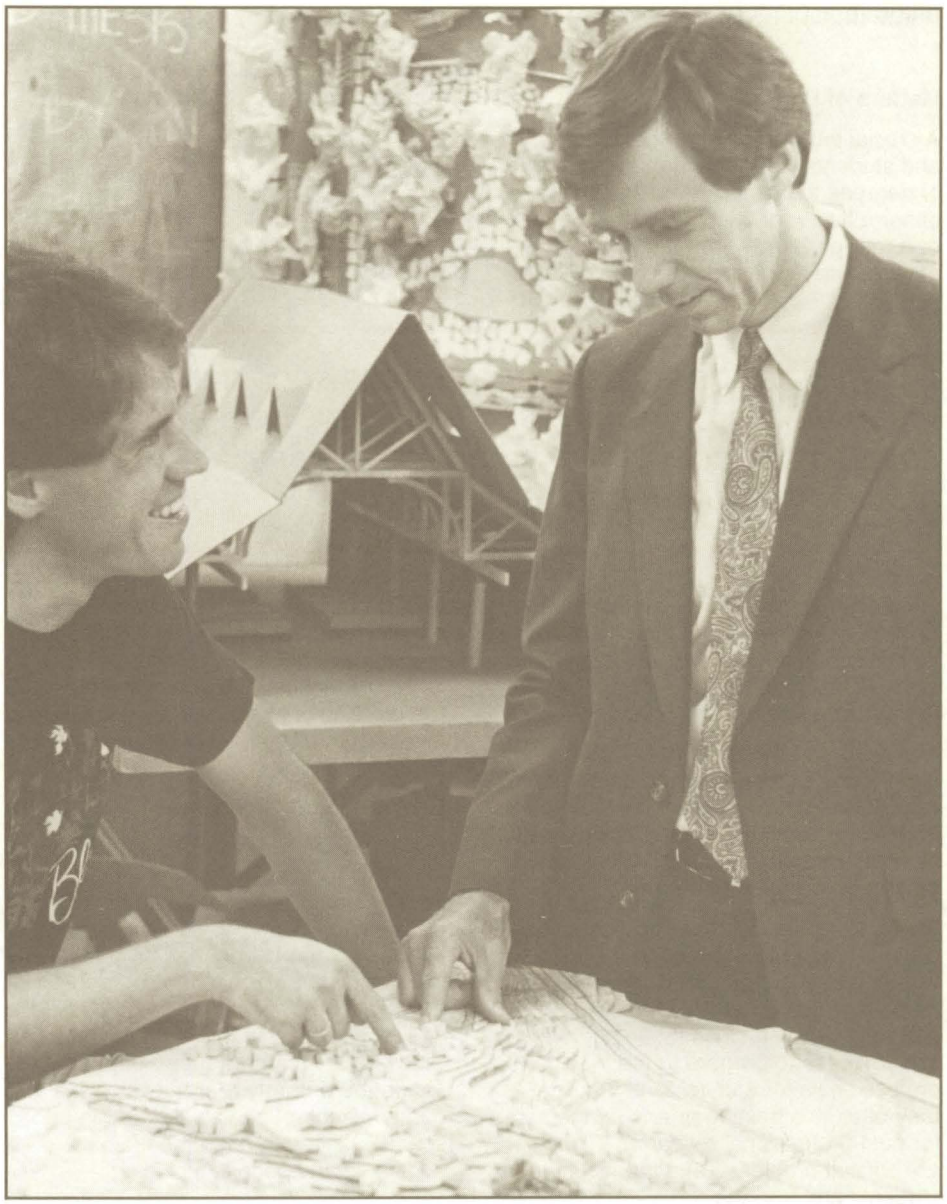

Photo by Fred Leverentz

Architecture graduate student Greg Hough plumbs the complexities of student work with head of architecture Harrison Fraker.

With significant and colorful philosophical debates raging throughout the field, research in history and theory is increasingly important in leading architectural schools. Fraker believes the school has the potential to evolve a much-needed bridge between theory and practice. "It is important to teach today's students to be simultaneously creative and critical thinkers, teach them the meanings and uses of the interrelationships of architecture's important theoretical issues and the architectural expression of those issues."

The school is already strong in practice (design skills), but during modernism's heyday in IT (and elsewhere), as experimentation replaced historical methods, theoretical investigations dwindled in importance. "In-depth history and theory studies became compressed into primarily stylistic surveys taught by temporary faculty," said Fraker. "A solid history and theory curriculum is crucial to the serious theoretical investigations that will keep the school at the forefront of developments in the field."

The school's student newspaper, called "Not an Official Publication of the University of Minnesota School of Architecture and Landscape Architecture," described the long search for full-time history/theory faculty as "breaking all known records for the duration of job searches in the Northern hemisphere." But in fact, three candidates recently accepted the school's offer, and will join the program this year.

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Matters of Degree

A crucial internal issue for both faculty and students is the number and character of degrees the school offers. Gaining either a five-year bachelor of architecture or a four-plus-two-year master of architecture degree qualifies the graduate to seek registration as an architect. Despite the difference in their titles, these first professional degrees are considered equal in standing by the National Architectural Accrediting Board.

The school also offers two nonprofessional undergraduate degrees (a B.A. with a major in architecture and a Bachelor of Environmental Design), and a five-plus-one-year second professional master of architecture degree.

Fraker questions whether his school can claim to offer a true graduate program with nearly interchangeable degrees and no post-professional (Ph.D.) degree program. Further, since these degrees are designed to prepare future professionals for architectural practice, they offer little training or encouragement for post-professional research. "These are difficult problems, and the faculty and students are currently wrestling with ways to resolve them," Fraker said.

Arch Goes High Tech

Fraker is moving to increase the program's technological strength in both teaching and research. By establishing interdisciplinary programs with other departments in IT, he believes the school can soon become a leading center of architectural technology.

In the best schools, architectural studies now include highly technical courses. Some of these can be taught by the school's own specialized faculty. For example, as a result of new building technology and recent research into what people need to feel comfortable in buildings, students are learning how up-to-date building designs can actually eliminate overly complex mechanical environmental-control systems.

But architecture faculty are not scientists or engineers; purely technical courses should be taught by area specialists. Fraker says the school "must develop improved construction and materials courses by setting up exchanges and cooperative research and teaching arrangements with our neighbors in IT. Then the material must be reinforced in the design curriculum."

In addition, important philosophical and research questions are raised by technology's influence on the practice of architecture, Fraker said, like "how does technology conceptually influence the form and making of buildings? How do the mechanics of building elements affect the fundamental concept—the *idea*—of a building?"

Bridges are being built between the school and the rest of IT, the University, and the Twin Cities. The school itself could form a bridge between architectural theory and practice.

Urban Design Reemerges

Fraker is also preparing to engage more fully another nationally rising architectural priority: urban design. "Although urban planning is still perceived as important, the design component has dropped away in recent years," Fraker said. "In the past, a typical city planning office staff included design officers, but this is no longer true. Since most important urban projects cannot be properly realized without a good design, much valuable urban public space is falling through the cracks," adding "many people, including distinguished visitors to the campus, have pointed out that the University would be an ideal site for a leading urban design center." Fraker agrees.

He is exploring ways to bring architecture and landscape architecture together with the University's geography department, the Hubert H. Humphrey Institute of Public Affairs, and the Center for Urban and Regional Affairs (none of which have a design component) to create such a center.

Community Relations

Finally, Fraker intends to enhance the school's close relationship with the Twin Cities architectural community, most of which came out of IT. He describes the school's affiliation with the professional community as fundamental to its mission. Local architects act as adjunct faculty and critics of student work, and can lend valuable advice and help to new architects as they begin their careers. Fraker wants to deepen those partnerships; in return, he intends to develop post-professional (Ph.D.) degree programs in history/theory, urban design, building science and technology, and design theory that would be especially helpful to local practitioners.

Harrison Fraker does not lack vision, enthusiasm, or energy. Realizing his goals for the school—clarifying degrees and adding post-graduate professional degrees, developing history/theory and design research programs, establishing architectural technology and urban design centers, and expanding the school's partnership with its professional community—will only enhance the reputation of his already top-ranked school.

Photo by Fred Leverentz

Home, sweet home. Architecture graduate student Greg Hough at the drafting table in his walled-off student cubicle in a traditional design studio.

Computer-aided architectural design

By Nancy Lewis

Soon a computer may be as ubiquitous as a drafting table in the organized clutter of an architect's design studio.

A computer could obviously be a useful addition to the firm's office hardware for financial and information management, and in some ways could even help the architect stay abreast of the constant flow of new theories, building materials, and methods pouring into the profession. But until recently, a computer wasn't much help in the design studio.

Architecture is an honored, charter member of the fine arts, while computers used for art are generally thought of as producing the cartoonlike drawings of video games or special effects for action films. Perhaps because it has been difficult to see the computer as a legitimate tool for the creation of fine art, and certainly because writing entirely new kinds of software is a slow process, good computer programs for architectural design have taken time to develop.

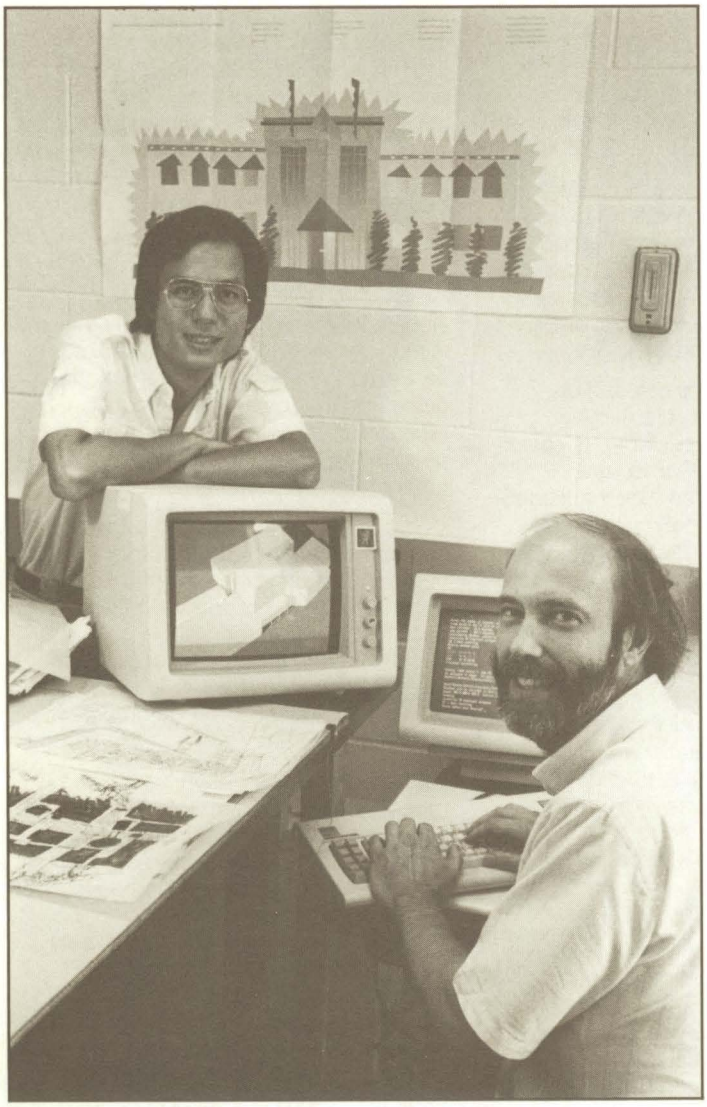

Photo by Fred Leverentz

Oliver Ng, left, assistant director in charge of software development at the new Computer-Aided Design Center, and center director Lee Anderson demonstrate a computer design workstation in the new studio.

Professor of Architecture Lee Anderson, head of the school's new Computer-Aided Architectural Design Center, says that for the past two years IT's architecture graduate students and faculty have been designing and perfecting software programs for use in architectural education. Once it was apparent that the new programs were truly useful, the question was how they should be added to the traditional curriculum. Anderson decided that he should visit several other architecture schools to find out what they were doing with computers, and possibly pick up some pointers on how to proceed with this new idea. The idea was even newer than he thought; he found that the other schools had very few computers, and those were used mostly by small groups of students regarded as 'techie' types by their peers. He returned from his travels convinced that for computers to be an effective part of the curriculum, they must be fully integrated into the design studio, with no separation of modeling from computer activities.

As a result, IT architecture students are learning to use the new programs to manage complex architectural information systems, and to envision designed structures as accurately as if they had been built. Computer-aided design is introducing exciting new ways both to do and to teach architecture.

The computer won't replace the drafting table, but is a new element in the architect's collection of modeling tools. Architects have traditionally checked the feasibility of their designs by translating them into first-stage reality through careful drawings and painstakingly constructed models. However, until the building was actually constructed, the architect couldn't really know how it would work in its intended environment. With IT's new software, a computer can vastly enhance the architect's creative envisioning process by making it possible to 'see' the building in advance with special imaging software.

With a computer, the process of designing a building becomes the creation of a large data base. A designer using the program simultaneously integrates analysis and graphics, building the data base as the graphics go in. First, a building design and details of its eventual location (neighboring buildings, landscaping, streets—even clouds in the sky, if one likes) are fed into the computer, and the monitor then shows how the proposed building will look from any angle, at any time of day, in any relationship to its surroundings. As each succeeding design component becomes visible on the monitor and begins to interact with others, a student develops a clear understanding of how the design would work, and can then manipulate any problematic aspect until everything is exactly right.

Using other new programs, students can learn to do comprehensive energy-efficiency, acoustic, and financial analyses that previously were beyond architectural expertise. More possibilities for the computer in architecture are being thought up all the time. For example, an architect could use the computer to evaluate the changes a building might undergo over its lifetime. Buildings are seldom static; people remodel or enlarge them, and frequently alter interior architectural elements. The architect could file away a completed design, retrieve it later when the owner is considering alterations, and try out the proposed changes to determine the best course of action.

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To make a house a home, make home more of a house

By Deane Morrison

If you woke up in a strange bedroom, could you tell if you were in a private home or an institution for the mentally retarded? You probably could, but what clues would tip you off?

Because institutions and private homes both are easier to recognize than to define, a group of University of Minnesota researchers has identified the architectural design elements that make for 'institutional' or 'homelike' settings. Their work will help architects and designers create more normal and healthy homes for the mentally retarded and others affected by the movement to relocate disabled people to community-based residences.

"The idea is that everybody has the right to dignified housing, and an institution isn't dignified," said Julia Robinson, the associate professor of architecture who headed the study. "We want to renovate housing for the mentally retarded to give them a homelike setting, although this is often difficult for the severely disabled. That may mean building from scratch, but building codes tend to generate a more institutional setting."

Housing designers are aware of the differences between private and institutional living spaces, but some points are subtle enough to escape notice. Designers who want to create "homey" spaces for disabled people may unconsciously include some impersonal features because they associate the disabled with institutions.

To guide designers, Robinson and her colleagues devised a checklist of 236 features that help distinguish institutions from private homes. Working with her were architecture graduate students Paul Emmons and Myles Graff and psychology Professor Travis Thompson. They based the list on observations of a hospital, a dormitory, two apartments, and two single-family homes.

An example from the checklist is living room furniture. In a private home it tends to be closely grouped to make conversation easy and reflects the owner's taste. Furniture in an institution's lounge usually is arranged around the perimeter of the room, is all the same style, and is selected for durability rather than color or pattern.

Institutional bedrooms usually contain several beds with metal headboards, metal wardrobes, no bookshelves, and no private free-standing dressers. Private home bedrooms generally have, at most, two beds—with a wooden headboard or no headboard—a closet instead of a wardrobe, a dresser for each person, and maybe a desk, table, shelves, or posters.

Building exteriors also contain many identifying cues. Institutions tend to be built as one large mass, with a flat roof, plain facade, large entrance, and rows of identical windows, continuous glass walls, or strip windows. Private houses, of course, have more varied exteriors.

Although the researchers focused on housing for the mentally retarded, Robinson said the design elements could apply to housing built for anyone previously institutionalized. She cautioned that when people genuinely need to be cared for, "institutional" features necessary for that care must not be sacrificed.

Normalizing the home environment can strongly affect the well-being of retarded people, a 1980 study by Thompson showed. He and Ann Carey, of the University's industrial relations department, found that IQs rose over two years in profoundly and severely retarded residents after they moved to a normalized group home and began normal living patterns. After the move, the residents functioned at the next lesser level of retardation.

Robinson began her work after the Minnesota Supreme Court ruled in 1981 in Noot vs. Welch that mentally retarded people in large state institutions would have to be relocated in community-based residences. Her work has stirred a response among designers and planners across the country and in Europe and South America.

The roots of problems with institutions go back centuries, she said. During the 18th and 19th centuries, the idea was that a country atmosphere was better for patients. This led to the notion of self-contained institutions, with staff playing a custodial role that often encouraged psychological dependence. Later, the economy-of-scale idea held that institutions should be large and designed for efficiency to best serve residents. That meant impersonal cafeteria-style dining, bedrooms along long corridors, and kitchens intended only for food preparation, not conversation or doing homework or playing.

Robinson doesn't think economy of scale is actually economical. It may make it easier for the staff to take care of the place and the residents, but it also reflects the attitude that institutionalized people don't need the comforts most others take for granted.

"Most people aren't housed according to economy of scale," she said. "And a number of studies indicate that it's more expensive to house people in these institutions. For example, it is both less expensive and a far richer experience to have to travel to school or to get a haircut than to have these services brought into the home."

Robinson and Thompson also have recently collected data from a project in which students examined 30 residential settings and rated their characteristics as institutional or homelike. "No one has yet come up with a way of describing a setting in the same way psychologists have for personalities with the MMPI (Minnesota Multiphasic Personality Inventory)," she said. "We're trying to develop not just theories, but also ways to test them. In the end we would like to be able to predict the effects of doing alternative designs in architecture."

Illustration by Nancy Lewis

DESIGN from page 11

Teaching future architects to make full use of the capabilities of computers is the goal of the design center. "We must prepare students to actively use computers rather than allowing them to be passive receptors of information. It's important for them to be more than merely computer literate," Anderson said.

Anderson's initial conviction of the potential importance of computers to architecture bore fruit recently: architecture's proposal for the center won a portion of the $7.5 million University-wide "Woksape" grant (described briefly in News Shorts in the last issue of *Items*), which provided 14 initial color design terminals and support for further software design.

As Anderson and his colleagues formed the new center, they also began to experiment with long-standing design studio tradition. The design studio is the heart of an architecture student's world. Each student has personal space in the traditional studio that is equipped with a drafting table, a table for models, and a motley collection of drafting and modeling tools, lamps, and shelves. Each cubicle workspace is surrounded by bulletin-board 'walls' to which designs can be pinned.

But the traditional studios weren't set up to accommodate computers, and it was difficult to decide just where to locate them. Finally, a new design center studio was prepared specifically for the 14 independent personal computers. Each workstation has two monitors (one for graphics, the other for text) and a keyboard. Although they usually are used separately, the workstations are linked to one another for additional flexibility, and to a Cray supercomputer for maximum power.

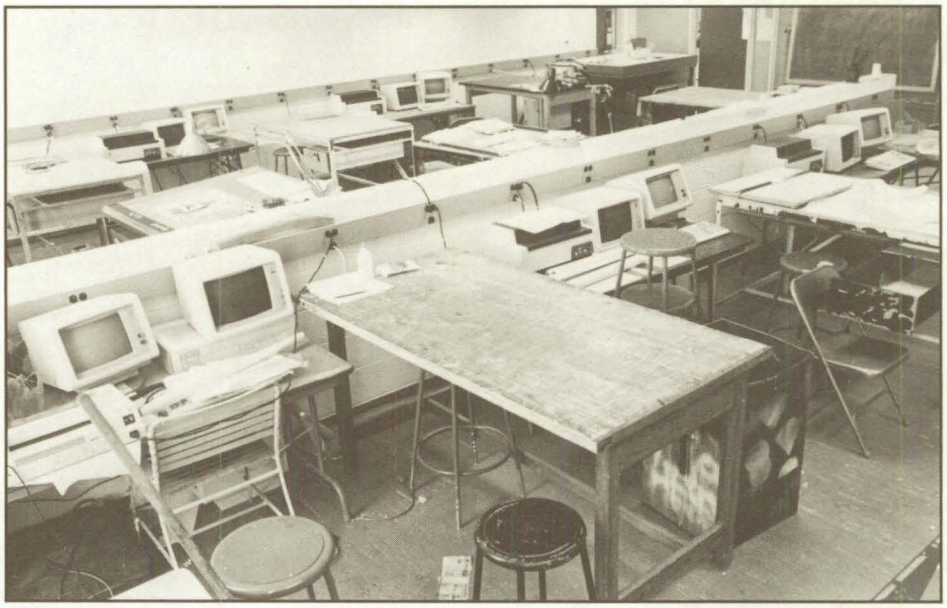


Photo by Fred Leverentz

The new computer-aided architectural design studio looks very different from a traditional studio, but has the same purposes.

The new studio looks and feels quite different from the traditional studios. It lacks the privacy that the maze of walls between the cubicles create, and is very white and pristine. When Anderson asked students to sign up for places in the new studio he didn't know how many would be interested, but as it turned out, the response was so positive that a drawing had to be held to assign places. Students who lost the draw in the first round are looking forward to winter, when the next computerized studio will be completed.

Within three to five years, if all goes according to Anderson's plan, each IT architecture student's work area will be outfitted this way. The University's architecture school is likely to be the first to be fully 'computerized', the only one providing a workstation for every design studio student.

While an important part of the design center's mission is to help students create still more new ways to do advanced experimental work with computers, "We know that only a small percentage of the students will actually become contributors, people who incorporate computing into architecture in ways that add to the field's ability to use the tool," Anderson said. But all the students will have learned to use the computer programs, and as computer-wise architects they will be able to take far more feasible and comprehensive designs to their clients.

Photo by Mary Perkins

Hewlitt Packard lunches with the Dean

The Hewlitt Packard Co. was welcomed into the University's Trustees Society at a May luncheon hosted by Dean Ettore Infante. The Society is composed of donors of $100,000 to the University in a current gift. The dean presented Hewlitt Packard's Paul Chermak with a Trustees Society plaque and described the company's many equipment donations as "extremely important to instructional and research programs within the institute." Recent Hewlitt Packard gifts include two HP9000 Series 300 computer systems worth around $200,000 each, being used for research and instruction in the computer science and electrical engineering departments. University President Ken Keller sent a message that concluded, "Your commitment to the University of Minnesota is deeply appreciated. My colleagues and I, in turn, are committed to building on your strong support and faith."

Schroepfer memorial classroom dedicated

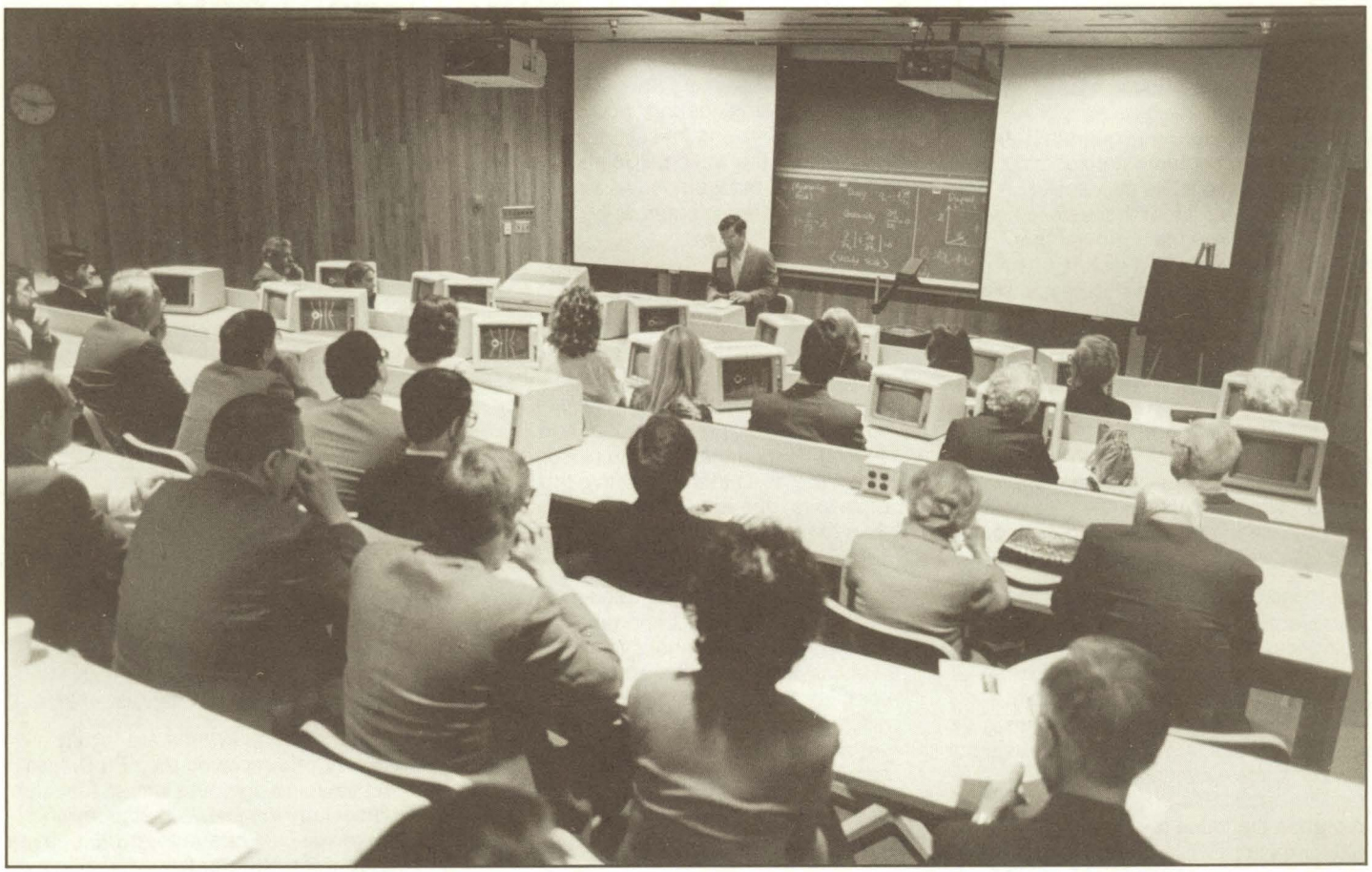
On May 3, in the Civil and Mineral Engineering building, the new George J. Schroepfer Classroom/Conference Theater room was dedicated and the first George J. Schroepfer Memorial Lecture was delivered. The classroom was the object of a fund drive begun by one of his former graduate students after Schroepfer's death in 1984, and was completed by his many former students, friends, and colleagues.

The room is equipped for state-of-the-art multimedia presentations, and hands-on interactive usage of 16 computers by students. Three screens permit simultaneous use of video, overhead, and slide projectors. Two ceiling-mounted video projectors are linked to both the instructor's and students' computers. Slides and films can be projected from a modern, well-equipped booth at the rear of the room.

Schroepfer began his engineering career after graduating from the University of Minnesota in 1928, when he joined the Metropolitan Drainage Commission in St. Paul. Five years later he became an engineer—and later chief engineer — with the Minneapolis-St. Paul Sanitary District. He was responsible for designing much of the original interceptor system and the Metropolitan Wastewater Treatment Plant.

In 1945, Schroepfer was appointed professor at the University, a position he held until 1972. His many friends in the engineering profession knew him best for his unique ability to translate water management principles into effective full-scale operation, but he is especially remembered for his teaching. His students knew him as a demanding, able, and dedicated professor whose infectious enthusiasm motivated hundreds to distinguished careers in government, industry, consulting, and education in the United States and throughout the world.

Schroepfer won numerous awards and honors, was elected to the National Academy of Engineering, was an honorary member of the American Society of Civil Engineers, and was active in many other societies. The Central States Water Pollution Control Association recognized his contributions in 1983 by establishing the George J. Schroepfer Award, to be given annually for service to the profession. The classroom and lecture series are a fitting memorial to this extraordinary man.



The Schroepfer memorial classroom/theater in action.

Photo by Mary Perkins

REVIEW from page 6

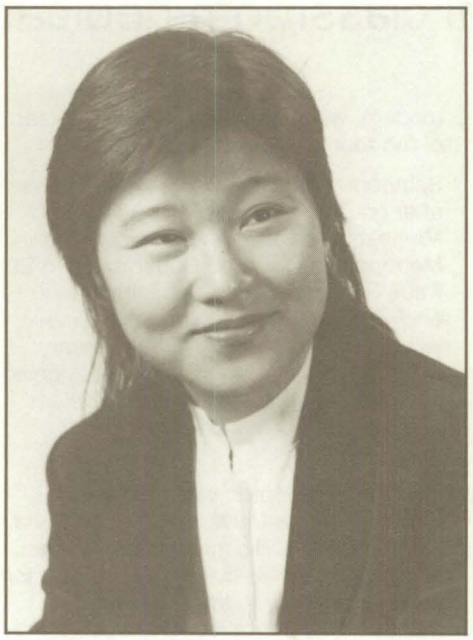
Throughout the upheavals of the 1960s and 70s, I.T.'s School of Architecture remained unilaterally modernist in philosophy and practice. Fraker observes that there is a certain irony in the fact that, while its obstinacy in the face of inevitable change made the school appear a hopeless intellectual backwater to progressive observers, this stance helped the school avoid the false starts and absurdities perpetrated in early break-away attempts elsewhere (such as designs in which decorative artifacts of other times were pasted awkwardly onto otherwise purely modernist structures). As relative latecomers to the new mainstream, some of the younger faculty have been able to rise directly past those initial hazards to make innovative, nationally significant contributions to the field.

There have been other profound changes in architecture during this period. Technological advances in computer-aided design and in construction materials and methods have made unprecedented building forms possible. The Sydney opera house was an early experiment with the new possibilities. Constructed of formed concrete from a design based on computerized stress and load computations, its successful completion was a feat that astonished the architectural world and proved that entirely new forms and techniques were not only feasible, but well within in our grasp.

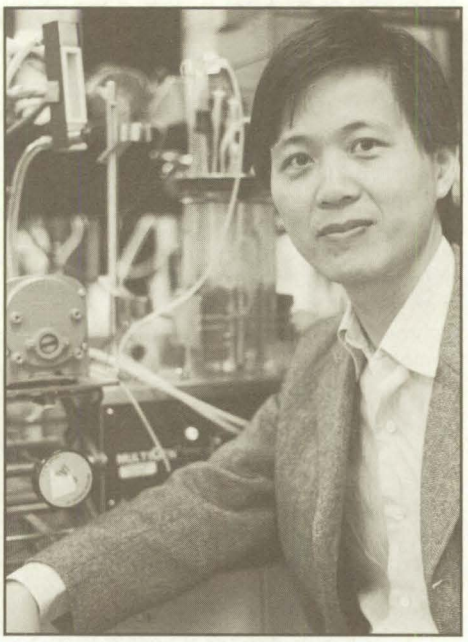
Fraker describes this as "perhaps the most exciting time in architectural teaching and practice since the turn of the century." Those who came up during the birth of modernist theory might disagree with Fraker; that was an exhilarating period, too. The new designs were so clean and direct, and symbolized inspiring visions of possible futures.

But those aspects of modernism that represented genuine progress are not being lost, since true synthesis combines the strongest elements of both extremes into a new reality. This architectural synthesis of history and modernism is gradually creating a third entity that is not yet completely defined. As the process unfolds, architects are being freed to rephrase the value and beauty of familiar, old forms in new statements of vision.

Because of all our arts, it is architecture that provides the most omnipresent reflection and interpretion of human experience—everyone interacts with and is influenced by architecture, whether consciously or unconsciously—each of us is personally involved in this process.



HaeOk Lee



Wei-Shou Hu

Presidential Young Investigators

HaeOk Lee, assistant professor of mechanical engineering, won a 1985 Presidential Young Investigator (PYI) award from the National Science Foundation, but was unavailable when last year's other winners were featured in *Items*.

Lee studied at the University of Illinois at Champaign-Urbana, and is currently working on her doctorate. Her research deals with radiation heat transfer in participating media characterized by gases and particulates, and focuses on computation, experimentation, and scaling. "Since there are no closed-form, direct solutions to the radiative transfer equations, one has no other alternative than to seek numerical solutions," Lee said.

Lee believes the scaling aspect of her research is the most important, because of its potential usefulness to industry. "Radiative transfer is mathematically complex to treat and experimentally difficult to control," she said, "so simple yet accurate ways to describe the complex phenomenon are needed. The computation and experiments will provide bases for scaling laws that industry can readily incorporate into its analyses."

This year, Wei-Shou Hu, assistant professor of chemical engineering and materials science, is one of two Presidential Young Investigators at the University (the other recipient is David Bernlohr, assistant professor of biochemistry). Hu was educated at National Taiwan University and MIT.

Hu is engaged in several biochemical engineering studies that focus on developing kinetic models of anchorage-dependent and suspension-grown mammalian cell systems and microorganism systems. The mammalian cell project examines the possibility that a multiplicity of steady states can exist in a continuous culture and the effects on cell cultivation growth rates.

Hu is also studying the kinetic relationship between growth rate and monoclonal antibody production in hybridoma cell culture. His microbial fermentation project is developing a liquid-liquid two-phase cell immobilization system to minimize mass transfer problems with cell entrapment in beads or gels. And in a joint project with biochemistry Professor J.L. Schottel, Hu is working to optimize and test the use of a recombinant microorganism for biocatalysis.

Recipients of PYI awards are faculty members who received their Ph.D. less than five years ago, and whose research is particularly innovative and promising. Each recipient is guaranteed $25,000 per year from the NSF for five years. During that period, the NSF also will match up to $37,000 per year raised from the private sector, so that a maximum of $100,000 in annual research funding is possible for each awardee.

EE's Shur helps develop new transistor

By John Cornwell

Electrical engineering Professor Michael Shur and two industry scientists have developed a high-performance transistor based on a new, fundamental transistor principle with wide applications for microelectronic devices. The new transistor controls much higher levels of electronic current and may make it possible to construct three-dimensional integrated circuits.

The DIFET, or double injection field effect transistor, was developed by Shur with Michael Hack and Wolodymyr Czubatyj of Energy Conversion Devices, Inc., Detroit. The DIFET incorporates the high-power capabilities of bipolar junction transistors and the low-heat qualities of metal oxide semiconductor field effect transistors (MOSFETs). "It combines the best features of both bipolar and field-effect transistors," says Shur.

The device is capable of handling more electric current than previous transistors, which used either holes or electrons for current flow. This is accomplished by a new configuration which allows current to pass through the device's holes and electrons simultaneously.

Many DIFETs have been fabricated by Energy Conversion Devices, Inc. using thin-film amorphous materials. Although the DIFET could also be fabricated using crystalline silicon, amorphous silicon is more abundant and less expensive. Amorphous materials were thought to be unacceptable for use in electronics applications, but DIFETs made from amorphous materials proved to be competitive in both speed and performance with devices made from crystalline materials. DIFETs made from amorphous materials are "twenty times better than conventional amorphous devices with respect to logic current for the same voltage and geometry," says Shur, adding that their research has indicated the DIFET's high performance can be even further improved.

The DIFET may also make it possible to develop highly complex three-dimensional integrated circuits. Devices made with conventional materials are presently limited to two dimensions.

Michael Shur *Photo by Mary Perkins*

Amorphous materials, which lack precise arrangements of atoms or molecules, do not pose the same restrictions and may allow for three-dimensional configurations.

Shur prefers to avoid the word "breakthrough," but he admits, "I'm very excited about it," when describing the achievement. Shur is a member of the Microelectronic and Information Sciences (MEIS) Center-sponsored III-V Compound Semiconductors and High Speed Devices research team. MEIS also sponsors a team research project investigating three-dimensional integrated circuits. Shur's work with Energy Conversion Devices is separate from his MEIS-sponsored research activities.

Minnesota Math Mobilization

Growing numbers of high school graduates with inadequate math skills pose difficulties for every school and department in IT, and the School of Mathematics is launching a comprehensive assault on the problem. The mathematics school and St. Olaf College have received a three-year National Science Foundation grant to initiate the Minnesota Mathematics Mobilization, a unique vehicle for statewide communication about precollege math education that will serve as a model for replication by other states. The University is the center for the effort.

The Mobilization is a precollege math education information liaison for state discipline specialists, research, industry, and government leaders. It will help them recognize and respond to the special needs of the mathematical sciences, and will articulate positions and solutions for areas of precollege math education that require change.

The project will also advocate support of precollege math education by stimulating ideas and promoting discussion at state and local levels, to provide avenues by which changes can be accomplished, and to disseminate the results throughout the state (and later, the nation). It will establish a statewide newsletter, hold several statewide special math meetings each year, identify and support resource individuals in math and math education who will provide help to others, and promote the growth of speaker bureaus. The project is co-directed by Professors Harvey Keynes of IT and Lynn Steen of St. Olaf.

Another mathematics school effort, the Minnesota Talented Youth Mathematics Project (see article in Fall, 1984 *Items*), has expanded its Twin Cities program this fall and established new programs at Owatanna, Rochester, St. Cloud, and, through a unique collaboration between North Dakota and Minnesota schools, Fargo-Moorhead. About 2,000 junior high and high school students tested to enter the five-year program last September and 370 have been admitted to or are continuing in the program.

Milestones

Evan Allred, Curtis Larson, and **John Strait**, all professors of agricultural engineering, celebrated retirement at a wine and cheese reception at the Earle Brown Continuing Education Center in St. Paul in May. □

Alumni **Jim Moore**, Ph.D. '75, and **Gordon Nelson**, B.S. '42, recently were elected fellows of the American Society of Agricultural Engineers. Professor **Curtis Larson** (B.Ag.E. '63), who is widely known and respected as both an educator and researcher in soil and water conservation, and as a specialist in small watersheds and infiltration theory, has also been elected a fellow of the Society. ■

Professor of landscape architecture and horticulture **Wesley Hackett** has been elected a 1986 fellow of the American Society for Horticultural Science for his research, leadership, and administrative work. □

Professors of architecture **Carl Graffunder** and **John Myers** retired at the end of May. They were thanked in the architecture school's student publication for "their many years of hard work and dedication to the students." ■

Professor of chemical engineering and materials science **William Gerberich** has been appointed by Gov. Rudy Perpich to serve on a new Pipeline Safety Commission that will assess the safety and reliability of Minnesota pipelines. The commission was created in July, after a gasoline pipeline leak caught fire in Mounds View, Minn., killing two people. Professor Gerberich has also been elected vice chairman of the Metallurgy Society's mechanical metallurgy committee and chairman of the board of publications of *Acta Metallurgica*. ■

Professor of chemistry **Robert Brasted** is one of two candidates for president of the American Chemical Society. The election will be held in October. He has been elected to the board of directors of the American Chemical Society and to the Council of the American Association for the Advancement of Science. □

Chemistry professors **Paul Gassman** and **Wayland Noland** have been reappointed, respectively, chairman of the American Chemical Society joint council/board committee, and member of the ACS standing committee on meetings and expositions. □

Professor of chemistry **Lou Pignolet** replaces Professor **Larry Miller** as department chair for three years beginning November 1, 1986. ■

Professor of civil and mineral engineering **Patrick Brezonik** has been named permanent director of the University's Water Resources Research Center in St. Paul. □

The **Underground Space Center** was recently named one of four "Best Organizations" by *Solar Age Magazine*, published by the American Solar Energy Society, in its tenth anniversary issue review of the highs and lows of the past ten years. The center houses the editorial office of the new journal of the International Tunnelling Association, *Tunnelling and Underground Space Technology*, formed by the combination of the University's *Underground Space* and the association's *Advances in Tunnelling Technology*. The new journal is published by Pergamon Press. ■

Professor of electrical engineering **Rolf Schaumann** has been elected a fellow of the Institute of Electronics and Electrical Engineers. □

Professor of electrical engineering **Allen Nussbaum** was one of only three invited U.S. speakers on the theory of heterojunctions at an international conference in Leuven, Belgium, in May. The conference was sponsored jointly by the U.S. and Belgian National Science Foundations. ■

Professor of geology **Subir Banerjee** has been elected president of the geomagnetism and paleomagnetism section of the American Geophysical Union through June, 1988. □

Matt Walton, director of the Minnesota Geological Survey and professor of geology since 1973, retired in June. Under his leadership the survey's programs greatly expanded, and cooperation among related state agencies was fostered. ■

Professors of mathematics **Robert Hardt, Dennis Hejhal**, and **Carlos Kenig** were invited to address the International Congress of Mathematicians, possibly the world's most significant gathering of mathematicians. The Congress meets every four years, and was held in Berkeley, Calif., in August, the first time in many years that it has met in the U.S. □

Mathematics professors **Dennis Hejhal, Mitchell Luskin** and **George Sell** have been appointed to the scientific advisory committee of the Minnesota Supercomputer Institute, the primary governing body of the institute in all scientific and technical matters. They are its first mathematics fellows. □

Professor of mathematics **Richard McGehee** replaced Professor **Willard Miller** as head of the school on July 1. Miller has assumed Professor George Sell's former administrative position with the Institute for Mathematics and Its Applications. □

Funding for **The Institute for Mathematics and Its Applications** (IMA) has been renewed for the next five years by the National Science Foundation. The Universities of Cincinnati and Illinois at Chicago have recently joined the IMA Participating Institutions organization. □

Former University Professor (1959-61) **Avner Friedman** will become new IMA director early next summer. Friedman is a member of the Council of the American Mathematical Society and of its editorial board of procedures, as well as numerous other editorial boards. Among his honors are Sloan and Guggenheim Fellowships, the Stampacchia Prize, and a National Science Foundation Special Creativity Grant. His research interests include PDE's, free boundary problems, stochastic control, and differential games. ■

Mechanical engineering department head **Richard Goldstein** has been elected a Fellow of the American Association for the Advancement of Science. □

Professors of mechanical engineering **Emil Pfender** and **Ephraim Sparrow**, both researchers in the field of heat transfer, have been elected to the National Academy of Engineering. ■

Physics Regents Professor Emeritus **Alfred Nier** celebrated both his 75th birthday and the 50th anniversary of his Ph.D. this year. □

Professor of physics **Marvin Marshak** is the new head of the School of Physics and Astronomy. ■

Electrical engineering Professor **K.S.P.("Pat") Kumar** will be the new director of University-Industry Television for Education (UNITE). He has served as coordinator of continuing education and extension in the electrical engineering department for several years. ■

Awards

Professor of agricultural engineering **Harold A. Cloud** (AG ENG '66) has received the George W. Kable Electrification Award from the American Society of Agricultural Engineers for his outstanding personal and professional contributions to the advancement of agriculture through agricultural engineering. ■

Rosemary McMonigal (ARCH '81) has won first prize in the 1985 St. Paul area Parade of Homes for her Custom One Reliable Homes design. The house, in the top price classification of $300,000 to $400,000, is located in the Wedgewood golf course development. McMonigal has her own architectural firm, and is an architecture school instructor in interior design. ■

Professor of chemical engineering and materials science **Chris Macosko** received the Society of Plastics Engineers International Research Award at its annual technical conference this year. □

Professor of chemical engineering and materials science **Matthew Tirrell** is one of three University recipients of a 1986 Guggenheim Fellowship for "unusually distinguished achievement in the past and exceptional promise for future accomplishment." Tirrell's research concerns polymer surfaces and thin layers. The other awards went to associate professor of humanities John Archer and theoretical statistics Professor David Lane. □

Professors of chemical engineering and materials science **Tirrell** and **John Weaver**, and associate professor **Klavs Jensen** are recipients of an IBM grant of $1 million in cash and up to $1 million in equipment for a five-year study. ■

Professor of chemistry **Robert Brasted** is the 1986 recipient of the Alpha Chi Sigma professional chemistry fraternity's John R. Kuebler award for service to chemistry students. □

Chemistry Ph.D. student **Matthew Callstrom**, studying under Professor Paul Gassman, is one of nine recipients of the Division of Organic Chemistry of the American Chemical Society's predoctoral fellowships. Funding for this $9,000 fellowship was provided by the Rohm & Haas Co. ■

The 1986 Alvin G. Anderson Award was presented to **Gerard Farrell**, a doctoral candidate in civil engineering, at a special colloquium at St. Anthony Falls Hydraulic Laboratory in April. A guest lecture was given by 1976 Anderson award-winner **Dr. S. Dhamotharan** ('79), now director of Woodward-Clyde Consultants in Baton Rouge, La. ■

Robert D. Gunn (GEO '49) received the 1986 American Association of Petroleum Geologists Public Service Award for his "unselfish and dedicated service to the cause of prison reform in Texas." As a member of the board of the Texas Department of Corrections, he played a leading role in formulating reforms in the Texas prison system. He resigned from the corrections board in 1985 to return to his first love, geology, and the generation of petroleum prospects. □

Ray E. Morgan (GEO, M.S. '41), professor at the University of Missouri at Rolla for 30 years, has been honored by the wife of a former student and colleague who endowed a Ray Morgan Award for Special Achievement in Geology for the outstanding second-semester geology junior there. The award was presented for the first time this year. □

Minnesota Geological Survey associate director **Glenn "G.B." Morey** (GEO, Ph.D. '65) was awarded the 1986 Goldich Medal by the Institute of Lake Superior Geology for his fundamental work on the geology of the Minnesota portion of the Lake Superior region. ■

Professor of mathematics **Greg W. Anderson** has been awarded an Alfred P. Sloan Research Fellowship. □

Professor of mathematics **Bert Fristedt** has received the 1986 Horace T. Morse-Amoco Foundation Award for outstanding contributions to undergraduate education. □

Professor of mathematics **Yasutaka Sibuya** has received a Senior U.S. Scientist Award from the Alexander von Humboldt Foundation of the Federal Republic of Germany. ■

Professor of mechanical engineering **Perry Blackshear** received the 1986 Clemson Award for Biomaterials. ■

Mineral Resources Research Center professor **Iwao Iwasaki** has received the American Institute of Mining, Metallurgical, and Petroleum Engineering's Robert H. Richards Award. He was cited "for his dedicated teaching, his creative research into many facets of mineral processing, and his concern for industrial problems which make him a worthy exemplar of the Richards tradition." □

K.A. Natarajan (METAL ENG, Ph.D. '71), former Mineral Resources Research Center research associate, received the 1985 National Metallurgist Award of India for his innovations in hydrometallurgical processes, industrial collaboration in research, excellence in teaching and research, involvement in continuing education of metallurgists, and concern and involvement with environmental protection. He is currently a professor of metallurgy at the Indian Institute of Science in Bangalore. ■

In a first for the University, brothers **Homer D. Hagstrum** (B.E.E. '35, B.A. '36, M.S. '39, Ph.D. Physics/Math '40) and CLA alumnus Jean Howard Hagstrum received simultaneous honorary degrees during IT's spring commencement ceremonies. Homer specialized in microwave magnetrons, a phase of radar development carried out during World War II. He has been chair of the division of electron and atomic physics of the American Physical Society, and holds numerous other awards. He lives in Summit, N.J., where he was a member of AT&T's Bell Laboratories technical staff for nearly 45 years. Jean, a senior research fellow at the National Humanities Center in North Carolina, is an influential scholar and professor of 18th century literature and art. □

Frank McDonald (PHY, Ph.D. '55), chief scientist for NASA, received the Outstanding Achievement Award from the University's Board of Regents at IT's spring commencement ceremonies. Among his many honors is the 1964 NASA Award for Exceptional Scientific Achievement. □

Judith Young (PHY, Ph.D.'79) has received the first Maria Goeppert-Mayer Award of the American Physical Society for outstanding achievement by a woman physicist in the early years of her career. Named for the Nobel Prize-winning nuclear physicist, the award is designed to encourage young women in physics. While at the University, Young worked under professor Phyllis Freier in cosmic rays and astrophysics; she is now a faculty member at the University of Massachusetts. ■

News Shorts

...Engineer donates reference collection to IT

Kenneth Lane, a noted soil mechanics engineer and adjunct professor of civil engineering at Colorado State University and Arizona State University, has donated his personal geotechnical engineering reference files and library to IT's civil and mineral engineering department. The collection, valued at $60,000, primarily deals with the study and documentation of case histories of dams, tunnels, and underground chambers, their successes and failures, and the development of innovative engineering treatments. It will be incorporated into the Science and Technology Library collections in Walter Library.

...New Babbage Institute oral histories guide

The Charles Babbage Institute, which records and studies the history of information processing, has completed a guide to its collection of more than 140 oral history interviews relating the development of computer and communications technologies in business and institutional contexts since 1935. The interviews range over five general areas: technical development and management within the U.S. computer industry; computing in academic institutions; the role of the U.S. government in computer development; the international computing field; and the relations between mathematics and computing. The introduction to the guide describes the general content of the collection, procedures followed in preparing the oral histories, and regulations and procedures for use of the collection. Each interview is abstracted, and an index is provided as well as information about the availability of tapes and transcripts, copyright, and conditions of use. Copies of the guide are available for $5 from the Babbage Institute, 103 Walter Library, 117 Pleasant Street S.E., Minneapolis, MN 55455.

...Summer minority programs

A summer computer camp and a college preparatory skills program for minority high school students organized by Project Technology Power, part of IT's Minority Affairs Program, were held in June at the University. Approximately 70 black, Hispanic, and Native American tenth-grade students attended the free computer camp, which offered both introductory and advanced computing courses, and overviews of the uses of computers in schools and businesses. The Summer Enrichment Program provided reading and mathematics reviews for 50 minority eleventh-grade students to help prepare them for the Preliminary Scholastic Aptitude Test (PSAT) and introduce them to engineering and management careers. Summer Enrichment was supported by the University and local industries; the computer camp was sponsored by IBM.

New, improved numbers

Over the past several months, amid heartrending wails of despair and shrieks of frustration from every office, the University's telephone system has been completely renovated. One result is that all our telephone numbers have been changed. Another result is improved service, including such new capabilities as call transferring, three-way telephone conferences, and call forwarding. It's a good system and probably worth the pain. Because we like to hear from you, here is a list of new telephone numbers. Give us a ring!

625-8000 Aerospace Engineering
625-7733 Agricultural Engineering
624-7866 Architecture
624-0211 Astronomy
625-1313 Chemical Engineering and Materials Science
624-6000 Chemistry
625-5522 Civil and Mineral Engineering
625-4002 Computer Science
625-3300 Electrical Engineering
624-1333 Geology and Geophysics
625-8285 Landscape Architecture
625-7575 Mathematics
625-0705 Mechanical Engineering
624-7375 Physics
625-8046 Statistics
624-1030 IT Development Office
624-1030 IT Alumni Relations Office
624-3333 University Foundation
624-2323 University Alumni Relations

...*Minnesota Technolog* takes honors

The *Minnesota Technolog* took twelve of the fourteen top honors at the annual Engineering College Magazines Associated convention in April. The student publication won four first place awards (for best art/photography, best all-round magazine, and best purely technical article), five second place awards, one third place award, and two honorable mentions. *Technolog* staff attended seminars, met staff from other magazines across the country, and invited the assembly to hold its 1987 convention in Minnesota, an offer which was accepted by vote.

Events & Visits

The **Charles Babbage Institute** organized "Computing in the 21st Century: A Symposium on Computing and Society, Past and Present," sponsored by Sperry Corporation in celebration of the 40th anniversary of the founding of Engineering Research Associates, Inc., the first digital computer company. The event was held in September, and focused on both past events and expected future changes ■.

Civil and mineral engineering's **Underground Space Center** was host to "Advances in Geotectural Design," the second international earth-sheltered buildings conference in June. The event was cosponsored by five universities and seven associations in the United States. Seventy papers from 20 countries were presented and about 200 people attended, including a delegation from the Architectural Society of China and groups from Japan and Germany. The conference included workshops and tours of Western and Midwestern underground structures. □

Professor Roger Arndt and administrator Sandra Peterson from **St. Anthony Falls Hydraulic Laboratory** worked with **civil and mineral engineering** professors Cesar Farell and Heinz Stefan to organize "Advancements in Aerodynamics, Fluid Mechanics, and Hydraulics," a specialty conference held in early June in Minneapolis. The conference provided state-of-the-art information on civil engineering research and practice and discussions of interaction among researchers, and honored individuals who have made outstanding contributions to the field. ■

The **geology and geophysics** department honored Francis J. Pettijohn (B.S. '24, M.S. '25, Ph.D. '30) in May with a two-day international symposium, "New Perspectives in Basin Analysis." Pettijohn, a Johns Hopkins University professor emeritus and a founder of basin analysis, received an honorary doctorate from the University on May 8. Since basins are a major source of information on the history of the earth's life and surface conditions and hold nearly all the world's hydrocarbons and a variety of ore deposits, the symposium attracted participants from a wide range of academic disciplines and from government and industrial resource exploration groups. ■

Professor **Luis Caffarelli**, former School of Mathematics faculty member from 1973 to 1984 and now at the University of Chicago, returned during the month of August as a visiting professor under the school's Ordway Chair endowment. He is one of the strongest people active today in harmonic analysis and in partial differential equations; his revolutionary insights into some rather old problems is widely appreciated. ■

The Institute for Mathematics and its Applications is devoting the year to investigations of various kinds of scientific computation. The opening workshop was held in August, and was entitled "Basic Methods of Numerical Analysis: An Introduction to State-of-the-Art Research." A workshop on "Computational Fluid Dynamics and Reacting Gas Flows" followed in September. ■

The University of Minnesota **Student Alumni Association** sponsored **Parents' Day** on the Twin Cities campus on May 3. In order to give parents a student's view of the University, the event included campus tours, audio-visual programs, a luncheon, and the Gophers spring intersquad football game at the Metrodome. Invitations were sent to 16,000 parents of first- and second-year students. One of the biggest events of its kind ever planned for the University, the day was designed to project "a positive image of the University" to offset "recent incidents that have hurt its reputation," said student Jim Newton, chair of the Parents' Day committee. ■

Deaths

Architecture alumnus **Reginald R. Isaacs** (B.Arch. '35), an architect and regional planner of international reputation and author of a definitive biography of Walter Gropius, died on June 22 at his home in Cambridge, Mass., at the age of 74. Isaacs earned his master's degree in architecture under Gropius at Harvard University in 1939, and joined Harvard's Graduate School of Design faculty in 1953. A memorial service is planned at Harvard this fall.

Chemistry Professor Emeritus **G.B. Heisig** died at age 93 on January 17. He was an imaginative teacher and fine researcher, and was particularly well known for his texts and manuals, which set a standard for analysis and separation procedures in his time, and for his special skills in laboratory development. After his retirement in 1959, Heisig and his wife, Mary, shared their home with numerous chemistry graduate students and staff. He is remembered with great affection and respect by his students and colleagues. His family has provided a generous memorial fund for undergraduate instruction.

Chemistry librarian **Beverly Lee** died on June 7. She was a staunch and effective advocate of the library, whose stewardship encompassed major expansion of the department's collections, especially in the area of biochemistry. Memorials may be made to the American Cancer Society.

Geophysics Professor **Harold M. Mooney**, 63, an extremely popular lecturer who was held in great regard by his colleagues, died in August after 36 years of teaching at the University. Born and raised in New England, Mooney graduated from Harvard and received his doctorate from Cal Tech in 1949 before joining the mines and metallurgy faculty in 1950. He was associate head of the geology department for ten years, directed graduate studies for nine years, and served on several collegiate committees and the University Senate. He pioneered a 'self-potential method' that used the flow of electrical currents to detect underground water and ore deposits, was an originator of the Minnesota network of earthquake detection stations, and established one of the first standardized seismic stations along the Mississippi River. Memorials may be made to the American Friends Service Committee, 1501 Cherry St., Philadelphia, PA 19102, or to the American Cancer Society.

Hydrogeologist **Rita Paquette** (GEO '83) died May 22 from injuries received in an automobile accident while traveling to inspect a proposed landfill site for her employer, the Minnesota Pollution Control Agency's Solid and Hazardous Waste Division. As a memorial to Paquette's deep commitment to helping preserve our environment and righting injustice, and to assist others in studying the earth, her friends and co-workers have begun a scholarship drive in her name. The scholarship would be awarded annually to a woman interested in pursuing a career in environmental geology or hydrology at the University. Contributions may be sent to the Rita Paquette Scholarship Fund, University of Minnesota Foundation, P.O. Box 70870, St. Paul, MN 55170-0034.

Grad Notes

22 G.L. Oscarson (EE) retired in 1965, moved to Sun City, Ariz., in 1984, and to the Prescott area in 1985 where he says he is enjoying his retirement.

37 John Boehlke (CME) retired from Monsanto Co. in December, 1982, and spends his summers on a sailboat on Lake Pepin at Lake City, Minn.

39 Vernon Watkins (GEO) retired from the U.S. Army Corps of Engineers in 1959, then from a position as sanitary engineer for Washington, D.C., in 1965. In 1981 he was voted senior member of the Society of Mining Engineers of the American Institute of Mining, Metallurgical, and Petroleum Engineering, and was recently voted a life member of the Washington Society of Engineers.

42 Alois Sutor (CHEM E) worked as a rocket aerothermodynamics engineer for Rocketdyne in California from 1951 until his retirement. He contributed to rocket engines ranging from the Atlas to the space shuttle, and still consults on advanced rocket designs.

43 Robert V. Rosenwald (ME) of Danbury, Wis., has retired from Honeywell after "very interesting work on guidance systems for commercial and military aircraft, space programs, and submarines," says he is "presently completely involved in hunting, fishing, swimming, vacationing, and building radio-controlled model airplanes."

44 Donald Smith (EE) has a new assignment as head of AT&T's military power electronics department in New Jersey. He made recruiting visits to IT in October and February, but spends most of his time developing dc/dc converters, off-line switchers, and thick-film hybrid integrated circuit power supply modules for military and government customers.

49 Everett 'Ev' Dale (EE) is manager of quality improvement for Northern Telecom in Minnetonka, Minn. Last Fall one of his office services teams presented a paper on quality improvement at the IMPRO 85 conference in Chicago, sponsored by the Juran Institute, which is also publishing the paper. Dale's team is among the first to apply the Juran quality/cost improvement process to administrative rather than manufacturing problems.

59 James Dougall (ME) is vice president and general manager of Modine Manufacturing Co.'s heating division, and lives in Racine, Wis.

63 Lee R. Raymond (Ph.D., CHEM E) has been appointed president of Exxon Corp., the world's largest oil company.

66 John Burt (CHEM E) is technical director for Marcal Paper Mills, Inc., in New York state. He lives at 12 Overton Road, Ossining, NY 10562, and would like to hear from his 1965 and 66 chemical engineering classmates.

70 Jerome K. Grudem (ME) is vice president for Yale, Inc., and lives in Burnsville, Minn.

77 Martin Brandt (Geophys) is division geophysicist for Chevron USA in New Orleans, La.

78 Ronald Zygmunt (CHEM, Ph.D.) was recently named quality control manager at Sigma Diagnostics in St. Louis, Mo.

80 David Merr (CME) works in structural engineering with Parsons Brinckerhoff in Boston, Mass. He is involved in inspection and structural rehabilitation of subway tunnels in Boston, and in the design of subway, industrial, and marine structures.

81 P. Elaine Duncan (ME, M.S.) has been named vice president of research and development at Possis Medical, Inc., which manufactures a unique vascular prosthesis for augmentation of obstructed blood flow in arteries. Duncan came to Possis from Symbion, Inc., where she was director of regulatory and clinical affairs and responsible for investigational device exemptions on the Jarvik artificial heart and electronic ear. She had previously been a biomedical research and new product assessment engineer at 3M Co. for nine years and completed her M.S. at the University as a part-time student during four of those years. She lives in the solar home which was a part of her master's degree project work.

Brad Sauer (ME) has been promoted to manager for CAD/CAE applications at 3M Co.'s software and electronics resource center in the Twin Cities.

Dan Schroepfer (EE) of New Hope, Minn., is senior development engineer with Honeywell's avionics division, flight systems operations.

David Machacek (EE; M.S. '83) is an engineer with Siemens AG in West Germany. He initially worked with fuel cells in the company's research and development center in Erlangen, and now develops power electronic systems at its Karlsruhe plant.

83 Joseph Ramirez (AERO-ME) is employed by Lockheed to provide ground service for space shuttles in California.

Rick Sheldon (C SCI), a software design engineer at Texas Instruments, is pursuing a master's degree in computer science at the University of Texas at Arlington.

84 Michael Cepek (C SCI), a software engineer for Management Graphics in Bloomington, Minn., represented the company at the recent National Computer Graphics Association conference in Anaheim, Calif. He married Kim Cashman in 1984, and their son, Joshua, was born last October.

Jonathon P. Giorgi (ME) is employed in the computer-aided test division of Control Data Corp.'s government systems manufacturing division, designing test equipment for Control Data products. He lives in Eagan, Minn.

Mike Makowski (ME) has been appointed CAD/CAM/CAE supervisor for 3M Co. in Austin, Texas.

Christopher Park (CME) works in demonstration for Intergraph and lives in Rochester, Mich. He married Susan Renfro in February, 1985.

Ted Rydell (AERO) is in the weights division of Boeing's new development team for commercial aircraft at Renton, Wash.

Kenton Spading (CME) joined the U.S. Army Corps of Engineers in December, 1984.

Bruce Yeomans (GEO, UM Duluth) is a geologist with Gold Fields Mining Corp. in Utah.

85 Doreen A. Lucht (ME) is a test engineer at Snap-On Tools, and lives in Kenosha, Wis.

Luc Tran (EE) is a design engineer in Hazelwood, Mo.

Alumni Affairs

■ The old Munsingwear complex probably reminds many of our alumni of a time when Minnesota was known more for mining and manufacturing than microelectronics. Just as Minnesota's technology has had to adapt to a changing world, so the Munsingwear building has been dramatically renovated to become International Market Square—a fitting place, we thought, to hold this year's Institute of Technology Reunion Dinner and Dance on Friday, October 10th, to welcome the classes of '76, '61, '46, and '36, and our emeriti alumni (1935 and earlier).

The festivities included a tour of the campus, a joint luncheon with the School of Management on Friday the 10th, and, of course, the Homecoming football game against Northwestern on Saturday, October 11th, at the Hubert H. Humphrey Metrodome. Several groups also planned reunion activities in addition to the IT events: '46 Navy V-12, '36 Electrical Engineering, '36 Architecture, '36 Chemical Engineering, '36 Mechanical Engineering, and the class of '26. Volunteers helped to locate classmates and plan activities for their groups. The events will be covered in detail in the next issue of *Items*.

■ The **civil engineering class of 1937** is planning its 50th reunion for June of next year. Paul L. Thomas, John P. Swenson, Woody (Fredrick W.) Thorstenson, Richard W. Leonard, Robert W. Carlson, and Robert B. Rhode make up the informal organizing committee. The IT Alumni Relations office can put alumni who would like to lend a hand in touch with the appropriate committee .

■ For the past two years **William J. Caddy** (ME '40) has been working to track down his old classmates and their "career stories" for a booklet he is compiling. He has determined that, of the original 106 graduates, 93 are still living, and he has obtained 57 of their stories. He is still searching for 22 people he has not been able to locate, as well as the spouses of five who are deceased. Those remaining (he calls them "reluctants") are people who, so far, have lacked the time or motivation to write him a letter outlining their careers. He's working on them, but in the meantime he would like help locating the following missing persons.

Photo by Mary Perkins

The civil engineering class of 1931 at the site in the civil and mineral engineering building courtyard for the beautiful sundial they commissioned. From left to right, Paul R. Staffeld, W. Stanley Ekern, Godfrey H. McMillan, Willard W. Fryhofer, Gordon S. Anderson, Seth F. Shepard, Harvey S. Dartt, Udert W. Heila, W. McGregor Beadie, and Leonard J. Snell show their class's winning style. The sundial was installed in September.

Class of '39: Anderson, Carl Henry. **Class of '40**: Campbell, Howard Eslie; Franzen, Erwin Ferdinand; Fraser, Robert Heldane; Gerber, Francis George; Hall, Fannie Marie; Hulsing, Russell Donald; Johnson, George Leslie; Lundblad, Curtis Eugene; Miller, John Calvin; Nelson, Howard Gustav; Perry, William Lawrence; Sylvester, Verne Elroy; Winberg, Douglas F. **Class of '41**: Blackmun, Wayne Elton; Harden, Carl Morse; Haugen, H. Paul, Loftis, Leon J. **Class of '42**: Coombs, Joseph W.; Downton, Franklyn N.; Peterson, Robert Nord; Swenson, Maurice Eric. If you have information that would help, please contact the Alumni Relations office and we'll forward it to Caddy.

WHAT'S NEW WITH YOU?

Let us know. Just clip this form and send it to *Items,* 107 Walter Library, University of Minnesota, 117 Pleasant St. S.E., Minneapolis, MN 55455.

Name_____

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City, State_____

Grad. Year/Dept._____

Job_____

Other News_____

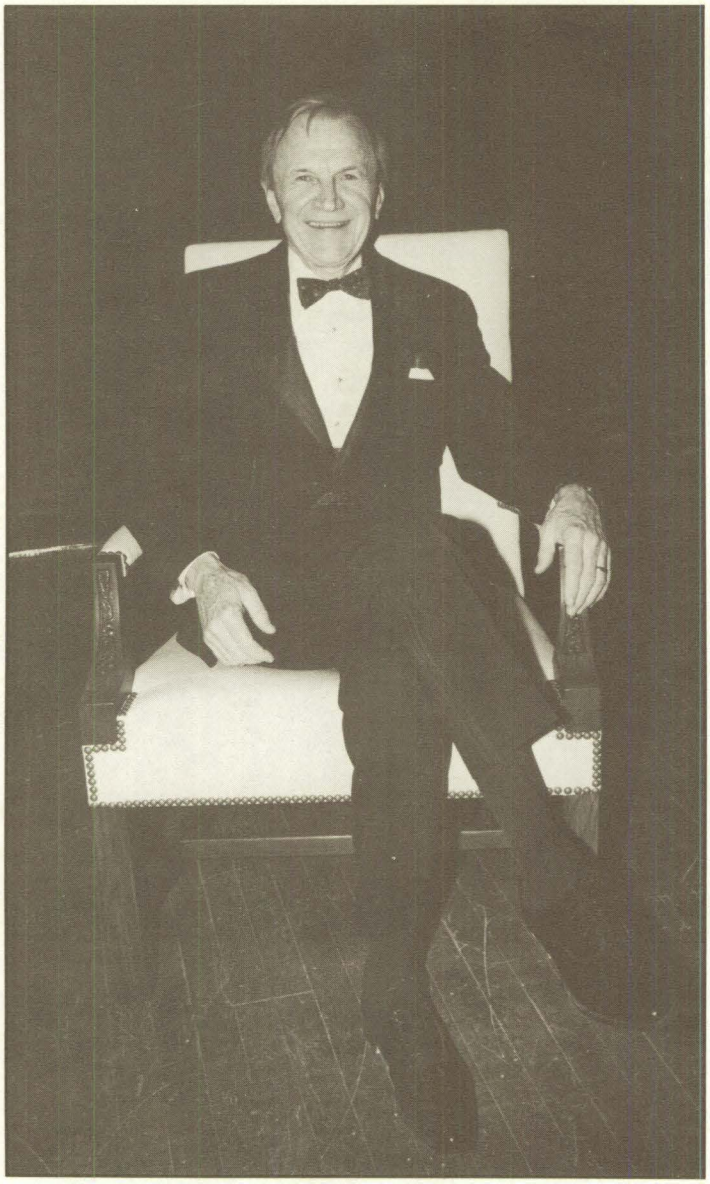

Photo by Jeffrey Grosscup

At Ease!

George Piercy, former senior vice president of Exxon, tried out his beautiful Minnesota chair and found it was a perfect fit. The chair, one of a numbered, limited edition crafted just for the Minnesota Campaign and signed by University President Ken Keller, symbolizes the University's gratitude to Piercy for his $250,000 gift endowing a visiting professorship in the chemical engineering department. He was presented with his chair on the evening of April 3, the day the Minnesota Campaign was announced, at an elegant black-tie dinner in Northrop Auditorium.

CHAIR from page 1

That the Nelsons are willing to provide such significant support to local higher education is evidence of its value in their own lives. Barbara has a combined B.A. from Augsburg College in Minneapolis in music, physical education, and recreational leadership, and a B.S. in elementary education from Macalester College in St. Paul, and Richard's degrees are from the University. By founding this chair, they have reinvested some of the benefits they derived from their educational experience in the most dynamic way.

The vital effect of such a chair is of tremendous value to the University, as well as to its larger community. The distinguished and innovative faculty who occupy the chair will extend both the scope and the quality of the mechanical engineering department's teaching and research programs. But an even broader effect will be felt as, with this secure basis for virtually unlimited research, they break important new ground in their field.

ITEMS

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