

update

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the case of the incredible shrinking students

by Maureen Smith

Wendell Glick was distressed to discover the other day that half of the students in his American literature class couldn't read the Declaration of Independence.

Carla Phillips has had junior honor students in history who couldn't write a coherent paper. George Shapiro has encountered juniors and seniors who couldn't even write a complete sentence.

Norman Dahl thinks that spoken English has deteriorated more perceptibly than written English. Julie Carson listens to inarticulate student leaders and concludes that "we have developed a nonverbal culture."

Reading, writing, speaking. Are students and other Americans losing these basic language skills? Some University of Minnesota faculty members think so, and there is evidence in state and national test scores to suggest that they're right.

Back in 1963 the average score of high school seniors on the verbal section of the Scholastic Aptitude Test (SAT) was 478. By 1975 that average had dropped to 434. The average score on the mathematical section fell from 502 to 472 over the same 12-year period.

Although scores have been dropping for a dozen years, the decline from 1974 to 1975 was the largest ever recorded by the College Entrance Examination Board—10 points on the verbal section and 8 points on the mathematical section.

A similar pattern of decline has been reported by the American College Testing Program (ACT). About 996,000 high school seniors took the SAT and 850,000 took the ACT tests in 1974-75.

Dallis Perry, assistant director of the University's Student Counseling Bureau, said data for Minnesota "show the same sort of decline and just about to the same extent."

One intriguing fact, Perry said, is that "the scores started going down in Minnesota two years after they started going down nationally. Our experience has paralleled the national experience, but for some reason it came a little later." Perry has worked with the Minnesota Scholastic Aptitude Test (MSAT), which

Are students and other Americans losing their basic language skills? Some faculty members think so, and there is evidence that they are right.

was given to almost all high school juniors in the state from 1959 to 1973.

The most striking pattern in the national SAT results is the decline in the number of students scoring in the upper ranges of the 200-to-800 scale.

At a time when the total number of students taking the tests increased from about 985,000 in 1974 to about 996,000 in 1975, the number of students scoring above 450 on the verbal test dropped by about 30,000. From 1972 to 1975, the number of students scoring above 450 fell by almost 75,000.

The number of students scoring above 600 on the verbal test fell from 98,766 in 1974 to 79,133 in 1975—a drop of almost 20 percent.

What this apparently means is that brilliant students are getting rarer and rarer.

Carol Pazandak, assistant dean of the College of Liberal Arts (CLA), said faculty members shouldn't be encountering worse students than they have ever seen before. As long as tests are comparable from year to year and admissions requirements remain the same, she said, the range of abilities shouldn't change.

What faculty members may find, Pazandak said, is that more of their students are clustered near the bottom of the range. "A sociology professor might say that three out of 20 papers are unacceptable

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"Maybe the test isn't valid, maybe it's out of date. I don't think we can cover it up that way. I think we're looking at a real decline."



now, compared to one out of 20 a few years ago," she said. "But he shouldn't be saying that his worst papers are worse than any he's ever seen."

(Some of this year's CLA freshmen may be students who wouldn't have been admitted last year, Pazandak said, but that is because of a quirk in admissions requirements that came with the change from MSAT to the Preliminary Scholastic Aptitude Test [PSAT]. CLA's goal for years has been to admit students in the top half of their high school classes. As it turned out, PSAT made 52 percent eligible. It was then discovered that MSAT, which had originally qualified 48 or 49 percent of the high school students, was qualifying only 42 percent by 1974. "We're still in the process of reviewing," Pazandak said.)

It is tempting to look at the falling test scores and try to find excuses, Pazandak

said. "Maybe the test isn't valid, maybe it's out of date. I don't think we can cover it up that way. I think we're looking at a real decline."

Not all faculty members agree that the verbal skills of students have fallen off in recent years. Richard Horberg, who teaches rhetoric on the St. Paul campus, said that, if anything, his students are better than they were 10 years ago.

Philosophy professor Burnham Terrell said he has had "more smashingly good undergraduate philosophy students" in the last two or three years than in any other three-year period. He attributes this clustering of quality to chance:

"Sometimes you have a good vintage, sometimes a bad. That depends on how much sun there's been and when the rain falls."

Some of the faculty members who expressed the deepest concern about the verbal skills of their students weren't so sure that students a few years ago were any better. "Whether we are really speaking of a decline here is something I'm not sure of," said Gerhard Weiss, professor of German. Carla Phillips of

history and Norman Dahl of philosophy made similar disclaimers.

Other faculty members did speak of a decline. Julie Carson, director of freshman English, said composition courses are now built on the assumption that students are coming in with weaker writing skills than in the past. Wendell Glick, professor of English on the Duluth campus, said it is his perception that fewer and fewer students are able to read and understand such writers of good prose as John Stuart Mill and Henry Thoreau.

Journalism professor George Hage said his experience has been that journalism students are better writers than most, but even among his students he has observed a decline in proficiency. Speech professor George Shapiro said students are becoming less able as speakers.

Shapiro's concern about the spoken language was echoed by Carson and Dahl. Even the brightest students often speak poorly and don't seem troubled about it, Carson said. Dahl said student speech is characterized by incomplete sentences, ideas that are hinted at and not spelled out, and the phrase "you know" sprinkled through every utterance. In all of this, he suggested, students are influenced by "the things one picks up from the community of speakers."

Roberta Armstrong, coordinator of research for Admissions and Records, cautioned that faculty observations might be skewed toward the pessimistic. When teachers are relying on their memories and perceptions, she said, they may tend to romanticize "the good old days when knighthood was in flower and students were brighter and salaries, relatively speaking, were higher."

All of the faculty members who were interviewed were careful not to generalize beyond their own experience. They knew that their own students might not be a representative group and that their impressions were only impressions. But most of them expressed concern about students' verbal skills.

Nobody pretended to have the explanation for the apparent decline in skills, but a lot of people had ideas. Television and the public schools were frequently cited as contributors to the problem.

Dallis Perry said he divides the possible explanations into two categories. One is that "students are indeed less well prepared." Under this category, he said, it is appropriate to talk about changes in school curricula and the pervasiveness of television, both of which may have brought a decreased emphasis on reading.

Another possibility, Perry said, is that it is the students' attitudes that have changed. The drop in test scores "coincides with the change from a seller's

market to a buyer's market in education," he pointed out. "When test scores were at their peak, competition for getting into college was at its peak. Maybe that's why we're losing the very high scores. The test isn't so important."

Roberta Armstrong made a similar point. "In the early 60s when I was in high school," she said, "everybody was gung-ho on college. I think that's changed somewhat. There maybe is something a little different in the climate. College is no longer considered to be the goal for all students."

An important distinction to consider, Armstrong said, is "whether students are coming in with lower aptitude or lower skills. If it's skills, we're talking about what happens in our high schools. If it's aptitude, I don't know what we're talking about. Our gene pool? Strontium 90 in the atmosphere?" The decline is much more likely to be in skills, she said.

Carol Pazandak agreed. "I just can't believe we're not as competent a population as we used to be," she said.

George Shapiro tied the decline in skills to a movement away from rationality in the 1960s. "For many years everything was the mind, the cognitive." Students today "touch a lot more," he said, and express their feelings more freely, but "the cognitive skills have to some degree suffered."

"I think that the high schools have let us down," Carla Phillips said. "They're teaching students how to feel, I suppose, but not how to think and learn and write."

Russ Meyer, assistant director of freshman English, said high school teachers are overburdened and can't do the job they need to do as long as classes are so large. It is ironic, he said, that teachers are a glut on the market at the same time that they are desperately needed. "The blame lies with the educational economic system. If we had the funds to take advantage of the teacher glut, we could do a tremendous job."

In any case, Meyer suggested, University people should not be too quick to point accusing fingers at the high schools. For one thing, he said, some of the college students of the 1960s became the high school teachers of the 1970s. Colleges may be paying the price for their own laxness in the 1960s, he said.

One reason for falling test scores might be that high school students can fill their English requirement in a variety of ways, several faculty members suggested. Students might take a class in science fiction or interpersonal communication

instead of a more traditional English course.

"I'm on the school board out in Robbinsdale," said Gary Joselyn of the Student Counseling Bureau. "We have fewer kids enrolled in what you would call straight, tough academic courses. Those tests tend to get at the more traditionally academic kind of stuff."

Whether the variety of offerings is a strength or a weakness is a subject of debate. Gerald Brunetti, associate professor of secondary education, would oppose any move to return to more traditional offerings.

"Many, many of the schools have gone to elective programs without becoming less academic or less intense," Brunetti said. "The tests tend to be conservative. If we are saying our schools ought to do a better job of preparing students for the tests, we are saying that the test-makers should determine the curriculum. The schools would be tied to narrow, prescriptive ideas of what they should be teaching."

Brunetti voiced another frequent criticism of the tests—that they are culturally biased in favor of upper-middle-class white language and experience.

Pazandak said she has wondered if the tests now are failing even to measure the culture of the white middle-class majority. If the audio-visual mode of learning has become the common mode for a lot of people, she said, "maybe we're not testing for the skills we teach."

Curricular diversity may mean that students no longer have common experiences that can be assumed by test-makers, Pazandak said. If students are not tested on "a domain of knowledge that they have," she said, "we're not talking about loss of ability but about loss of opportunity to be tested on something one is familiar with."

Perry said the tests are still valid as predictors of success in college. "We don't have any evidence that the tests are less related to the demands of college work," he said.



"If we had the funds to take advantage of the teacher glut, we could do a tremendous job."

Another kind of explanation for the falling test scores, along with the prediction of an upturn, was offered by Robert Zajonc of the University of Michigan at the annual meeting of the Midwestern Psychological Association last May.

Zajonc offered evidence that intellectual achievement is tied to birth order: first-born children tend to be more intelligent than second-borns, second-borns are smarter than third-borns, and on down the line.

The proportion of first-born children in college populations is lower than it was a few years ago, Zajonc said, and in a few years it will be higher again. If SAT scores have not risen by 1981, he said, he will withdraw his claim.

Edward Swanson of the Student Counseling Bureau said in a paper in 1973 that "test scores do appear to go in cycles." Whether because of demographic patterns, a movement "back to the basics" in the schools, or other reasons, a number of people are predicting that the test scores will rise again. "I would be willing to bet that in another six or seven years the scores will be going up again," Russ Meyer said.

And what about the students who are on campus now? Nobody who was interviewed said the remedy would be easy for the students who are lacking basic skills. But nobody was ready to write off those students as lost causes, either.

Wendell Glick didn't just grumble when he discovered how unequipped his students were as readers. He sat down to write a proposal for a course on the reading of prose.

Julie Carson isn't wringing her hands about the problems that students have with writing. She is working to find ways to teach them the skills they need. Four staff members in a writing laboratory offer tutorial services to students who want help. "It's not necessarily remedial at all," Carson said. "It's for people who want help with their writing." Next year, she said, the staff of the writing lab may be doubled.

The composition classes themselves are directed more toward the development of basic skills than they were a few years ago. "We no longer teach literature in our composition classes," Carson said. "We all love literature, and you can learn a lot from it," she said, but the need to teach basic writing skills was judged to be greater.

"Freshman English has a bad reputation," Carson said, but "students learn that it's not that bad." Some of them even discover that they like it.

"They're bright people. They have good minds, and a lot of them catch on very quickly," Carson said.

"They're educable," she said, smiling. "They can learn it."

there are worse writers than college students

Richard Horberg doesn't think students are the worst writers on campus. He thinks some of their professors are.

"The worst writing you find today in the real world is in the formal reports that professionals write," said Horberg, associate professor of rhetoric.

Pompous, wordy prose is "turned out by department heads and deans, and certainly you find it in the professional journals," he said.

"Our freshmen don't write like that. If their writing is bad, it's because it's sloppy, not because it's pretentious and swollen."

Not only is scholarly writing often pretentious, Horberg said, but "often it's ungrammatical, too, and incomprehensible."

"Our freshmen haven't learned that kind of writing. I hope they never do, but some of them will."

update

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the volcano versus the V8 engine

by Mike Finley

In 1883, the worst single instance of air pollution on record occurred, when 11 square miles of the earth's surface—an area roughly equivalent to downtown St. Paul—tore free from gravity and went sailing into the air. Noxious fumes and millions and millions of tons of dust, ash, and white-hot lava entered the atmosphere above the island of Krakatoa in the East Indies.

The air was ruined for a while, as the pollutants lingered. And an interesting phenomenon was noticed by scientists: for several years after the volcano's eruption, the average temperature of the air around the island was several degrees lower than usual. When the air got dirty, the weather got colder.

Volcanic effluents are among the thousands of air pollutants originating not from the smokestack of a refinery or from the tailpipe of a car, but from the worst polluter of them all—nature.

"For instance," said Harold J. Paulus, professor of environmental health at the University, "the greatest source of methane pollution in this country isn't industry at all, but our swamplands. Swamps put out 1.6 billion tons of

methane per year, while people create, at best, only 70 million tons."

Paulus, who has been teaching graduate students in the School of Public Health for 18 years, cited other sources of natural air pollution: sulfur springs, pine mists, and smoke from spontaneously ignited fires.

"Pine forests exude particulate hydrocarbons that react photochemically with light to produce a haze. The Blue Ridge Mountains in Appalachia are topped by this haze. It looks very beautiful

Here in Minnesota—a land without a single volcano—we are relatively lucky, according to Professor Harold Paulus.

over the trees, but if it were anywhere else, it would look like car exhaust."

Paulus recalled one recent study coming out of Stanford University that claimed that most of the pollution in the earth's atmosphere is naturally caused, and not man-made.

But such data, he stressed, shouldn't make us think that our own pollution is therefore insignificant. Quite the contrary, in fact.

"Volcanic eruptions, as rare as they are, usually occur in open, relatively uninhabited places. A village may be wiped out, but no more than that. And most of nature's pollutants are simple, biodegradable, and nonreactive—that is, they don't combine with other chemicals to produce a more dangerous compound.

"Man's pollution, on the other hand, is at its worst where people are the most con-

centrated, in low-lying areas and valleys. And the pollutants are often far more complex than simple swamp gas. They can be nonbiodegradable, like 2-4D or DDT, and they frequently react in the atmosphere with other chemicals."

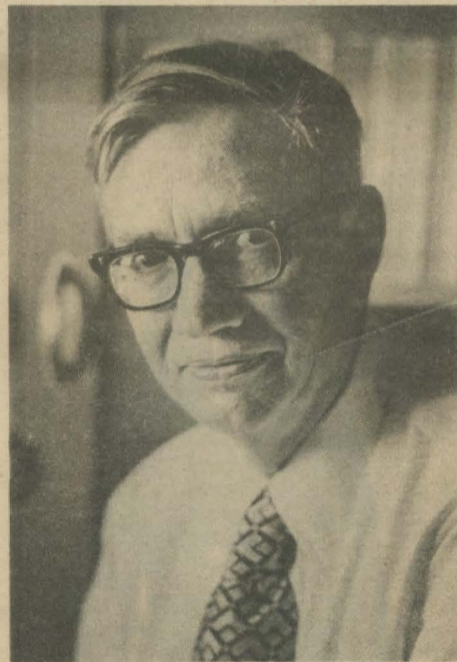
The results of man's disregard for the air he breathes are becoming increasingly hard to ignore. In Gary, Ind., where refineries and factories pump tons of effluents into the air every hour of the day, Paulus said, a phenomenon similar to what happened to Krakatoa is occurring: the rainfall in the area is increasing.

Paulus said that from the Krakatoa study one theory emerged. Scientists already knew that a period of worldwide volcanic activity preceded the great glaciation of the Ice Age. Perhaps the relationship was even closer. Perhaps the pollution released by the eruptions actually caused the atmosphere to cool down. In other words, perhaps air pollution caused the Ice Age!

Before you ship goose-down jackets to your relatives in Indiana, remember that industrial air pollution is as worldwide today as volcanic effluents were a million years ago. Los Angeles, the city most often mentioned in discussions of air pollution, is quite typical of what can happen. The car is the villain of the piece, emitting, in concert with other polluters, four gases—carbon monoxide, oxides of nitrogen, ozone, and various olefins (highly reactive and unsaturated hydrocarbons)—that react with the heat of the southern California sun to create a chemical particulate known as PAN, or peroxyacetyl nitrate.

The problem in Los Angeles is multiplied several times over, according to Paulus, by the fact that the city is locked in by mountains and subject to Pacific winds that sometimes hold the pollution firmly in place. Temperature inversions then occur, and the people of Los Angeles are blanketed by foul-smelling, eye-stinging smog.

Temperature inversions are not unusual. Several occur every month here in Minnesota. They are the result of a slippage in the natural ascent of levels of air in the atmosphere. Normally the air gets cooler, level by level, with increasing altitude. In an inversion, a cold layer slips beneath a warm one and traps the pollutants under it.



TOM FOLEY

Harold Paulus: The Blue Ridge Mountains are topped by a haze of pollution.

university replies to NCAA charges

The University has found "full or partial substantiation" of 72 allegations by the National Collegiate Athletic Association (NCAA) of inappropriate behavior in the University's basketball program between 1971 and 1975.

Stanley B. Kegler, University vice president for institutional planning and relations, explained the investigative process and his findings to the Board of Regents and later to reporters Dec. 12.

The investigation began last summer when the University received a 68-page letter from the NCAA alleging 99 specific violations involving 96 individuals and 11 entities and including 13 general questions, Kegler said.

Since that time, the University has hired two attorneys, who have conducted the investigation, and has spent more than

\$30,000 compiling a 400-page report with 1,400 pages of supplementary material, including tape transcripts and memoranda, to be discussed with the NCAA infractions committee later in December.

In response to reporters' questions, Kegler said there is material in the transcripts that could result in the initiation of investigations of other NCAA-member institutions. He declined to comment on whether other Big Ten schools could be implicated.

There are cases, Kegler said, in which prospective students did not come to the University of Minnesota because they had better offers from other institutions. The implication is that the other school was able to provide what the athlete wanted, he said.

Kegler said NCAA rules prohibit the University from providing an athlete with

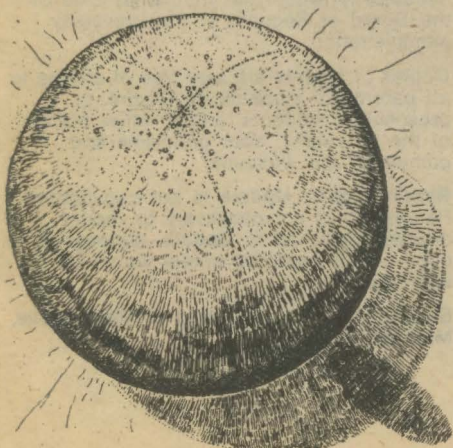
anything beyond living expenses, tuition and fees, and books and supplies. Any additional provisions from the University or from someone outside the University violate NCAA rules, Kegler said.

He said there were numerous minor violations, but that the major violation involved the providing of air fare to members of a player's family to travel to games. In one case, he said, the value of gifts could exceed \$5,000.

The player involved told University investigators that his family had been visited by two attorneys, Kegler said.

"When our investigators arrived, we found that attorneys had indeed been there and that they had told the family what to say,"

charges, p. 14





This 1944 photo of Paricutin Volcano in a Mexican cornfield helps show that air pollution is not exclusively an urban phenomenon.

In the arid, windless canyon of Los Angeles, the inversions can linger long beyond the safe stage, for many days.

One suggested solution, presumably a facetious one, was to blast holes in the surrounding mountains with atom bombs. Assuming, that is, that the resulting nuclear pollution would be acceptable to the populace.

"We get lots of crackpot suggestions here," Paulus said. "We had someone write in once and suggest we build huge filters up and down the length of the plains states, and as the wind blew the air through, it would come out clean on the other side. We thanked him, told him we'd certainly take his idea into consideration, and did our best not to hurt his feelings."

Here in Minnesota—a land without a single volcano—we are relatively lucky, according to Paulus. For one thing, we are relatively short on heavy industry. We have very few steel mills or oil refineries, and we aren't in a valley or surrounded by mountains. Besides, we're in one of the windier parts of the country, so whatever pollution we do produce is

whisked right along to our Wisconsin friends.

"But there definitely is a problem in Duluth," Paulus said, "especially since it's located on a bluff, with all the dust and soot in the air from the iron industry. And there have been recent reports in Rochester of high concentrations of carbon monoxide in the downtown area."

The new catalytic converters that are being built onto the mufflers of all new cars, Paulus said, are proving successful in keeping much of the carbon monoxide produced by cars from entering the atmosphere. Unfortunately, a side effect has developed: the converters leak sulfuric acid, which concentrates in the exhaust pipe. The acid has already produced coughing and wheezing on the part of asthmatic car-owners. Thus, people with asthma may be better off with older models, a fact that even Russell Train of the Environmental Protection Agency sadly acknowledges.

There are other lamentable facts, according to Paulus. Smoking, which has long been known to cause cancer of the lung, is now known to be dangerous to those nearby—the smokees—as well as to the smoker. What has also emerged is that the carcinogen 3-4 benz(a)pyrene is found whenever combustion of any sort occurs, whether at the end of a cigarette or in the backyard incinerator, combustion engine, or coal-burning electric generator. So even coal, which has been touted as a safe alternative to nuclear power, is capable of doing us in.

In fact, Paulus said, coal may be doubly dangerous. Few people know it, but coal has, among its many other air-polluting by-products, certain radioactive effluents. "It turns out," Paulus said, "that weight by weight, fossil fuels release into the atmosphere as much radioactive material—mostly from the immediate radon family—as do nuclear fuels."

regents thumb-up sexuality program

Refusal of the University Board of Regents to routinely approve two requests to state and federal agencies for grants to the Medical School's Program in Human Sexuality raised basic questions about academic freedom that were debated at the November Regents' meeting.

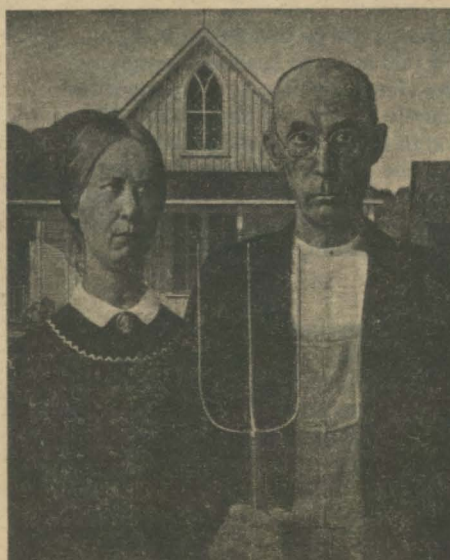
The Regents voted 7-5 against a request by Regent L. J. Lee, Bagley, for a committee to investigate the sexuality program. Lee had also moved that the committee membership be approved by those who supported his motion.

Regent David C. Utz, a physician at the Mayo Clinic in Rochester, had moved that the board approve the grant requests as a "logical extension, an amplification of the Program in Human Sexuality." Lee's proposal to establish a committee was an amendment to Utz's motion.

"Class-size restrictions and priorities for professionals obviously restrict those that can attend," Utz said, "but I acknowledge the entitlement of students and others to know more about sexuality taught by knowledgeable, sincere, sensitive educators."

"The concern of myself and the people that I hear from," Lee said, "is the way in which the program is presented and the kind of materials that are used to so-called 'desensitize' people."

"Seemingly, throughout the realm of this course, especially the desensitization



part of this course, there is a repeated effort to flaunt in the face of normal people that which they all know about but which they are sensitive enough to try and keep to themselves," he said.

Summing up the views of the majority on the board, Regent Lester A. Malkerson, Shakopee, said, "We're getting on very thin ice when we as Regents might get involved in what faculty members can say and what they can't say on the campus or off the campus."

From the simple tongue depressor to the most sophisticated X-ray equipment, the cost of running a hospital seems enormously expensive. The fact is, it is enormously expensive. Read and learn why.

why hospital equipment costs so much

by Bob Lee

A piece of sophisticated medical equipment might cost as much as a new car—and it depreciates just as fast—but the hardware is necessary if hospitals are to be competitive and offer quality medical care.

Many of the life-saving capabilities of physicians today can be attributed to the level of medical technology available. Twenty-five years ago, there were no artificial kidneys or heart valves, no open-heart surgery, and no computer-assisted laboratory diagnosis.

Through the years, physicians and biomedical engineers have seen specific needs and have gone to the laboratory. Development of a prototype is followed by lengthy testing. Devices or machines that eventually are deemed ready for use with human patients in a research setting must have met stringent industry safety and quality standards. All of this careful testing costs money.

The treasurer of a small manufacturing company that specializes in new-technology medical equipment explained his cost-control problems this way:

"Our research and development people are highly qualified and trained, with keenly analytical minds, but they are not particularly cost-conscious.

"A need in the medical field cannot be fabricated. When we think we've got a

new product, we'll research the needs long before we get to pilot models and field-testing. Then there are the start-up costs, and the limited number of customers, and our competition that we've got to consider. To some extent, our investment can be protected by patents."

Public and private research and development teams work closely together on design and testing of new medical equipment. Staff of the University of Minnesota Health Sciences Center often participate at every stage of the genesis, development, laboratory-testing, and clinical use of new medical technology. Equipment developed by University researchers and manufactured privately is often tested at the University.

Universities earn royalties when they have their patented equipment manufactured and marketed by private companies. In addition, although university research laboratories don't receive fees for testing new equipment, they do receive free use and service from the manufacturer.

Will Fornell, University patent attorney, explained that the University tries to patent its scientific developments as an inducement to potential manufacturers, giving them more time to recoup their own development and marketing costs.

The research, development, and marketing costs of specific products are closely guarded by manufacturers. But, primarily because of the accelerating rate of technological development and high start-up costs in the medical-device field, most companies try to recover their research and development costs as quickly as possible—usually within two years.

Hospital administrators are also concerned with costs. When they think about buying a new piece of equipment, they must determine the device's "life expectancy," and one important consideration is how quickly the technology is going to change.

If a piece of equipment can be charged directly to a patient, its rental cost is included in the room rate. For example, if a nursing station in a hospital has

\$500,000 in medical equipment, with a "life expectancy" of 10 years, the hospital must assign \$50,000 per year in equipment depreciation. If there are 5,000 patient-days per year on the station, the hospital would have to charge each patient \$10 per day for the equipment.

The Canadian Hospital Association has devised an elaborate formula for assignment of these depreciation costs, based on three elements: the amount of money the hospital spends on equipment each year, the equipment's expected useful life (five years is the shortest expectancy for major equipment), and the buying power of the dollar (the hospital needs to project the consumer price index for the budget year).

A spokesman from the University of Minnesota Hospitals materials services department said he feels hospitals everywhere are becoming more cost-conscious. But, he said, "We have pieces of equipment in storage that are 10 years old and perfectly capable of doing the job. The technology has changed, however, and the newer equipment is better. In our case (a teaching hospital), students should learn on the latest equipment."

Hospital administrators everywhere are being challenged by the dilemma of increasing public demands for quality care coupled with increasing demands for lower costs. There is a definite trend in hospitals to purchase more and more equipment.

In a series of articles on the high cost of health care, the Minneapolis *Tribune* reported that Minneapolis-area hospitals have increased the total value of their equipment 58 percent in the last five years, to more than \$38 million.

The Metropolitan Council and the State Board of Health must approve purchase of new equipment if it costs more than \$100,000. Purchases over \$50,000 must be approved if they change the services offered. While this system appears to be a deterrent to unjustifiable requests from

mcknight foundation makes \$1 million gift

The McKnight Foundation of Minneapolis has granted \$1 million to the University of Minnesota to be used under the supervision of President C. Peter Magrath over a three-year period.

"This gift from the McKnight Foundation is extraordinarily welcome news," Magrath said. "It enables us to work on some se-

lective improvements in our graduate and professional activities."

The funds will be divided, with about \$675,000 going to academic programs under Henry Koffler, vice president for academic affairs, and about \$325,000 going to programs in the health sciences under the direction of Vice President Lyle French. The money will be transmitted through the University of Minnesota Foundation, the University's fundraising arm.

Specific areas that have been selected to receive the McKnight money include the chemistry department, programs in language and literature, the graduate nursing program, and basic health sciences training and research.

In chemistry, Koffler said, funds will be used to help establish laboratories for new faculty members.

"The individuals whom we want to persuade to come to Minnesota, all distinguished scientists or promising future stars, are well set up at their own institutions and will not come unless we can provide them with at least equivalent laboratory facilities and equipment," Koffler said.

"Language and literature are at the core of the humanities, which we must restore to their former distinction at Minnesota," he continued. Major emphasis will be on the development of faculty, programs, and interdisciplinary ventures, he said.

"Basic health sciences research needs," French said, "result from the need for better integration of basic science studies in the training of all health science professionals."

He said an expansion of graduate programs in nursing would respond to a need for more qualified faculty in nursing schools. The University has the only nursing graduate program in Minnesota.

Ten percent of the grant will be used at Magrath's discretion for the programs being supported by the grant.

"The McKnight grant will not be used in a way that will create new obligations for state support," Magrath said. "No new faculty appointments will be made unless the salary obligations can be assumed within the current state appropriation at the time the gift terminates."

The McKnight Foundation was established in 1953 by William L. McKnight and the late Maude L. McKnight. McKnight was among the founders of the Minnesota Mining and Manufacturing (3M) Company.

hospitals, most requests are routinely approved or do not fall under the agencies' jurisdiction.

A special State Senate Subcommittee on Health Costs reported a year ago that while some high-technology equipment provides more services and saves money, much of it is initially more expensive and requires additional skilled people to operate it. A kidney dialysis unit, for example, might cost \$80,000 to buy and another \$60,000 per year to staff and operate.

The subcommittee also found that utilization rates for high-technology services such as intensive-care units and X-ray therapy ranged from less than 10 percent to more

than 80 percent of capacity. Fifteen years ago, only about 10 percent of the hospitals in Minnesota had intensive-care units; now, about half do. University Hospitals, operating as a referral and teaching hospital, has seven.

Citing the substantial investment involved in such high-technology areas, the subcommittee maintained that every hospital does not need to provide every type of service, and that consumers need not utilize a service simply because they are insured for it.

The subcommittee recommended against investment by a hospital in specialized

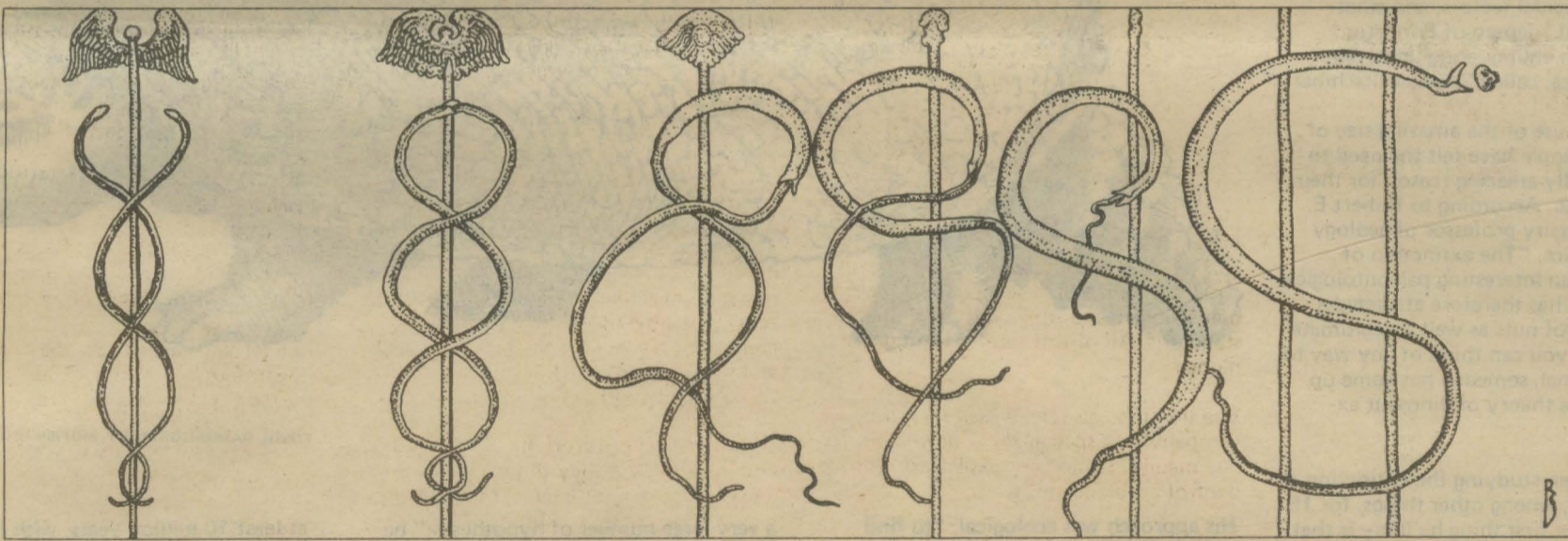
services for which the use rate is less than 50 percent, especially if the service is available elsewhere in the community. But the report acknowledged the fact that some hospitals feel they have to have certain equipment to attract medical staff and patients.

Federal legislation to strengthen the authority of the Food and Drug Administration with respect to medical equipment is now pending. Designed to further assure the safety and effectiveness of medical products, the regulations are also expected to influence the costs of such products.

Medical-equipment manufacturers are saying development costs will increase when the legislation is enacted. One company

estimated that compliance might cost between \$250,000 and \$750,000 per product. Another company, which makes high-technology biomedical products, expects the figures to be higher.

Regulatory agencies, manufacturers, and research centers such as the University's Health Sciences Center are all working for continued progress in the health-care field. And progress in this area, as in any other area of vital concern, has its price.



RANDY SCHOLES

ralph nader puts in a good word for MPIRG

Consumer advocate Ralph Nader says the Minnesota Public Interest Research Group (MPIRG) has run into opposition because it has been too successful in its work on consumer and environmental issues.

Speaking to more than 1,500 students Nov. 19 at the University, Nader urged them to persuade the Board of Regents to renew the contract with MPIRG through which the University collects an optional \$1 fee per student per quarter for MPIRG.

MPIRG's contract was renewed on a temporary one-year basis last spring after a number of forestry, agriculture, and hearing-aid industry representatives testified against MPIRG before the Board of Regents.

Nader accused MPIRG's opponents of "hiding behind" their professional associa-

tions in testifying before the Regents, rather than putting their corporate names on the line.

"Doesn't it interest you that the problem with MPIRG in the business community in Minnesota was that it became too successful? It won some lawsuits. It worked on some legislation. It exposed some hearing-aid abuses.

"And what has happened? What has happened is that this small citizen action group, a citizen research group which involves students as well, and which has been under way for three-and-a-half or four years, is a prime target for the corporate cabal in Minnesota," he said.

"They want to finish it off, they want to cut off its funding, they want to put pressure on the trustees," he said.

Nader accused MPIRG's opponents of having an "authoritarian mentality" in telling the students they have no right to an organization with a full-time staff "to try to improve your own educational experience and try to improve conditions here in Minnesota."

He accused the opponents of using their trade associations and "phony little environmental-balance front groups" to try to pressure the Regents through private telephone calls and "unsubstantiated rumors" about MPIRG.

Nader said he hoped the MPIRG conflict expected this spring would stimulate more interest among students in working with the organization and in using its resources in their own efforts.

he found his thrill on purgatory hill

by Elizabeth Petrangelo

Tyrannosaurus rex, brontosaurus, stegosaurus, triceratops. All of the dinosaurs have been dead for millions of years, but new theories about the reason for their wholesale extinction continue to crop up.

Theorists with credentials of varying relevance have suggested such reasons as disease, racial old age, poison gases, comets and meteorites, climate changes, cosmic radiation, floods, shifts in the Earth's poles, continental drift, sunspots, psychotic suicidal factors, and what Professor G. L. Jepsen of Princeton University, in enumerating unconventional theories, called "paleoweltschmerz."

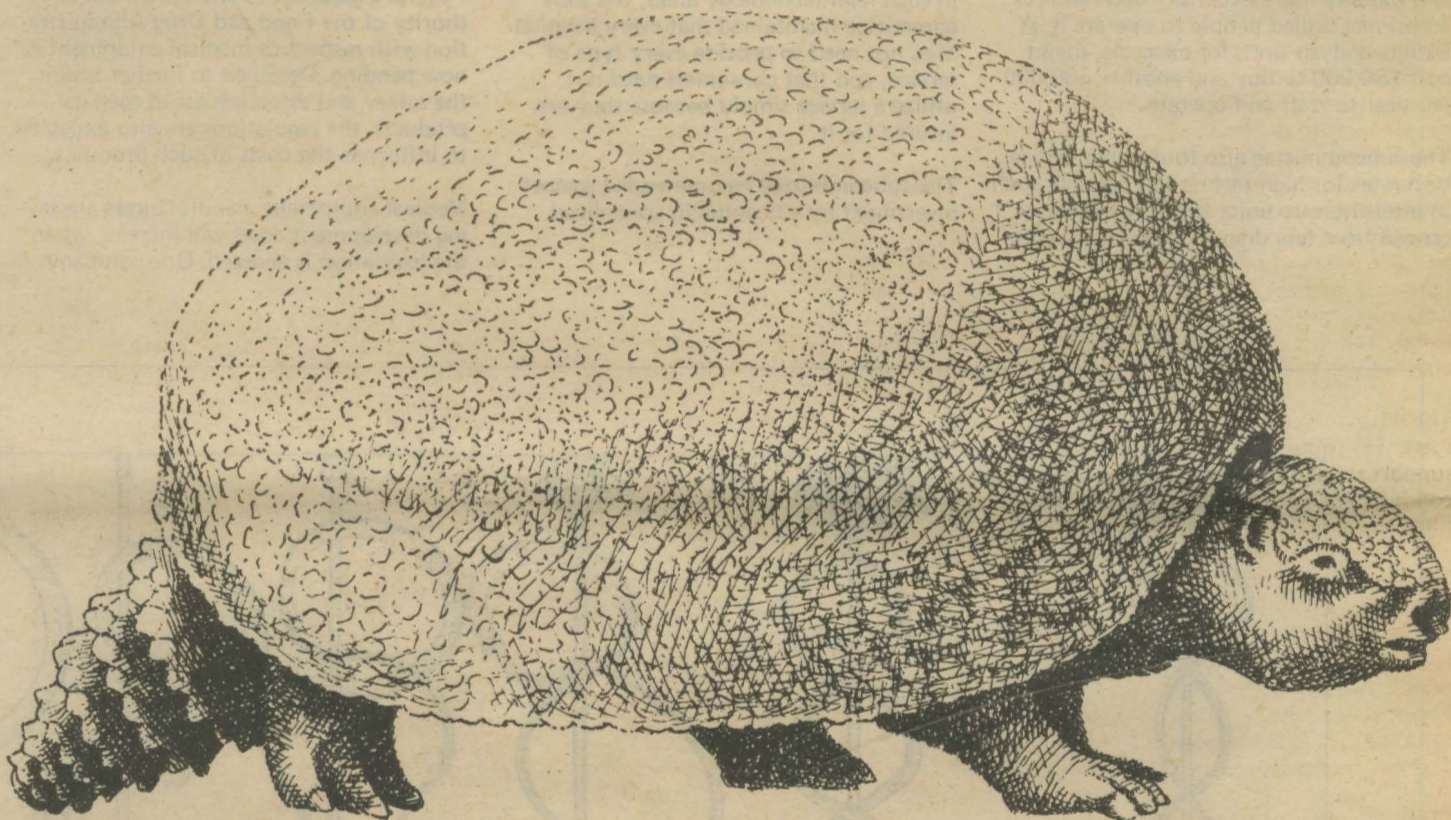
Perhaps because of the amazing size of dinosaurs, people have felt the need to find an equally amazing reason for their disappearance. According to Robert E. Sloan, University professor of geology and geophysics, "The extinction of dinosaurs is an interesting paleontological problem and has therefore attracted a wide variety of nuts as well as legitimate scientists. If you can think of any way to do in an animal, someone has come up with that as a theory of dinosaur extinction."

Sloan has been studying the extinction of the dinosaur, among other things, for 16 years, and the first thing he'll say is that the process must be put into perspective. "Dinosaurs were fabulous animals, most of them large," he said. "But theirs was not the most spectacular extinction."

"Extinction is the rule rather than the exception," he wrote in 1966, "and we can, if we choose, calculate a sort of half life of a species. A long continued survival of a group of animals is a rare event. Only some .003 percent of the species of vertebrates that lived at the end of the Paleozoic era, some 230 million years ago, have any living descendants at all."

Approximately 20,000 species of vertebrates were alive 230 million years ago, according to Sloan. "Only about two dozen of those have any living descendants now. Those two dozen, however, have nearly 50,000 species descended from them."

To Sloan and his associates, the way to approach the whole matter of extinction was to select a particular area and a relatively short span of time, and investigate carefully. He chose the northern great plains—from Denver to Edmonton, from the Rocky Mountains to the Missouri River—and the last five million years of the Cretaceous period, which ended about 64 million years ago.



The glyptodon, a South American herbivore that successfully managed to establish itself in North America, was not a dinosaur at all, but a mammal like the rest of us.

FOSSIL MAMMAL GALLERY, BRITISH MUSEUM

His approach was ecological, "to find out what environmental factors were changing during the time interval dinosaurs were becoming progressively more scarce."

He collected fossils of dinosaurs, other animals, and plants and used the samples to make inferences about the changes the area underwent. "We could then rule out

a very large number of hypotheses," he said. "A large part of science progresses by proving that notions or ideas are false."

Sloan found that the community the dinosaurs lived in was highly stable for

at least 10 million years, with no extinction and very little evolutionary change. But the last million years of that period brought trouble for the dinosaurs. "The climate changed from roughly that of Tampico (Mexico) to roughly that of Peoria," he said. What was once a humid tropical rain forest slowly changed to a coniferous forest with a climate not quite as severe as that of Minnesota today.

"This brought about major changes in plants and a great reduction in the amount of fodder available for herbivorous dinosaurs," Sloan said. As the number of herbivorous dinosaurs dwindled, so did the number of carnivores.

"Somehow, people always think about dinosaurs," said Professor Robert Sloan. "Maybe the thought is: If something this big can become extinct, why not me? And indeed, why not? It will happen eventually."

Globally, the temperature underwent a seven-degree-Centigrade reduction at all latitudes—not a severe change, but enough to destroy the dinosaurs' habitat. Presumably, Sloan said, the change affected dinosaurs all over the world, but North America is the only place where the process has been studied closely.

"We found that very few things in these communities became extinct," he said. At that time, there were nine species of dinosaurs, two dozen mammals, and assorted reptiles and birds. "We found, to our great surprise, that the only things that became extinct were the nine dinosaurs and six or seven possums and two kinds of multituberculars (gnawing mammals). This meant that well over three fourths of the animals living in that community didn't pay any attention to the death of the dinosaur."

The dinosaurs died with a whimper. But there was still enough vegetation to support small herbivores, and the condylarths—primitive hooved mammals—filled the void.

"During the next seven million years, practically any animal could find a way of life that was open and vacant," Sloan said. And so began a tremendously rapid evolutionary diversification—the Tertiary adaptive radiation of mammals—that so fascinated Sloan that the study of it now occupies most of his time.

"This adaptive radiation is just as exciting as the death of dinosaurs," he said. "As dinosaurs became extinct, a very small percentage of placental mammals, essentially hedgehogs, developed rapidly to fill the role left by the dinosaurs. Over a span of nine million years, this very small group of mammals developed into the ancestors of bats, whales, pigs, sea cows, proto-elephants, rodants, primates, and all other 24 existing orders of placental mammals. It was a truly remarkable thing."

The search for such paleontological evidence is exhausting and the dividends are often small. But Sloan's perseverance paid off in an amazing way in 1963. At a place in the Montana badlands called Purgatory Hill, he discovered remnants of the earliest known primate—the earliest direct ancestor of man.

Without knowing exactly what they would find, Sloan and his fellow searchers spent weeks crawling up and down a hill that had a 50-degree slope. The hill was covered with small, sharp stones. "You'd start up the hill, your feet would slip on the stones, and down you'd come on your hands on the sharp stones. That's why we named it Purgatory Hill. When hand-crawling, we netted about one useful tooth for every three man-days of crawling."

After having determined that the area was worthwhile, they carried 10 tons of soil from the hill to a nearby creek and washed it. The massive water-screening program yielded a mixture that was

about 90 percent clamshell chips and about 10 percent rock chips and mammal teeth.

This material was run through a process to dissolve the shells, dry the remainder of the mixture, screen it, and run it through a magnetic separator. Studying the final material through a microscope, researchers were able to find about half a dozen teeth per day.

The teeth signaled the discovery of *Purgatorius*, named after that troublesome hill.

As exciting as such a discovery must have been, Sloan was more thrilled with his discovery of the earliest known ungulate, or hooved mammal, in the same area in 1962.

"This discovery was really spectacular, in terms of what its descendants became," he said. "It is the first direct ancestor of whales, sea cows, elephants, horses,

tapirs, rhinos, pigs, deer, sheep, goats and cattle, hyraxes and aardvarks—even more important than primates."

Sloan, who teaches paleontology and historical geology at the University, is now working on an introductory paleontology text. "The best textbook in the area was done over 20 years ago and most of paleontology has been done in the last 20 years.

"That's another aspect of the population explosion that few people think about," he said. "There are more people alive now who should be famous than there have been in the whole history of man. That's because more than half of all people who have ever lived are living right now."

For all its seeming spectacularity, the extinction of the dinosaur was extremely slow, far slower than an extinction that is going on now. "More big animals have become extinct in the past 10,000 years

than did during the age of the dinosaur," he said. The mastodon, the woolly mammoth, a giant beaver the size of a black bear, North American horses, ground sloths that sometimes grew as large as elephants, armadillos as big as desks—these were just a few of the great beasts to disappear.

"This disappearance is part and parcel of a series of events that has been going on all over the world," Sloan said. "It's been happening in the New World for the past 10,000 years and longer in the Old World, probably because man was in the Old World earlier."

According to Sloan, no two species have become extinct for exactly the same reasons, but most extinctions are linked to the rapid expansion of the human population. Man, the hunter, has had his effect, for example.

"Humans are the most efficient hunters of any species—far more effective than *Tyrannosaurus rex* ever was," Sloan said. "And how much beef does each of us account for in a single year?"

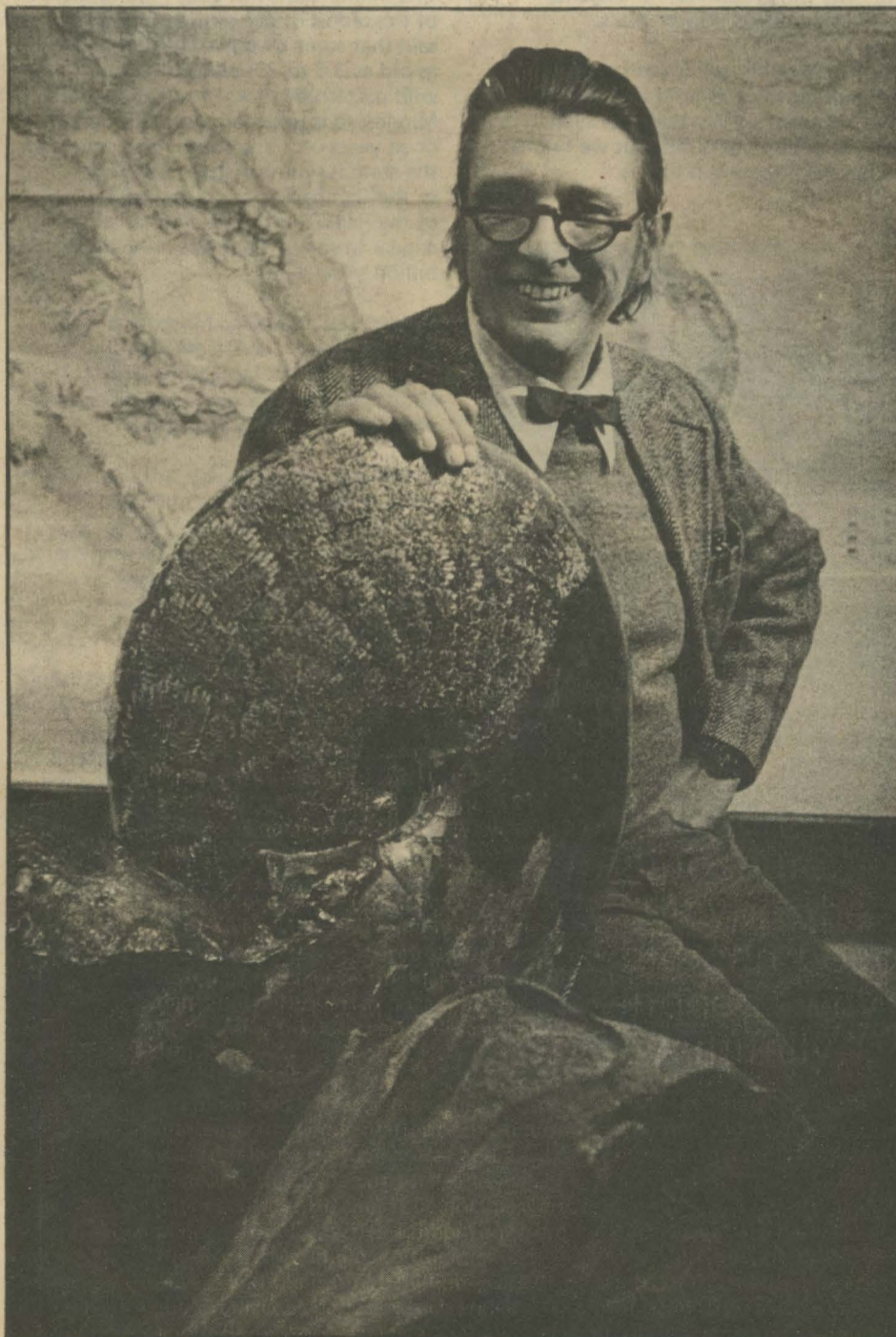
"Other animals have become extinct as a result of second- and third-order environmental impacts of humans: the increased incidence of forest fires, the competition for food sources," he said. "There has been a tremendous loss of large land herbivores and simultaneously, as a result, the carnivores that fed on them."

The animals that became extinct first were those that were either large or rare. Those that were both died off the fastest. Further population expansion of humans will force more species to the wall, Sloan said.

"But somehow, people always think about dinosaurs," he said. "Maybe the thought is if something this big can become extinct, why not me? And indeed, why not? It eventually will happen."

What will follow man? "Watch out for the mice," Sloan said. "If humans ever become extinct, the next intelligent species will probably be a rodent, and most probably a descendant of the mouse. Not a mouse like we're used to, because it would have to be much larger to be intelligent."

So it is conceivable that millions of years from now, teams of rodent paleontologists will be digging, sifting, and screening—looking for primate teeth, searching for clues to the cause of extinction of *Homo sapiens*.



Robert E. Sloan

TOM FOLEY

the story of the state that wanted to be an ocean

minnesota's long and schizoid history

by Mike Finley

The next time you trip on a rock, don't be spiteful and give it a kick. Show a little respect. After all, the rock was there first. In fact, it could have been there—or thereabouts—for a billion years or more.

In Minnesota, the rocks you are likely to trip over are even older. Matt Walton, director of the Minnesota Geological Survey, says that you can't trip over older rocks anywhere else in the world.

Other states and foreign countries have geysers and volcanoes and mountains,

Think of the earth as being a week old. Human history has occupied less time than it takes to read this sentence.

but only Minnesota has rocks going back as far as 3.8 billion years.

"Duration of time," Walton said, "is a difficult concept to hold in the mind. We nod when we say the solar system is 5 or 10 billion years old, but we fail to comprehend how old that is.

"I was at a conference at a school in Michigan recently, and the keynote speaker, a mathematician, said, 'I know you geologists deal with rocks that are millions of years old,' and we all had to laugh." How could he know, Walton asked, that a few million years don't even make a dent in geologic time? The time geologists deal with involves thousands of millions of years.

To illustrate, think of the earth as being a week old. When you started reading this story a minute ago, the Ice Age had begun. Human history has occupied less time than it takes to finish this sentence.

The Minnesota River valley is the site of the oldest of the old rocks. Walton said that some of these formations are as old as 3.6 to 3.8 billion years. A wild pattern of rocks in north central Minnesota is younger—only 2.5 billion or so years old. The southeast portion of the state is younger still, dating back to the Cambrian period, the beginning of the Paleozoic era when fossils first appear in rocks. That was only a half billion years ago.

Walton was invited to Moscow this year to attend a conference on the earth's crust. His familiarity with Minnesota's unique geological character made him a valued participant.

Had Minnesota's geology fulfilled a promise it seemed to be making a billion years ago, however, Walton would be in no position to go anywhere. Back then, a rift started to develop in the corner of what is now Lake Superior and cut its way through the area all the way down to where Oklahoma now is. This fissure, according to Walton, was an attempt to make an ocean. The attempt, for some reason or another, was given up. Other attempts, like the rift that is developing along the eastern coast of Africa right now, have gone on to huge success. The Red Sea won't get much bigger in our lifetimes, but it seems determined to be an ocean someday.

"One of the most exciting developments of the past 20 years," Walton said, "is proof that the Atlantic Ocean is the

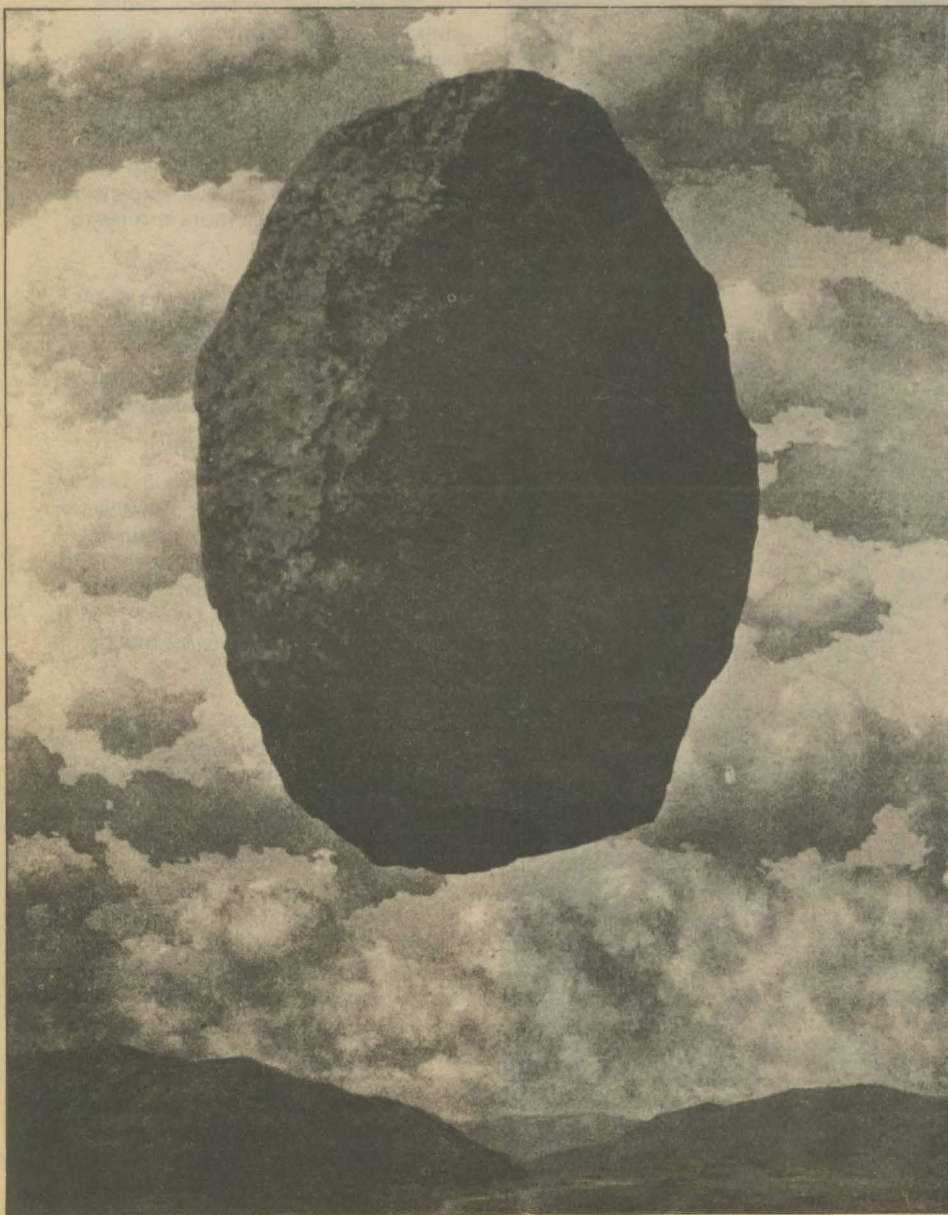
product of such a rift, before which the great continents were all one land mass."

Most Minnesotans would prefer that Minnesota not be an ocean today, if they took the time to think about it. Most Minnesotans, deep down, are probably glad that Minnesota's great volcanic period is over—things used to be pretty hot up around the Arrowhead Region.

Meanwhile, according to Walton, California isn't the only state that has earthquakes. A rather noticeable one shook the Long Prairie area back in the 1860s, and another one rattled the cupboards of Alexandria homes in 1950. Just last summer, a mild earthquake occurred at Morris on July 9. The quake was given 4.8 on the Richter scale—respectable but not terribly hazardous.

The Richter scale ought not be confused with the seismograph. The Richter scale is simply an abstract system for measuring, while the seismograph does the actual detecting. The University does have a seismograph, Walton said, and it is located in the basement of Pillsbury Hall on the Twin Cities campus. There it sits, waiting for tremors to rock the flat Minnesota landscape. Or it usually does.

Pillsbury Hall, it may be recalled, is just across the street from the construction site of the new underground bookstore. Last summer, the jackhammers and pile drivers were making the seismograph think that the world was coming to a horrible end. Therefore, on the morning of the rare earthquake, the seismograph's plug had been pulled.



COLLECTION OONAC RANMORE & BROWNE, CO.



TOM FOLEY

Matt Walton: "Duration of time is a difficult concept to hold in the mind."

Rene Magritte's "The Sense of Realities," featuring a thousand-ton rock floating with the clouds, serves as a reminder that rocks are not to be taken lightly.

those things in the honey may be the bees' knees

By Mike Finley

The next time you find yourself sitting cozily in front of a crackling fire, with the wind howling outside and the snow pelting your windowpanes, ask yourself this question: What do bees do in winter?

Spare them your pity. Teamwork, restraint, and several months' supply of honey will keep their bees' knees from knocking in the sub-zero cold. University entomologist Basil Furgala ("I could talk forever about bees") fills us in on the details.

"Bees don't hibernate," Furgala said. "Instead, they hang together through the winter in a massive cluster of 30,000 or so. By working their muscles back and forth, the bees manage to manufacture enough heat to keep themselves alive."

In fact, Furgala said, they manage, most of them, to stay about as warm as toast. While the temperature outside the hive may be as low as -30 degrees F., and while the temperature inside the hive won't be much higher than -20 degrees, at the center of the great cluster, the bees munch honey at a comfortable 95 degrees.

What's more, they don't have to lift an antenna until spring.

The trick for beekeepers, Furgala said, is to make sure the honey is there for the bees to eat. But since honey is the reason most beekeepers are in the business, they make their bees work for their suppers by feeding them a cheaper solution of sugar and water.

The bees then convert the sugar into a kind of synthetic honey that tides them over until spring. The sugar solution serves a double purpose in that it also contains an antibiotic, fumadil-B, which inures the bees to the harmful effects of rosema, one of the most destructive of all bee diseases.

Beekeepers who want their bees to make it through the cold months have to chart a difficult course between not taking good enough care of the bees (they starve if not provided with enough sugar) and being overly solicitous of their needs (insulating the hives often results in the bees' suffocation).

"In 1974, when sugar was selling for 60 cents per pound wholesale, many beekeepers simply couldn't afford to get their bees through the winter," Furgala said. "A colony of 30,000 bees can dispose of 50 pounds of sugar in one winter."

Furgala speculated that perhaps honey, and not petroleum, is the main lubricant of the national economy. In 1970, he

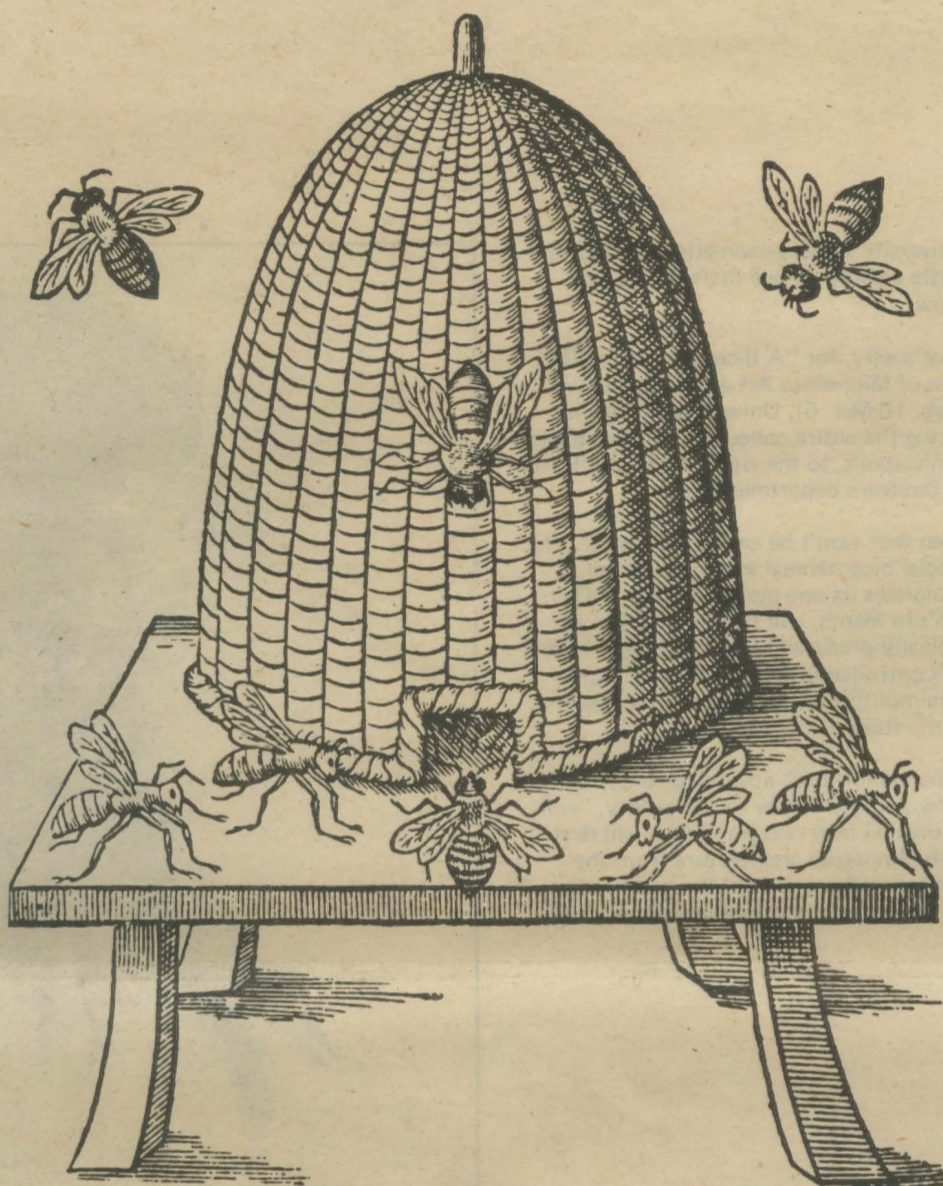


Illustration from Edward Topsel's *The History of Four-Footed Beasts and Serpents, Whereunto Is Now Added, The Theater of Insects*, 1658.

said, there was a worldwide honey shortage because the crops had all failed. Prices have skyrocketed in the four years since from 12 cents per pound to as much as 52 cents per pound wholesale. Once the price of honey shot up, the other main commodities of the world—gasoline, sugar, steel, coffee, and canning lids—followed suit.

"Honey is a pure, natural, energy-producing food," Furgala offered as one definition. "Honey is a sweet, viscous material collected from plant nectars by bees and then elaborated by bees," he offered as another.

Bees have many peculiar habits. They have a variety of ways of communicating with one another, for instance, ranging from a little dance they do to point toward a choice nectar-gathering area, to their mastery of smell-communications.

Furgala speculated that perhaps honey, not petroleum, is the main lubricant of the national economy.

By utilizing tiny odor sprayers in their abdomens, they can send out various smells that have standard meanings, such as "Look out!" or "Over here!" And bees, usually thought of as nice, orderly, restrained bugs, sometimes go off the wagon, indulging in so much nectar that they become "honey-drunk."

"Bees have two stomachs," Furgala said. "The first one is not a true stomach, but actually an enlargement of the esophagus. When the bee collects the nectar from the flower, it goes into this first stomach. There is a valve separating the first from the second stomach, so there is no danger of the bee regurgitating into the fresh nectar. Back at the hive, the bee either deposits the nectar into a cell or else passes it on to another bee, who introduces into the nectar the enzyme invertase, which converts the sucrose into glucose and fructose."

That's where honey comes from. From there, Furgala said, the honeycombs are collected whole by the beekeeper and spun in a centrifuge, separating the wax from the honey. Then the honey is strained through cheesecloth. By this time, most of the bits of wax should be out of the

honey. At this point there is probably less danger of your ingesting an insect part from eating a dab of honey than from eating a sandwich at the local fast-food place.

Honey is a big business. While Florida and California are the two largest honey-pro-

ducing states, Minnesota is not far behind. California with 400,000 colonies—30,000-odd bees to the colony—managed to produce 18.5 million pounds of honey last year. Minnesota, with only 150,000 colonies, produced more honey per colony, however: 9 million pounds.

Minnesota honey, which is mostly alfalfa or clover honey, tends to be milder than the dark, robust honeys of Europe or the eastern United States. In Florida, one of the most popular honeys is made entirely of nectar from orange blossoms. Perhaps the most coveted American honey of all is tupelo honey, drawn from the nectar of a southeastern flowering tree. Furgala is told it never granulates.

For all the honey produced, one might think bees had been busying themselves in our hemisphere from the word go. Not so. The first honeybees were introduced to the Americas in 1538. It wasn't until 1850 that the first honeybee gazed out at the Pacific Ocean. And by the 1920s the bee industry in Minnesota was still trying to get off the ground, with the University breeding Italian bees to replace all the black German bees that were then our mainstay.

Furgala says he could talk forever about honeybees, and one can appreciate his



Basil Furgala: "When a honeybee stings you, he dies."

affection for the things. Although they are noted for their clannishness, and also for their touchy tempers, they have made life sweeter for all of us.

"I have been stung 100 times so far this year," Furgala said. "And 75 percent of these occurred on two occasions when I shouldn't have messed with the bees."

"But you have to understand," he said, rising to the bees' defense, "that only a desperate bee will sting you. After all, a yellow jacket can sting you every day of his life, but when a honeybee stings you, he loses about a third of his body and dies."

TOM FOLEY

little gallery has a really big show

University Gallery—sometimes called The Little Gallery—is *too* little for its next show.

That's why, for "A Bicentennial Exhibition of Minnesota Art and Architecture" (Feb. 10-Mar. 6), University Gallery is taking the entire collection to downtown Minneapolis, to the eighth-floor auditorium of Dayton's department store.

Even that won't be enough, however. The special bicentennial exhibition, after it completes its one-month display at Dayton's in March, will be packed up in a specially prepared temperature-and humidity-controlled insulated van and begin a nine-month tour through the far reaches of the state.

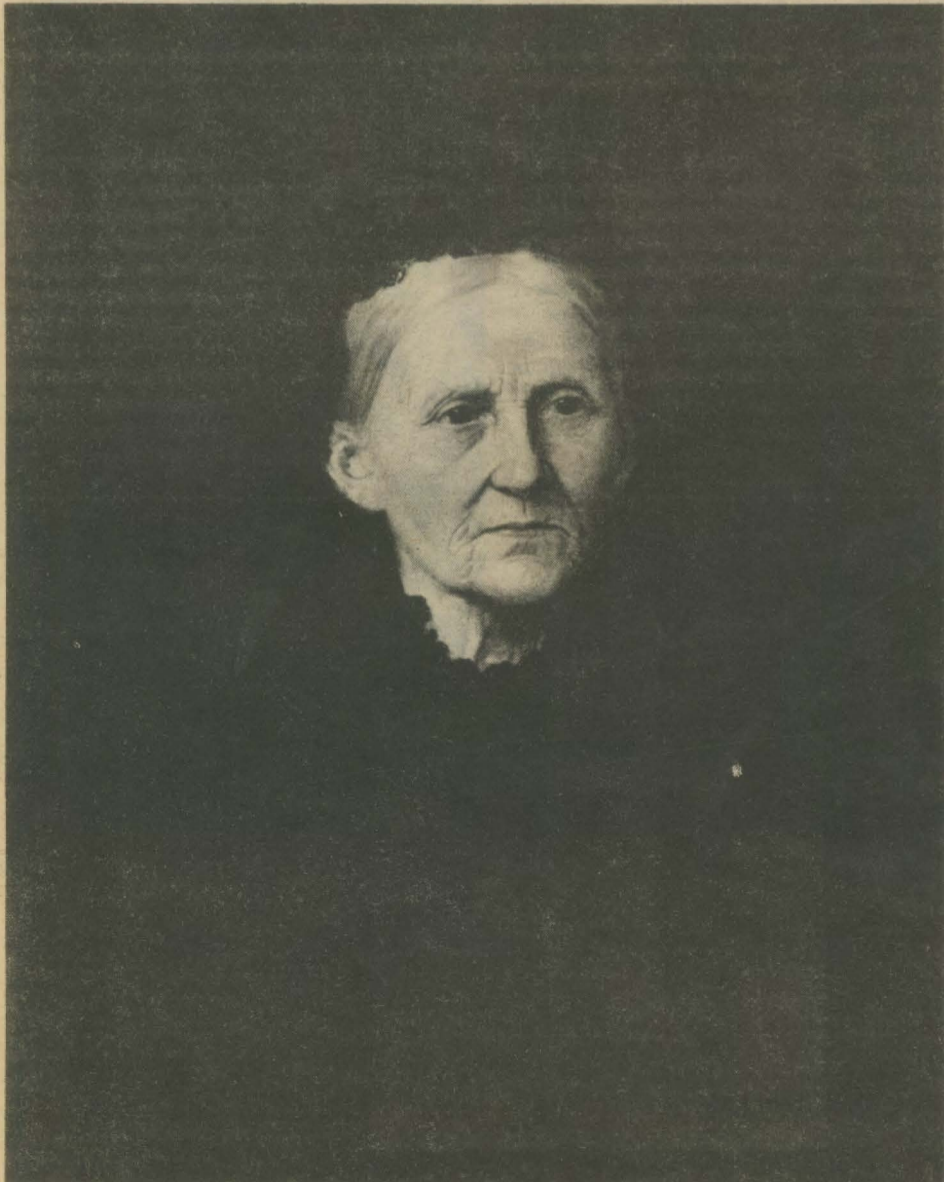
"The exhibition," according to Lyndel King, acting director of the gallery, "will be divided into two parts. One will deal with Minnesota architecture from the earliest settlement until the present day. We will use photomurals as well as draw-



ST. LOUIS COUNTY HISTORICAL SOCIETY

"Kennewawbemint," by Eastman Johnson (1824-1906), and "Mrs. H. A. Stub," by Herbjorn Gausta (1854-1928), will both be displayed as items in the Bicentennial Exhibition of Minnesota Art and Architecture.

NORWEGIAN AMERICAN MUSEUM, LUTHER COLLEGE COLLECTION



ings, plans and architectural details to give a true-dimensional quality to the exhibition."

The other part, King said, will concentrate on the graphic aspects of Minnesota art, ranging from the earliest examples of Indian art, through the works of Minnesota settlers, right up to 1914, the exhibition's cut-off date.

Since some of the large murals produced during this period, and all of the architecture, obviously don't fit in Dayton's auditorium or in a truck, the gallery has published two books, *A Guide to the Architecture of Minnesota* and *Painting and Sculpture in Minnesota, 1820-1914*, to be companion pieces to the exhibit.

"We want to be sure that the traveling exhibition gets to as many people in the different parts of the state as possible," King said. "This has meant limiting our stops in the immediate metropolitan area somewhat. If a nearby community asked us to visit, and they were only an hour's

drive from the Twin Cities, we had to say no, so that people in the farther corners of the state could get a look."

Students will be trained as guides to the exhibit not only in the specifics of the works of art represented, King said, but in the overall history of Minnesota as well. University Gallery is being especially careful not to let the artistic and the historic aspects of the exhibition drift too far apart.

It will be a big job. The Little Gallery has been working on it for a long time, making sure it comes off well. When it does, it will be the biggest Little Gallery exhibition ever.

nature's most nearly perfect food: a milky bubble bursts

The levels of lactase in an individual vary; hence, an individual's tolerance for the milk-sugar lactose also varies. Near the time an infant is born, the lactase level in the small intestine rises sharply. Eventually, when the child is between the ages of two and four, the lactase level drops.

The amount of the drop in lactase depends on the racial origin of the individual. Many people in the world, perhaps most, experience a sharp drop and thereafter do not tolerate milk very well. Those who do not handle it well show it by developing diarrhea, stomach cramps, and gas soon after ingesting milk. It is questionable whether they derive any nourishment at all from milk.

This evidence leads to some serious questions about how milk is advertised to different racial groups in this country, as well as about how nutritional programs are implemented here and abroad.

Information on lactose intolerance has been around for some time. In March of 1972, two University of Minnesota professors, Irving Gottesman of the psychology department and Leonard Heston of the psychiatry department, organized a conference on lactose and milk intolerance sponsored by the U.S. Department of Health, Education, and Welfare's Office of Child Development.

Nutritionists, gastroenterologists, biochemists, anthropologists, human geneticists, educators, developmental psychologists, and cultural geographers from across the country attended the conference and contributed their findings.

Gottesman said that he and Heston had taken an interest in the subject as a result of their research on the evolution of human behavior. As they became more involved with the subject of milk consump-

tion, they realized there was a matter at stake about which more people should be aware.

From the research of other scientists on different races, they concluded that the only people who generally handled milk well (had high lactase levels) were those of Scandinavian and Northwestern European extraction. In non-Caucasian groups, anywhere from 60 to 100 percent of the people in each group could not tolerate milk after the age of two. Some of the non-tolerating people, research had shown, are American Indians, Orientals, American Negroes, and South Americans.

Gottesman and Heston then formulated a theory, based on their work on the evolution of human behavior, describing the racial effect:

The custom of drinking milk probably started about 11,000 years ago when some human populations started domesticating milk-producing animals. Somebody probably found that milk agreed with him even though he had been weaned long ago. Maybe it happened during a time of famine. That would be logical if milk generally made everybody but infants sick—not many people would drink it unless they were starving.

Naturally, in a time of famine, the ability to derive nourishment from milk would be an advantage. Slowly over the millennia, this slight advantage for the milk-drinkers might have turned things around so that most people who kept cows and goats could also drink their milk.

Genetically, Gottesman and Heston conjecture, the original change toward milk tolerance might have been a gene mutation that resulted in the maintenance of high lactase levels after childhood. If the mutation were to a dominant gene for consuming milk, and if the person in whom the mutation occurred passed that gene along, the offspring who received the gene would also tolerate lactose, and therefore milk.

This theory fits the data on races that do and do not tolerate lactose. The races historically involved in herding—Scandinavians and Northwestern Europeans and their descendants—digest lactose. Most of the others who did not evolve as herders do not digest lactose beyond infancy.

From the genetic description, it is logical to conclude that persons who are racially mixed have some variation as to their ability to digest lactose. This has been shown to be true in the United States. Studies of groups of black children show that some can consume milk just fine. However, the statistics still show that as many as 77 percent of the black people in the United States cannot. Among American Indians, at least 67 percent cannot drink milk.

by Kellen C. Thornton

Nature's two "most nearly perfect foods" have received a lot of criticism lately. Eggs first started taking abuse for their high cholesterol content because cholesterol in blood has been suggested as a major factor in heart attacks.

Now milk is taking it on the chin, but the problem is not cholesterol, which one can avoid by drinking skimmed milk. The problem is sugar.

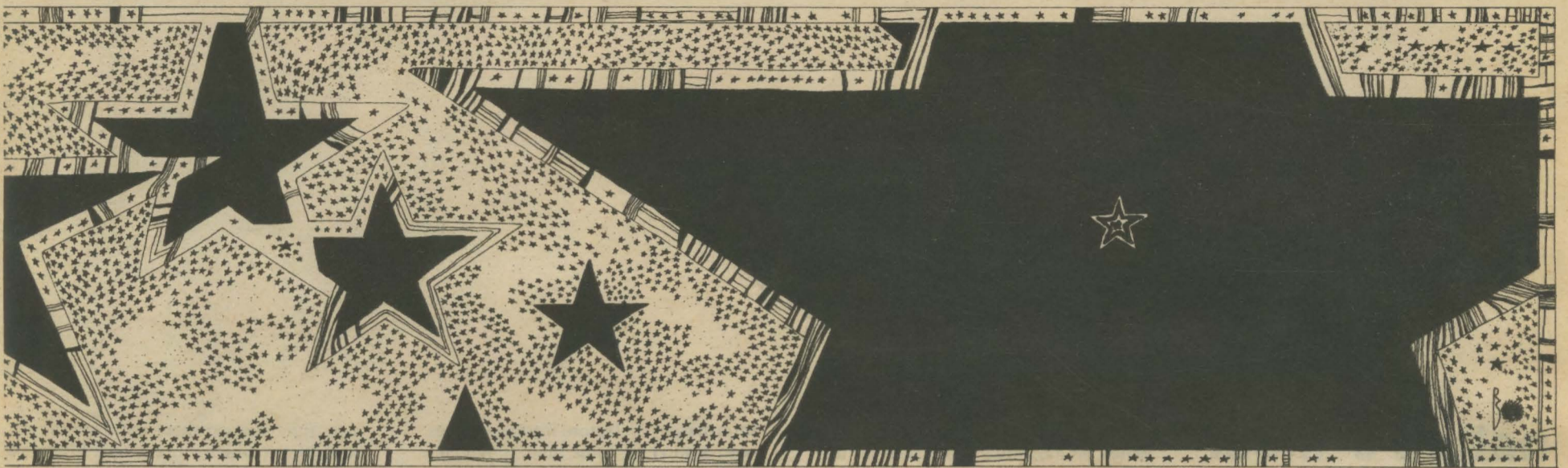
Milk contains a type of sugar, called lactose, peculiar to milk. Past two years of age, only about a third of the world's population can digest lactose. The rest react poorly to milk consumption. Therefore, not everybody needs milk. Not even almost everybody.

Milk consists of fat that can be "skimmed" off, protein, and the sugar lactose. Lactose, which contributes about a third of the calories to whole milk, is a complex sugar (disaccharide) that the body must break down into the simple sugars (monosaccharides) glucose and galactose. Only then can the sugar move into the bloodstream for immediate use or storage.

The process of breaking the lactose apart, known as hydrolysis, takes place in the small intestine. Lactase, an enzyme technically called beta-D-galactosidase, splits or hydrolyzes the lactose during digestion, soon after a person drinks a glass of milk or eats something cooked with milk, such as pudding.



TOM FOLEY



everybody's a star

by Jeannie Hanson

Want to be a star? Want to light up the silver screen? It doesn't take much. These days almost anyone can be on TV, with or without sexy teeth.

For the past several years, ordinary people in Minnesota have been enjoying better and better access to television facilities. Although not many of them are aware of it, Minnesotans can now arrange with TV stations in Duluth and the Twin Cities to

streak along the airwaves and into the living rooms of their fellow citizens. Opportunities range from short, 30-second opinion spots, in which the new news-maker can spout off on the topic of his or her choice, to the full 30-minute treatment—a self-produced documentary on neighborhood issues, for instance.

And it all costs nothing. Or, at most, a few dollars. Professional help and advice are available from the University Community Video Center (UCVC) at the University of Minnesota.

Where can you go to get on the other side of the television screen? In Duluth: Cable Channel 7 and KDAL (Channel 3). In the Twin Cities: KMSP (Channel 9), WTCN (Channel 11), and KTCA (Channel 2). For guidelines on legal restrictions, subject matter, and other details, contact the stations' public service directors.

Television need not be the province of the rich, the beautiful, and the notorious. Community Video makes it possible for everyone to be a star.

The other Duluth and Twin Cities stations have not yet offered public access on this basis (although they do have some public-service programming in the spirit of the Federal Communications Commission guidelines).

One of the stations offering access, KTCA-Twin Cities, airs two regularly scheduled public-access programs: "Everybody's TV Time" and "Changing Channels." These are produced at the UCVC, an advocate of more public access to television.

Even though the medium may be the message, UCVC can help you get your views across in general (through such means as public-service announcements) and on these two programs in particular.

"Everybody's TV Time" is for everybody, all right—first come, first served. The program is aired every Thursday at 10 p.m. Many individuals and groups have worked with the Center to produce segments for

charges. . .

Kegler said. "We don't know who sent them, but they were there."

Most of the allegations were not so mysterious. They involved gifts from booster clubs to players or payments for air travel home during vacations or for family members to attend games, Kegler said.

The University also discovered some 56 infractions, most of which were minor, that were not listed in the NCAA letter, Kegler said. These included 12 to 15 instances of ticket sales, the provision of goods and services, air transportation, passes to restaurants, free meals, one case of \$1,500 worth of free dental work, and free lodging, he said.

Kegler said that the University and the Big Ten will conduct a joint investigation, at the University's request, of other basketball allegations once the NCAA investigation and penalties are completed.

Kegler said he and University President C. Peter Magrath have decided which of the possible NCAA penalties would be appealed, but he did not disclose what those were.

Possible penalties could be a reduction in the permissible number of athletic scholarships, prohibition against playing in televised games, suspension from the NCAA, suspension from post-season games, or the declaration of current players as ineligible for conference play.

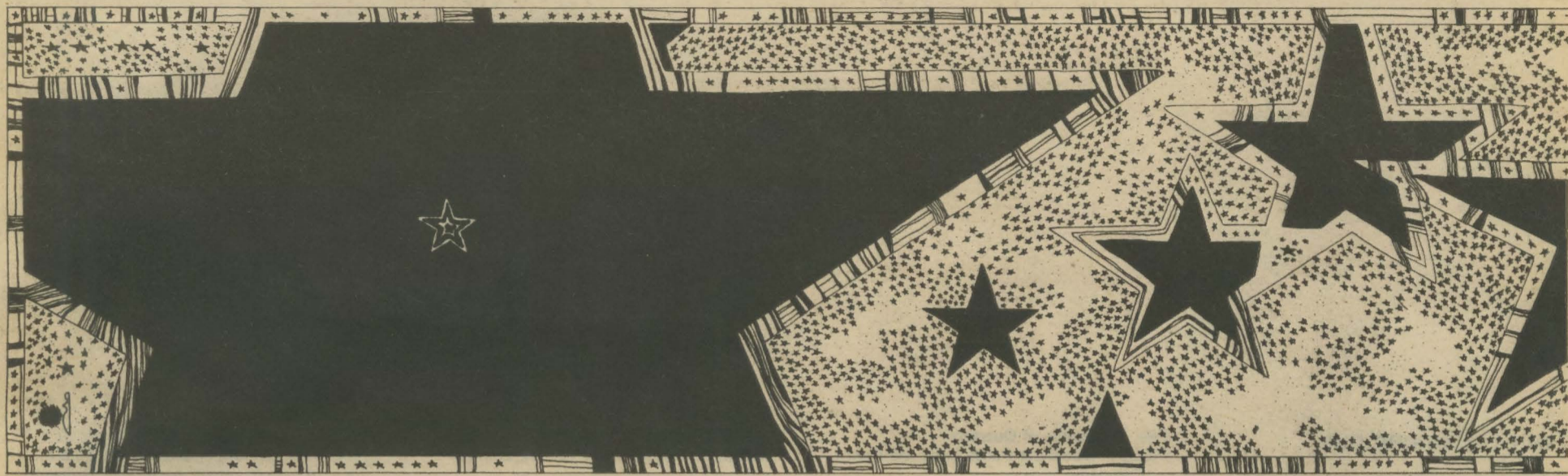


rocking around the clock

A grueling three-day weekend of dancing, dancing, and more dancing is in store for students trying to raise money for the 1976 Muscular Dystrophy drive.

The Dance-A-Thon, Update is informed, will not be as hazardous to its participants' health as its Depression Era counterparts were. Regular breaks for rest, cookies, milk, and other bodily needs are planned. Sponsors are invited to show up and place money on likely couples at Coffman Union's Great Hall on Jan. 16, through Jan. 17., and on into the wee hours of Jan. 18.

Of course, should a tangoing terpsichorean or two fall by the wayside, the people at the marathon will know what to do. After all, they shoot horses, don't they?



it. Part of the potpourri: The Minneapolis Police Department's "Drunk Driver," a short account of an arrest; "The Farmers' Market" and how it works; "A Mexican-American Cultural Event."

Others: "Meanwhile, Back at the Bus Stop," a documentary on the MTC; an autobiographical film by a cerebral palsy victim; and a segment simply called "Getting My Friends on TV." Stars and producers are asked to keep their segments under about 12 minutes.

"Changing Channels," aired Tuesdays at 10 p.m., is a video magazine edited by the UCVC. Appearing on the program are individuals or groups who want "to get something to happen," but who have not been able to have their point of view expressed on regular commercial television.

One segment, for example, was initiated by a Twin Cities woman who used to live

near Lutsen, Minn. Donna Waters was concerned about the use of a particular herbicide, 245-T, in northern Minnesota. She came to the UCVC with serious stories about delayed effects of the herbicide on animals, children, and pregnant women. Other media had not been willing to investigate or to use the story, and government agencies were skeptical—many of the studies on 245-T had been done by North Vietnamese.

"Changing Channels" accepted the challenge and checked Waters' evidence with university professors, government agencies, and the manufacturers. UCVC helped Waters produce an 18-minute segment last June on all sides of the issue. As a result, this year a bill is being introduced in the Legislature to regulate the use of 245-T.

What are the costs of getting on TV through the UCVC? Nothing if your message is selected for "Changing Channels." One

dollar for two-week equipment rental, if you can prove you know how to operate the video equipment. Or \$20-\$60 for first- or second-level training sessions on use of TV equipment (charges vary for students, citizens, and institutional groups). For more information, call Steve Kulczycki, service manager for the UCVC, at 373-9838.

The University Community Video Center helps people get their "messages" on TV and trains people in the use of TV equipment because the staff believe in "video literacy."

"Video literates" are people who can plan a TV segment, use a portable unit to make the videotape, edit the tape, and prepare it to go on television. Increased literacy involves the making of documentaries and the studio-production of an entire program. The UCVC trains "video illiterates" through workshops that range from six hours to 30 hours. Nine portable video cameras, editing machines, and a studio are available.

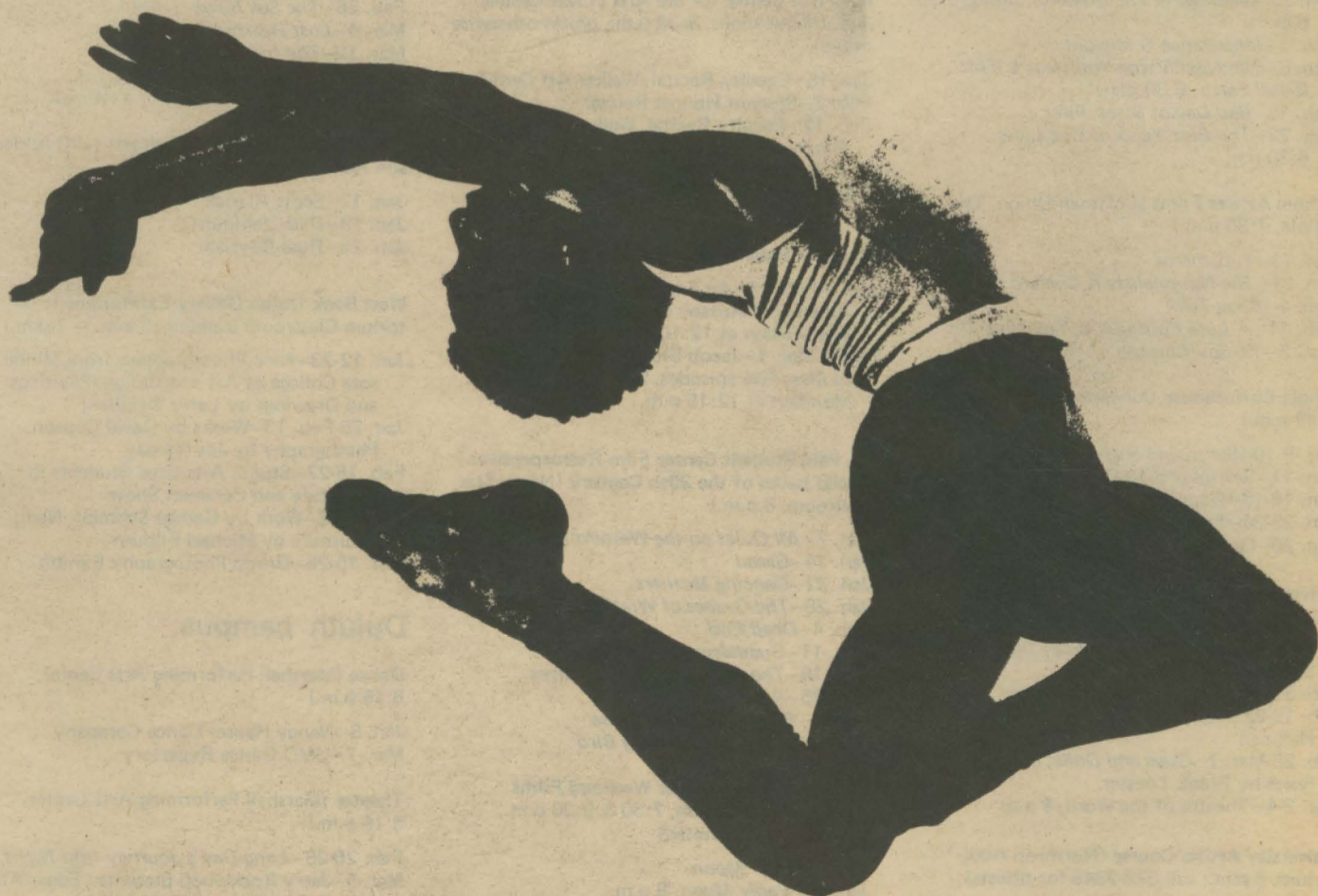
Steve Kulczycki compares the current level of video literacy to the level of print literacy at the time of the first printing press: "Literacy spreads as people learn the skills of the medium and get the opportunity to convey their messages to outside groups." Why should a few TV stations control all the time and expertise the way a few people controlled print before the printing press?

The UCVC challenges another common assumption: Why should every TV program try to reach all the people all the time? At UCVC, it is felt that "narrowcast" as well as "broadcast" has its place, to serve smaller audiences and points of view.

"Television is the main nervous system of our society," Kulczycki said. "University Community Video wants to humanize and diversify the medium."

So, John and Jane Q. Public, your stardom is assured. Once people see you, they'll forget they ever heard of Archie Bunker.

is this photograph upside-down?



Gary Chryst of City Center Joffrey Ballet is shown executing one of the more athletic moves from the dance piece *Trinity*.

The Joffrey, one of the three top Ballet companies in the country, will perform three different programs for Northrop Auditorium audiences Jan. 19, 20, and 21 at 8 p.m.

Tickets are available from University Artists Course, 105 Northrop. Phone: 373-2345.

Twin Cities campus

University Gallery (Northrop Auditorium)

Jan. 5-Feb. 6—Claus Hoie: Water Colors of the Norwegian Battalion
 Jan. 12-30—Paintings and Drawings by Sara Hauge
 Jan. 23-Feb. 6—Color Fields-Fiber by Lynn Klein
 Feb. 5-Mar. 7—Star Spangled History (Joseph Boggs Beale)
 Feb. 10-Mar. 6—Bicentennial Exhibition (see p. 12)
 Feb. 16-Mar. 12—European Master Photographs
 Feb. 18-Mar. 3—Work by Nathalie Raab

Coffman Union Popular Films (7:30 & 10 p.m.)

Jan. 16-17—*Murder on the Orient Express*, West Bank Auditorium
 Jan. 23-24—*Harry and Tonto*
 Jan. 30-31—*Brewster McCloud*
 Feb. 6-7—*McCabe and Mrs. Miller*
 Feb. 13-14—*California Split*
 Feb. 20-21—*Deliverance*
 Feb. 27-28—*Day for Night*
 Mar. 5-6—*Sunday Bloody Sunday*
 Mar. 12-13—*Midnight Cowboy*

Movies and the American Experience (Bell Museum, 8 p.m.; discussion with each film)

Jan. 20—*Modern Times*
 Jan. 27—*Citizen Kane*
 Feb. 3—*The Big Sleep*
 Feb. 10—*The Man Who Shot Liberty Valance*
 Feb. 17—*Bonnie and Clyde*

Angles of Vision Films (Coffman Union, 7:30 p.m. unless otherwise noted)

Jan. 18—"Gertrude Stein: When You See This, Remember Me"
 Jan. 25—*Shadows & The Emperor Jones*, 6:30 p.m.
 Feb. 1—*Inheritance & Migrant*
 Feb. 8—*The Next Voice You Hear & This Island Earth*, 6:30 p.m.
 Feb. 15—*Bad Day at Black Rock*
 Feb. 22—*The Best Years of Our Lives*, 6:30 p.m.

Ethnic Affairs Films (Coffman Union, The Whole, 7:30 p.m.)

Jan. 14—*Tupamaros*
 Jan. 21—*The Nationalists & Culebra*
 Feb. 4—*Reov-Takk*
 Feb. 11—*A Luta Continua & You Hide Me*
 Mar. 3—*Yo Soy Chicano*

Whole Coffeehouse Concerts (Coffman Union, 8:30 p.m.)

Jan. 9-10—Susan and Richard Thomas
 Jan. 11—Storms and McGraw
 Jan. 16-18—Ronnie Laws and Bobbie Lyle
 Jan. 23-24—Furry Lewis
 Jan. 25—Open Stage

University Theatre Productions (Rarig Center; call 373-2337 for dates and times)

Jan. 30-Feb. 15—*Happy Birthday, Wanda June*, by Kurt Vonnegut, Jr.
 Feb. 3-5—Theatre of the Word, 8 p.m.
 Feb. 12-22—*The Little Foxes*, by Lillian Hellman
 Feb. 20-Mar. 7—*Guys and Dolls*, music and lyrics by Frank Loesser
 Mar. 2-4—Theatre of the Word, 8 p.m.

University Artists Course (Northrop Auditorium, 8 p.m.; call 373-2345 for tickets)

Jan. 13—Ruth Welting
 Jan. 19-21—City Center Joffrey Ballet
 Jan. 31—Jose Limon Dance Company
 Feb. 12-13—Royall Winnipeg Ballet

Feb. 14—Parade of Quartets
 Feb. 21—Mazowsze Polish Song and Dance Company
 Feb. 28—Paul Taylor Dance Company
 Mar. 22—Don Cossacks of Rostov
 Mar. 26-27—Pennsylvania Ballet
 Mar. 30—Early Music Consort of London
 Apr. 3—National Dance Company of Senegal

Music Department Events (Scott Hall Auditorium, 8 p.m., unless otherwise noted)

Jan. 23—Elliott Schwartz, guest composer; 3 & 5 p.m.
 Feb. 4—David Baldwin, trumpeter
 Feb. 6—Concert Band Ensemble, Northrop Auditorium
 Feb. 11—Brass Choir
 Feb. 15—Jazz Ensemble, University Symphonic Band; Northrop Auditorium, 3 p.m.
 Feb. 20—University Symphonic Chorus, University Symphony Orchestra; Northrop Auditorium
 Feb. 23—Robert Samarotto, clarinetist
 Feb. 26—New York Brass Quintet Clinic, 11:15 a.m.
 Feb. 26—New England Consort of Viols, 7:30 p.m.
 Feb. 29—Symphony Band Ensemble, Jazz Ensemble; Northrop Auditorium, 3 p.m.
 Feb. 29—Brass Choir; Hamline Methodist Church, St. Paul, 8 p.m.
 Mar. 4—Chamber Concert: Paul Freed, pianist, and Minnesota Orchestra members
 Mar. 5—Concert Band Ensemble, Northrop Auditorium
 Mar. 7—University Symphony Orchestra, Northrop Auditorium, 3 p.m.
 Mar. 9—Chamber Singers, Concert Choir, and Minnesota Orchestra members; Northrop Auditorium
 Mar. 14—University Jazz Ensemble, Northrop Auditorium, 3 p.m.

MacPhail Center for the Arts (1128 LaSalle Ave., Minneapolis, 3:30 p.m., unless otherwise noted)

Jan. 18—Faculty Recital, Walker Art Center
 Feb. 8—Student Honors Recital
 Feb. 17—Faculty Recital, Walker Art Center, 8 p.m.
 Mar. 7—Student Concerto Program
 Mar. 14—Faculty Recital, Walker Art Center

St. Paul Student Center Educational Films

Jan. 7-Feb. 11—*An Englishman's View: The America of Alistair Cooke*; six episodes, Wednesdays at 12:10 & 7 p.m.
 Feb. 1-Mar. 1—Jacob Bronowski's *The Ascent of Man*; five episodes, Sundays at 7 p.m., Mondays at 12:15 p.m.

St. Paul Student Center Film Retrospective: Social Issues of the 20th Century (North Star Ballroom, 8 p.m.)

Jan. 7—*All Quiet on the Western Front*
 Jan. 14—*Greed*
 Jan. 21—*Dancing Mothers*
 Jan. 28—*The Grapes of Wrath*
 Feb. 4—*Dead End*
 Feb. 11—*Guadalcanal Diary*
 Feb. 18—*The Best Years of Our Lives*
 Feb. 25—*All the King's Men*
 Mar. 3—*Rebel Without a Cause*
 Mar. 10—*To Kill a Mocking Bird*

St. Paul Student Center Weekend Films (North Star Ballroom, 7:30 & 9:30 p.m., unless otherwise noted)

Jan. 9—*Paper Moon*
 Jan. 10—*Paper Moon*, 8 p.m.
 Jan. 30—*Butch Cassidy and the Sundance Kid*
 Jan. 31—*Butch Cassidy and the Sundance Kid*, 8 p.m.
 Mar. 5-7—*Gone with the Wind*, 7:30 p.m.
 Mar. 12—"Don't Shoot Me. I'm Only the Piano Player," an evening of silent films; Rouser Room, 8 p.m.

St. Paul Student Center Noon Concerts (North Star Ballroom or Terrace Lounge)

Jan. 16—Everyday People
 Jan. 20—To be announced
 Jan. 30—Biddy Bastien Jazz Workshop
 Feb. 10—To be announced
 Feb. 12—Ray Komischke Sextet
 Feb. 27—Bob Crea Sextet
 Mar. 2—To be announced
 Mar. 5—Bryan Clark and Rick Schilling

St. Paul Student Center Candlelight Concerts (North Star Ballroom, 8 p.m.; call 373-1051 for subscription)

Jan. 27—The Viennese Violins (from the Minnesota Orchestra); dinner at 6:30 p.m.
 Feb. 3—Minnesota Orchestra String Quartet
 Feb. 24—Minnesota Woodwind Quintet; dinner at 6:30 p.m.
 Mar. 2—An Evening with the Harp

St. Paul Student Center Gallery Exhibitions

Jan. 4-30—Acrylics by Nell Hillsley, Intaglio Prints by Pat Doolittle, Drawings by Design Grad Students, Handcrafted Jewelry by Mary and Jim Norbloom
 Feb. 2-27—Drawings by Nancy Bagley, Metal Sculpture by Steven LeBert
 Mar. 1-25—Wildlife Batiks by Marnie Dahl
 Mar. 2-30—Photographs by J. Lavigne, Color Design (student show), Ceramics by C. Daryl Grangroth

West Bank Union Bijou Films (310 Anderson Hall, 2:15 & 7:15 p.m.)

Jan. 15—*North by Northwest*
 Jan. 22—*King of Hearts*
 Feb. 29—*The Mouse That Roared*
 Feb. 5—*Images*
 Feb. 12—*Murder Most Foul*
 Feb. 19—*The Day the Earth Stood Still*
 Feb. 26—*The Sea Hawk*
 Mar. 4—*Lost Horizon* (1937)
 Mar. 11—*The Ipcress File*
 Mar. 15—*I'm All Right Jack*
 Mar. 18—*Antonia: Portrait of a Woman*

West Bank Union Noon Concerts (110 Anderson Hall)

Jan. 12—Scott Alarick
 Jan. 19—Dale Dahlquist
 Jan. 26—Russ Rayfield

West Bank Union Gallery Exhibitions (Auditorium Classroom Building, 8 a.m. - 7 p.m.)

Jan. 12-23—Nine Photographers from Minnesota College of Art and Design, Paintings and Drawings by Larry Weinberg
 Jan. 26-Feb. 13—Works by David Copson, Photography by Jila Nikpay
 Feb. 16-27—Studio Arts Grad Students in Sculpture and Ceramics Show
 Mar. 1-12—Work by George Schmidt, Neon Sculpture by Michael Filburn
 Mar. 15-26—Group Photography Exhibit

Duluth campus

Dance (Marshall Performing Arts Center, 8:15 p.m.)

Jan. 8—Nancy Hauser Dance Company
 Mar. 7—UMD Dance Repertory

Theater (Marshall Performing Arts Center, 8:15 p.m.)

Feb. 26-28—*Long Day's Journey Into Night*
 Mar. 5—Jerry Rockwood presents "Edgar Allan Poe: A Condition of Shadow"

Music (Marshall Performing Arts Center, 8:15 p.m., unless otherwise noted)

Jan. 16—Ann C. Anderson, violinist, and Patricia Laliberte, pianist
 Jan. 27—Patricia Laliberte, pianist
 Jan. 29—Jazz Ensemble I

Jan. 30—Minnesota Opera Company: *El Capitan*, Duluth Auditorium, 8:30 p.m.
 Feb. 24—Karen Strege, bassoonist, Bohannon Hall 90
 Mar. 2—High School Honor Band, 7:30 p.m.
 Mar. 4—University Singers
 Mar. 9—UMD-St. Scholastica-Community Orchestra
 Mar. 11—Varsity Band and Jazz Ensemble II

Tweed Museum Exhibitions (8 a.m.-4:30 p.m. weekdays, 2-5 p.m. weekends)

Jan. 18-Feb. 1—American Watercolor Society, Works by Marion Peters Angelica and Helen Smith
 Feb. 3-8—Work by Lloyd Bennett
 Feb. 3-22—Photographs by Henry Roberts
 Feb. 10-15—Work by Nicole Briglia
 Feb. 17-22—Work by Craig Schlossin
 Feb. 24-29—Work by Tim Garvey
 Mar. 2-7—Work by Sharon Berry
 Mar. 9-14—Work by Aethan Hart
 Mar. 16-21—Work by Peggy Rasner
 Mar. 30-Apr. 4—Work by Paul Delvas

Morris campus

Exhibitions (Humanities Fine Arts Center, 9 a.m.-4 p.m. weekdays)

Jan. 6-26—Paintings, Prints, and Contemporary Serigraphs by Dianne Williams
 Jan. 30-Feb. 20—Paintings, Drawings, and Photographs by John Stuart Ingle
 Feb. 24-Mar. 15—Selections from the Permanent Collection

Concerts (3 p.m. unless otherwise noted)

Feb. 22—Chamber Choir, Recital Hall
 Mar. 7—Orchestra and Choir, Edson
 Mar. 9—UMM Band, Recital Hall or Edson, 8:15 p.m.

Performing Arts Series (Edson Auditorium, 8:15 p.m., unless otherwise noted)

Jan. 23—*Plain Speaking: An Oral Biography of Harry Truman* by Merle Miller
 Feb. 10—Pianist James Tocco, Recital Hall
 Feb. 19—Adam de la Halle's *Play of Robin and Marion*

Play Productions (8:15 p.m.)

Feb. 4-7—*Our Town*, Black Box Theatre
 Feb. 25-28—To be announced

Crookston campus

Concerts and Exhibits (Crookston High School, 8 p.m., unless otherwise noted)

Jan. 6-31—Nordfeldt Art Exhibit, Crookston National Bank (tentative)
 Jan. 11—Taylor Family String Quartet
 Jan. 31—Snow Days Dance, Bede, 9 p.m.
 Feb. 5—Robert Anderson
 Feb. 7—Concordia Orchestra
 Feb. 9—James Lee Stanley, Kiehle
 Feb. 17—Redwood Landing
 Feb. 21—Talent Festival, 6 p.m.
 Mar. 15—Minnesota Orchestra
 Mar. 29—Alaska Film, Kiehle

Waseca campus

Music and Films

Jan. 15—Dance: The Mid-Americans, Gym, 9 p.m.
 Jan. 22—Oliver and Jericho Harp Concert, 8 p.m.
 Feb. 2—*Brewster McCloud*, 8 p.m.
 Feb. 4—Dance: Teen King and the Princes, Gym, 9 p.m.
 Feb. 17—*The Strawberry Statement*, 8 p.m.
 Mar. 3—*Ryan's Daughter*, 8 p.m.
 Apr. 12—*M.A.S.H.*

update

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MINNEAPOLIS, MN 55455
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This is the story behind Prof. Dominick Argento's newly composed bicentennial opera, The Voyage of Edgar Allan Poe. The opera, to be performed by the Minnesota Opera Company in concert with the University Chamber Singers, will premiere April 24 at St. Paul's O'Shaughnessy Auditorium.

by Linda Nigro

"The Murders in the Rue Morgue," "The Pit and the Pendulum," "The Tell-Tale Heart," "The Fall of the House of Usher"—the macabre and the mysterious are part of the literary legacy of Edgar Allan Poe. Ironically, Poe's most intriguing mystery surrounds the last two weeks of his own life.

On Sept. 26, 1849, he was supposed to have taken a boat from Richmond to Baltimore. A week later he was found, raving mad, in a Baltimore gutter. On Oct. 7 he died, uttering, "God help my soul."

Investigation later showed that no boat left Richmond for Baltimore on Sept. 26. What happened during the weeks before Poe's death? What kind of voyage did he take?

Dominick Argento, University of Minnesota music professor, has written an opera dealing with the week of Poe's disappearance. Entitled *The Voyage of Edgar Allan Poe*, the opera is about a boat trip that never took place. In Argento's opera, Poe boards a ship of fools, peopled with characters from his life and his literary works. Argento based this mythical trip—Poe's journey into past, present, future, fiction, and reality—on his readings of Poe's stories, poetry, letters, and biography.

Poe was born in 1809. His mother died of consumption when he was three. As a youth he had problems with his adoptive parents and school, and he suffered through a doomed romance.

In his early manhood Poe joined the army and began writing poetry. He married his 13-year-old cousin, Virginia, who died of tuberculosis when she was in her twenties. During the months of suffering before Virginia's death, Poe reached his creative peak with such works as "The Fall of the House of Usher" and "The Raven."

According to Argento, in the "House of Usher" Poe expresses the philosophy that in the process of creating, there is also a

next page

**descent
into
the
maelstrom:
the
last
voyage
of
edgar
allan
poe**

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process of destruction. Perhaps Virginia, in her torment, served as a muse for Poe.

In addition to writing, Poe became editor of his own literary magazine. As a severe critic he made many enemies, one of whom was a Rev. Rufus Griswold. Griswold, a leading anthologist who had come under Poe's criticism, retaliated by likening Poe's work to that of the "anti-Christ."

"The hatchet was buried between Poe and Griswold shortly before Poe's death," Argento said. "Poe received an invitation from Griswold to submit one of his stories for inclusion in a new collection. A friendship developed between the two men, and Poe appointed Griswold his literary executor."

Two days after Poe's death the first of a series of attacks against his character and writings appeared in an obituary column in the *New York Times*. The attacks were later attributed to Rev. Griswold. Griswold, the sole controller of Poe's literary estate, also wrote the first biography of Poe, in which he charged that Poe was "a literary parasite and an alcoholic and drug user."

In the opening scenes of Argento's opera, Poe meets Griswold as he boards the boat. Griswold becomes the vessel's captain and the artist begins his ultimate trip in self-discovery.

"During the masquerade party that follows on deck, Poe is crowned King of Poets. Drinking songs celebrate his ascen-

Dominick Argento

sion as lord of the muse, and Poe becomes drunk. This raises the question of whether what follows is real or imagined," Argento said.

"A melodrama is then staged for Poe. Scenes from his childhood are reenacted, and the adult Poe is forced to relive the traumatic events of his early life: the loss of his mother, his marriage to Virginia, and her tubercular death. Through these flashes, his face pressed into his past, he must come to terms with life—how he used it or how it used him."

In one of his hallucinations, Poe sees women being auctioned off and sees himself shopping for a new muse to replace Virginia. At the close of this act, Virginia appears, resurrected from the dead. She tells Poe that she will be allowed to live as long as she reveals nothing about the mysteries of death.

"As an artist, Poe is compelled to discover the experience of death, attainment of which will destroy him as well as Virginia," Argento said. Virginia eventually relents and describes for Poe a "world of silvery fish swimming through rivers of silence."

"It is Virginia's dying a second time," Argento said, "that is the moment of truth for Poe. It is then he realizes that in his search to perfect his art he had used her."

Confronted with his own created horrors, Poe becomes delirious. In the last act Poe is brought to trial, charged with insanity. Rev. Griswold, the ship's captain, now becomes the judge, and the fictional Auguste Dupin, from the "Murders in the Rue Morgue," acts as Poe's defender.

"Poe tells the court that he wrote the way he did because of the way his poor wife had suffered and died," Argento said.

The prosecution replies that Poe had wanted Virginia to die so he could experience her agony. "Poe's defense," Argento said, "is an appeal in which he asks, given the life he had, how could he write anything but what he did? How else could he express his pain?"

When he is found insane, Poe protests. During the ensuing argument Poe attacks Griswold. As the artist stabs Griswold, the judge is transformed into Poe and Poe dies.

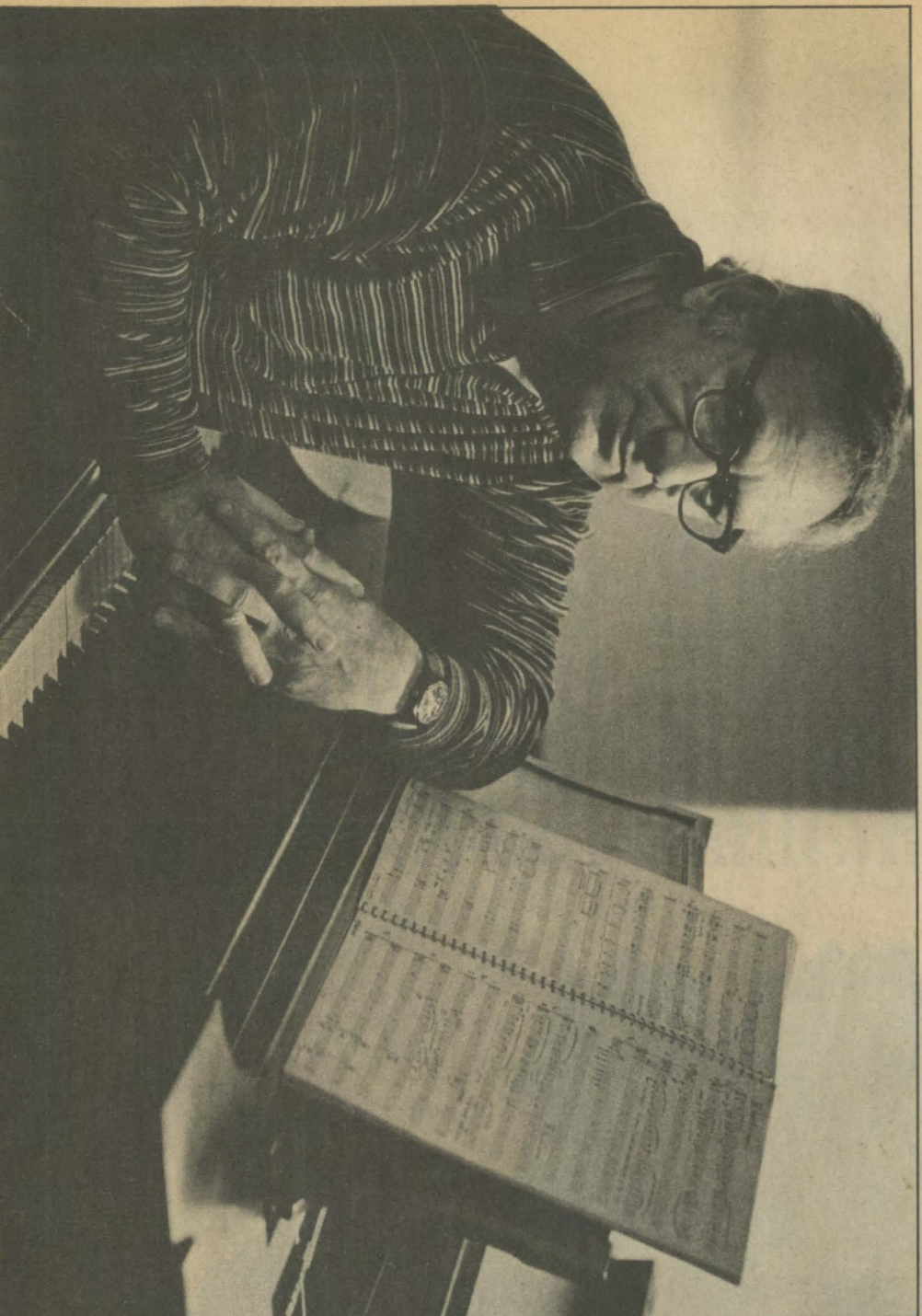
As the dead Poe lies on the wharf, Rev. Griswold steps out of the shadows. A doctor approaches Griswold and asks if he knows Poe Griswold replies that he never heard of him and walks away.

During his life Poe had written about man's confrontation with evil—a confrontation in which victim and villain were often the same. It is the hidden self that threatens destruction for every man, according to Poe.

Who was Edgar Allan Poe's doppelganger? To Dominick Argento, it was Rev. Rufus Griswold. Still, Argento said, Poe was well aware of how he had failed himself. Argento quotes from Poe's story "William Wilson":

"... henceforward art thou dead—dead to the World, to Heaven, and to Hope! ... how utterly thou hast murdered thyself."

TOM FOLEY



don't get mad

Are you receiving three copies of *Update* because you're an alumnus of the University, because you once made a contribution to the University Foundation, and because you now have a son or daughter attending classes there? (It can happen.)

Did you move away from your old address and now you have to spend a dime on forwarding postage for each issue of *Update*? (Sorry about that.)

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regents decide on MPIRG's fate

Leaders of the Minnesota Public Interest Research Group (MPIRG) voted March 14 to accept a one-year extension of their contract with the University, but at the same time made it clear that they are angry about what they consider a breach of faith by the Board of Regents.

Under the contract, the University collects an optional fee of \$1 per student per quarter for MPIRG, providing about \$100,000 of MPIRG's \$157,000 annual budget. MPIRG is a student-controlled environmental and consumer group composed of 12 full-time staff members and about 300 student volunteers. Its board of directors represents 20 of the state's college and university campuses.

MPIRG's two-year contract with the University was given a one-year probationary renewal a year ago by the Regents with the stipulations that a survey of student opinion be taken, that the fee be made more clearly optional on the fee statement, and that MPIRG improve its relationship with the student government.

University President C. Peter Magrath had recommended that the Regents approve a two-year contract this year on the basis that the conditions of the probation had been met and the survey showed strong student support for the MPIRG fee.

Duluth Regent Erwin L. Goldfine, who proposed the amendment renewing the contract for one year rather than two, said he had received 1,000 letters on the issue, and 90 percent of them were from residents of his region who opposed MPIRG.

"I believe that the industry input into MPIRG has not been of the consequence it should be," Goldfine said.

He said MPIRG has failed to strike "a proper balance between the protection of the environment and the promotion of industry" and the economy in northeastern Minnesota, where MPIRG has studied the potential development of copper-nickel mining and has waged an environmental battle against the dumping of taconite tailings into Lake Superior and the clear-cutting of timber in the Boundary Waters Canoe Area.

Goldfine's amendment passed on a 6-5 vote by the Regents, who then voted 7-4 to renew the contract.

Chuck Leer, MPIRG's administrative director, said that the one-year extension compromised MPIRG's ability to sustain long-term research activities, requiring instead an emphasis on short-term issues, advertising, and fund-raising.

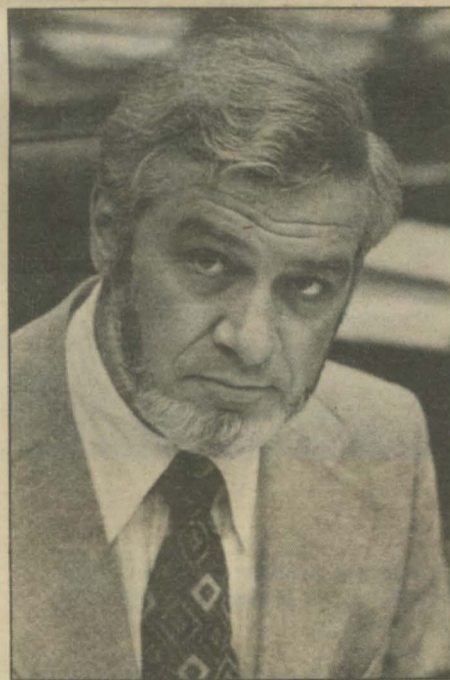
"A year ago, there were some reasons why the one-year contract was granted," Leer

said. "This year, there were no reasons given other than that MPIRG would be more accountable.

"The question is 'accountable to whom?' Is MPIRG to be accountable to the Regents or is MPIRG to be accountable to its student constituency?"

"We came out of this year's Regents' meeting with more than a one-year contract," said Richard Young, chairperson of MPIRG's board of directors. "MPIRG has become a student-rights issue at the University of Minnesota and they (the Regents) are not going to forget it."

Steve Chapman, MPIRG's research director, said the MPIRG board should consider the strong student support MPIRG had received, the support of the University administration, and the close vote by the Board of Regents and should take its case back again next year.



Stanley Kegler

university responds to NCAA penalties

The National Collegiate Athletic Association (NCAA) has placed the University of Minnesota Gopher basketball team on a three-year probation and has restricted its activities during two of the three years.

NCAA penalties, the University's response, and a summary of the University's investigation into the allegations of NCAA rule violations were released in documents March 10 by University Vice President Stanley B. Kegler.



C. Peter Magrath

Gopher basketball teams will be restricted from playing in any post-season game for the two-year period beginning March 4, 1976, the date University President C. Peter Magrath notified the NCAA that the University would not appeal NCAA penalties. Thus, it might be possible for the Gophers to participate in post-season games in 1978 if they were scheduled after March 4.

During the two years, the Gophers will not be allowed to participate in any televised games under NCAA control, and they will lose three basketball scholarships, reducing to three the number that can be awarded each year.

Gopher participation in the 1972 NCAA Midwest Regional tournament will be erased from the NCAA record because four players—Jim Brewer, Bob Murphy, Bob Nix and Keith Young—had received benefits that were in violation of NCAA rules from the University or its supporters, Kegler said.

The University will have to return its third-place award and \$21,488 that it received for its participation in the tournament.

During the probationary period, the NCAA will monitor Gopher basketball activities to insure that abuses are not repeated.

"The record of what was done that is wrong is clear," Magrath said in his statement to the NCAA. "It speaks for itself. There is no point in varnishing it over and trying to rationalize it away."

The most common violation appears to have been the sale of complimentary tickets, which are provided to team members for use by family and friends.

Other common violations included small loans or gifts of cash, gifts of such things

as fishing rods and bicycles, loan of an automobile, use of a WATS line for long-distance phone calls, housing prospective recruits in a hotel, and transportation.

Sources of the improper benefits were former coach Bill Musselman's personal funds, complimentary goods and services provided by community members through the basketball staff, independent actions by unaffiliated individuals and athletic department representatives, and abuse of privileges by student-athletes. Some funds were from the athletic department, which "was knowingly and unknowingly the source of improper benefits."

Magrath and Kegler both said the University was legitimately penalized by the NCAA for its rule violations, but they would like to see an improvement in the rule book.

"We are voluntary members of the NCAA, and that manual has been around for some time and we're supposed to know it," Magrath admitted.

Kegler said the rules have grown in response to specific "symptoms" of problem areas and, as a result, a number of unusual rules have resulted.

For example, he said, "I can't give a hitchhiker a ride if he happens to be a student-athlete." Coaches and alumni are in violation of NCAA rules if they have a student-athlete as a dinner guest in their homes, he said.

update

volume 3, number 4

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R. SCHOLES



life after death, and other topics: religious studies offers a different kind of curriculum

by Maureen Smith

When you teach religious studies at a public university, people are sometimes suspicious. What are you up to? Are you a scholar or an evangelist?

A. Thomas Kraabel, chairman of the Religious Studies Program at the University of Minnesota, is used to the suspicions. "If you get excited about religion in your class, that looks funny," he said. "If you get excited about Shakespeare, that's what you're paid to do."

But Kraabel said students don't usually have any trouble understanding what a

religious studies course is all about. "They know the difference between going to a caucus and taking a political science course. And they know the difference between going to a synagogue and taking a course in Judaism."

A course in religious studies is "not the place to find God or to decide that He's not there," said Robert Tapp, professor of religious studies and acting chairman of the Humanities Program. Instead, Tapp said, students are encouraged to be "critical junior participants in the process of studying what religions are and what they're becoming."

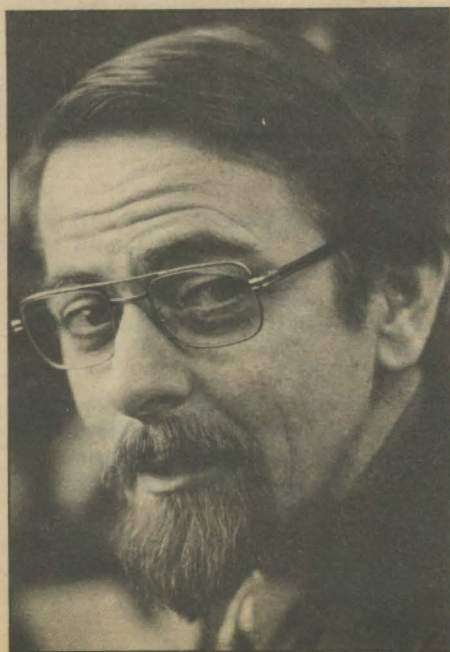
Religion is an important part of human history, Kraabel said, and until recently it has been "systematically excluded" from consideration in most public schools and universities. Because it is so important, he said, it keeps cropping up in other courses—history courses, literature courses—but then it is treated "like a barnacle on the side of a boat."

Kraabel drew a parallel with sex education. When sex or religion is left out of the public school curriculum, he said, "it's not because it's not important, but because it's too important."

Back when William Watts Folwell was president of the University, Kraabel said, students were required to attend chapel. "That's a different kind of religious studies." In more recent years, he said, the University has often been viewed as "the godless University."

Because so many people think that the University is hostile to religion, Kraabel said, "I am continually the subject of amazement when people ask me what I do and where I do it."

Kraabel's favorite project right now is a new survey course on Christianity. The first half of the course, taught in the spring, deals with the history of Christianity from its beginnings in Judaism until the present day. The second half, offered in the winter, deals with contemporary issues, chiefly



A. Thomas Kraabel

TOM FOLEY



with American Christianity and its approximately 250 different manifestations.

Courses on Greek and Asian religions have been available at the University since the late 1960s. Survey courses on Judaism and Islam began in the early



1970s. But a survey course on Christianity wasn't offered until the spring of 1975.

One reason it took so long to introduce the Christianity course, Kraabel said, is that there was no obvious department that could offer it. A wealth of courses touching on Christianity was already available—an English course on the King James Bible as literature, a classics course on the New Testament, music courses on hymnology and the history of church music, art courses, history courses, at least 50 courses in all—but there was no obvious home for the survey course. Now the course is offered with a religious studies number, and demand has been so high that students have been turned away.

In his class this winter on contemporary issues in Christianity, Kraabel polled the students on the topics they wanted to discuss in the last two weeks of the quarter, once the basic textbook material had been covered.

He gave them a list of 32 topics to choose from: Abortion. Belief in God. Belief in Heaven, Hell, the Devil, Life After Death. The Bible. Birth Control. Church Attendance. Divorce. Federal Aid to Parochial Schools. Homosexuality. Pentecostal and Charismatic Movements

in the 1970s. Prayer in the Public Schools.

(Another topic, "Women in Religion," was not on the list because Kraabel had already decided to invite Gayle Yates of the women's studies faculty to be a guest lecturer on the topic. He said Yates "has just written what I think will be the definitive work on women in Christianity.")

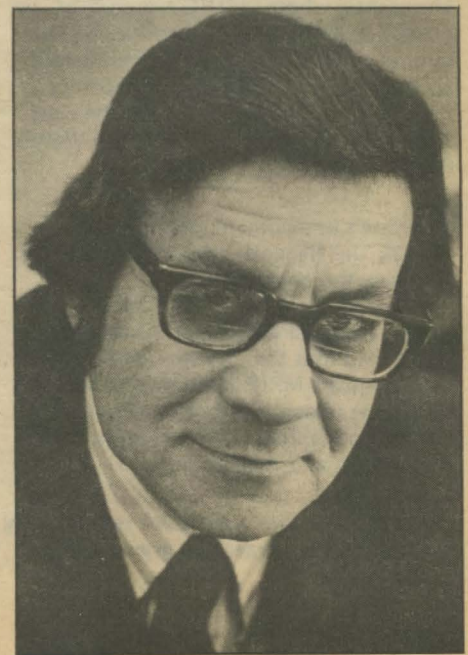
What did the students want to talk about? Their first choice was "Belief in Heaven, Hell, the Devil, Life After Death." Second was "Pentecostal and Charismatic Movements in the 1970s." Third was "Belief in God" and fourth "The Bible."

Kraabel also gave students the opportunity to cross out those topics they did not want to talk about. Heading this list was "Federal Aid to Parochial Schools." Next came "Abortion." ("I've heard enough about it," one student said.) "Church Attendance" and "Prayer in the Public Schools" were third and fourth among topics the students didn't want to talk about.

"If we'd had a list like this five years ago, the results would have been much different," Kraabel said. His interpretation of the responses is that students who take a course in Christianity want to talk about deep religious questions, not political or social questions.

Some students take religious studies courses, especially the courses in Christianity and Judaism, in order to explore their own traditions. "I think that's a legitimate reason to take a course," Kraabel said. Other students—or the same students when they take other courses—want to learn about religious traditions other than their own.

In the Christianity course last spring, Kraabel found that about two thirds of the students counted themselves as



Robert Tapp

TOM FOLEY

Christians. But in their beliefs and their degree of commitment, the students were a diverse group.

"The course is an objective course," Kraabel said. "You don't have to bring anything in. If you get an A in the course, it doesn't mean you're religious. If you get an N, it doesn't mean you're doomed."

Kraabel, an ordained minister who once served a parish, said "this is such a pluralistic place, and I'm reminded of that so much, that it is impossible to teach in any class without keeping that in mind."

At first Kraabel thought it was important to tell students of his own religious



background, just as a political science teacher might make his biases known. But because the religious studies courses are taught objectively, Kraabel said, he has decided that "if I stand up in front and say, 'I have to tell you what I am,' that skews it."

Now if his religious background comes out in class discussion, Kraabel said, some students say they knew it all the time and others are surprised.

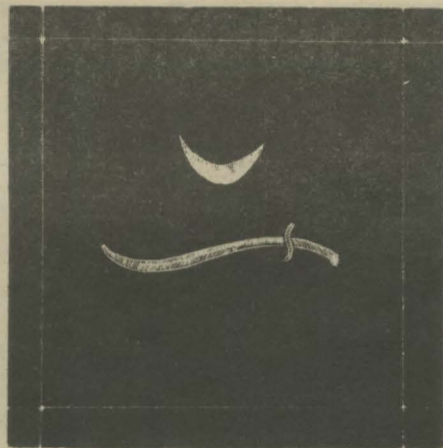
Tapp is even more careful to keep his own religious beliefs a secret from his students. "I'm always pleased at the end of the quarter when students aren't sure what I am," he said.

In fact, Tapp's ideal would be for Christians in religious studies to teach everything but Christianity, for Jews to teach everything but Judaism. "I wouldn't want to be rigid about this—it would be a silly rule—but the real test of whether someone is a scholar instead of an evangelist is if he can do a fair job of helping students get inside a tradition other than his own."

Tapp remembers the time when the religious studies field was dominated by Protestants and chapel services were included at professional meetings. Now, he said, the "Protestant monopoly" has been broken and the chapel service replaced by a hospitality hour.

"The field has become much more sophisticated since the Protestant monopoly ended," Tapp said. "Now we have Jewish scholars, Catholic scholars, non-

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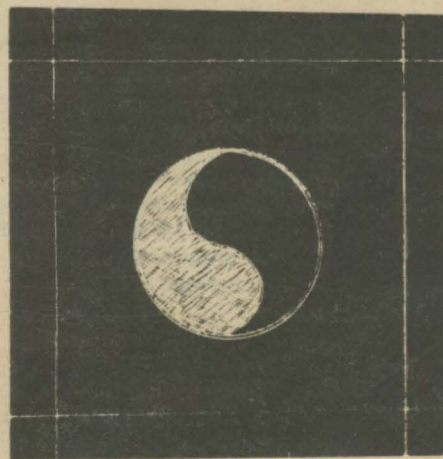


believing scholars. There was no reason to think that Protestants had a monopoly on scholarly ability."

Equally important, Tapp said, "when we don't all come from the same background, we don't always ask the same questions and ignore the same issues."

Kraabel said his students have discussed a statement attributed to Prof. Erwin Marquit (who has since said he was misquoted) that only a Marxist can teach Marxism objectively. "Whatever they think of Marxism or Prof. Marquit, they're more sophisticated than that," Kraabel said. "They know that it's possible to be a non-Y and still teach Y objectively, and it's possible to be a Y and do a very bad job of teaching it."

Besides coming from different religious backgrounds, religious studies scholars



bring a variety of academic approaches to the discipline.

At a meeting of the American Academy of Religion, Tapp said, "I defy anyone to go from one room to the other and understand what's happening. People are doing everything from studying the Hebrew verb to playing computer games."

Kraabel said he and Tapp complement each other in a number of ways. Kraabel is more of a historian, Tapp more of a social scientist. Kraabel's specialty is Mediterranean and Greco-Roman religions, Tapp's is Asian religions.

Tapp said there is a need in religious studies for both a literary-historical and a social science approach. "If you came down from Mars and were handed a New Testament, it would barely prepare you to understand what Christians in the 20th century are doing," he said. "Yet if you didn't know the New Testament, your understanding would be very limited."

Tapp has a special interest in studying the religious experiences of living people, including students. He asks students in the "Introduction to Religious Studies" class to draw up questionnaires and develop a profile of the class as a religious group.

"If you look at only the traditional group of religious people, you're leaving a lot of people out," Tapp said. His interest includes those who have grafted some form of Eastern religion onto a Western tradition, those who are meditating, those who have developed their own belief systems. And he finds it especially instructive to study those who have crossed traditions—a Protestant who has become a Catholic, a Christian who has become a Marxist, a nonbeliever who has become a Christian.

The Twin Cities campus and community offer rich opportunities for field study, Tapp said. "This is one of the uniquely situated great universities."

For one thing, he said, Minneapolis is "one of the high-religious-practicing cities of the country. Lots of us go to churches and synagogues over the weekend. And then in Minnesota the ethnic ties are still strong enough that we could be doing a good deal of study on the relationship between religions and ethnicity."

Minneapolis is also "a major center of occult phenomena," Tapp said. "This can hardly be ignored."

Around the edges of the campus itself are a number of religious centers, he said. "In many ways the last couple of generations of college chaplains have been among the more exciting members of the clergy," he said.

Besides these representatives of the traditional religions, he said, there are "the various neo-Oriental groups." The traditional "recipients" of missionary zeal are now sending out missionaries, he said. "We have Buddhists, Hindus, Sufis, and Sikhs on the American streets."

The religious studies faculty does not have any stake in what religious choices students make. And because "we are not carrying the torch for Christianity or Judaism or Hinduism," Tapp said, "we can be much more critical than the people who have a vested interest in defending the tradition."

In looking at such issues as the role of women or the treatment of homosexuals, Tapp said, "we're not caught in a defensive role and we're not really caught in any kind of advocacy role."

"Our interest is not simply what's exciting in the culture at the moment, but we can certainly take note of it."

Kraabel and Tapp are the only two faculty members with religious studies appointments, and they have mixed feelings about the program that the University is able to offer.

Because of the size of the University and the number of faculty members from various disciplines with competence in religious studies, Tapp said, "we can put together an impressive offering." Eighteen faculty members from almost as many departments are on the graduate faculty in religious studies. But the risk is that if somebody leaves, there is no guarantee that the replacement will be equally competent in religious studies.

Roland Delattre, chairman of the Program in American Studies, is a distinguished scholar of American religions. "His competence is in our field," Tapp said. "But what if he left tomorrow?"

At the same time, Kraabel said, it would be foolish to try to duplicate courses that are already strong. "What would we do—hire two assistant professors? We could never hire anybody to duplicate Roland Delattre."

Similarly, Kraabel said, Richard Mather, chairman of East Asian Languages, is a specialist in Buddhism—but there is nothing to say that the person in his position would have to have this specialty.

"We continually dumfound people by showing them a list of all the courses that are available," Kraabel said. But when the offerings are scattered among many departments, they are not always easy for students to find. Would someone who is looking for a course in the Old Testament think to look under Near and Middle Eastern Studies?

The University of Minnesota likes to compare itself with its sister schools in the Big Ten and the University of Chicago, Kraabel said. In religious studies, he said, "we are very much an underdeveloped area. Indiana, Northwestern, Chicago, and Iowa all have strong programs."

Both Kraabel and Tapp see religious studies as a growing field. "If higher education ever starts expanding again," Kraabel said, "religious studies probably will grow faster than other fields. We're so far behind."

listen to the fizzle of the acid rain; or, every time it rains it rains sulfur dioxide

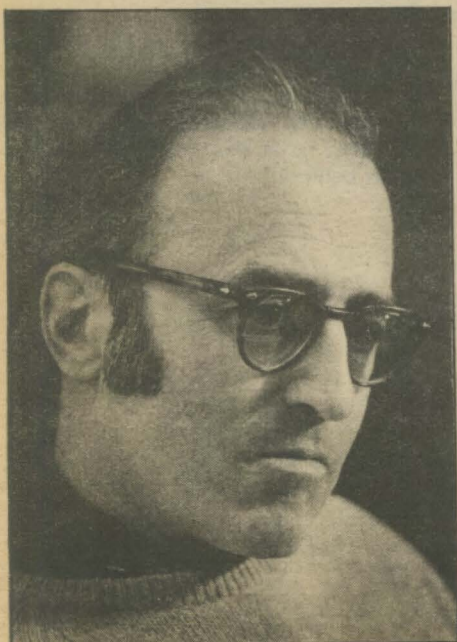
by Mike Finley

Last year a movie called *The Devil's Rain* appeared in American theaters, mostly to empty seats. The climax of the movie occurred when falling raindrops dissolved the bodies of Ernest Borgnine and the rest of the cast.

Eville Gorham of the University's Department of Ecology and Behavioral Biology has been studying something called acid rain for many years now. And while acid rain may not reduce Ernest Borgnine to a pool of jelly, it may in the long run be far more dangerous.

"Acid rain, or acid precipitation, is a phenomenon that occurs when the acidity of water in the atmosphere increases," Gorham said. While atmospheric acidity

Eville Gorham



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can be attributed to natural causes such as volcanoes, mudflats, hot springs, and geysers, it is more often the result of acid put into the atmosphere by people: pollution. Auto exhaust, furnaces, and factories do the dirty work. Sulfuric acid, hydrochloric acid, and nitric acid in the rain are the results.

And rain is getting more acid every day.

Those who remember, as Gorham does, the London smog of 1952, which killed 4,000 people, already have some inkling of what chemical imbalances—in this case gaseous sulfur dioxide released by coal-burning furnaces, combined with atmospheric humidity—can do.

Gorham says that the London smog is an extreme example, and that acidity in the air was only one of several culprits. But he can point to other examples in which acid rain has made its mark.

"The most obvious results are apparent in freshwater aquatic systems," he said, describing how the rain washes nutrients and minerals from poor soils and deposits them in rivers and lakes, where they affect the things that live in the water. Thus the soil is further weakened while the waters are enriched. But the benefits the waters derive from the enrichment are outweighed by the deleterious effects of the acid.

"In Scandinavia, damage to trout and salmon fisheries has been devastating. The acidity can probably be traced to European industrial pollution, but once it rains down on the thin soil of Norway and reaches the rivers and streams, there

is no protection against it. Norway is basically a big lump of rock. The sulfuric acid and gaseous sulfur dioxide in the precipitation wash the mineral material from the soil, and as the soil is not rich in neutralizing bases, the streams and lakes are acidified."

Acidity and alkalinity are expressed in terms of pH on a scale whose values run from 0 (extremely acid) to 14 (extremely alkaline). A pH of 7 is absolutely normal. Most rain is slightly acid by nature—about 5.7—owing to the contact it has with atmospheric carbon dioxide. But Norwegian streams have sometimes registered as severe an acidity as 4.0 or below. Fish populations have plummeted. Productivity for local fishermen has dropped off.

This same phenomenon is occurring wherever industrial pollution puts acid in the air and local soils are too poor to resist the acidity of the falling rain. New England is a case in point.

"There is good evidence that acid precipitation has increased in the northeastern United States since World War II," Gorham said. "Fuel consumption in the region has always been high, and local soils are usually poorly buffered against acidity. The results have been most obvious in lakes in the Adirondack area and in forested areas."

Gorham described the threats posed by acid rain as different from place to place. In Great Britain—witness the murderous smog of 1952—sulfur dioxide, a precursor of acid rain, posed a threat to public health. In Norway the freshwater fish-

eries, forests, and general environment were laid waste. In New England, the victims appear to be sport-fishing and forests.

Lest the damage to forests go underestimated, Gorham told of the loss encountered in the southern Swedish lumber industry, where productivity took a 4-percent drop between 1950 and 1965. No one has come forth with a better explanation for the drop than acidification.

"A 4-percent drop in forest productivity in an area like New England, in terms of energy use, would be the equivalent of a loss of four 1,000-megawatt nuclear reactors."

Which brings Gorham to Minnesota. He notes that snow in western Minnesota is alkaline, while in the eastern half of the state it's more likely to be acid—he isn't sure how near the acid source might be.

Gorham acknowledged the work in the Twin Cities and Sherburne County areas of Al Wood and Sagar Krupa of the University's Department of Plant Pathology. Their current studies on the effects of acid precipitation on vegetation will be of great value, he said, in monitoring the Minnesota situation as it continues to develop.

In the meantime, scientists do know that acidity has several predictable results: seed germination is inhibited, seedlings are stunted, and vital nutrients are leached from the soil. In addition, chlorophyll, the catalyst in the food-producing process of photosynthesis, is bleached into ineffectiveness by gaseous sulfur dioxide.

While it's not possible to state that certain chemicals in the atmosphere have definite casual relationships to certain human diseases, Gorham said, the coincidences are these:

The acidity of rain in English cities correlates with their rates of bronchitis mortality. In places where pneumonia incidence is high, so are the sulfate deposits from the air. And the association between tar in the air and cancer in human lungs is also clear.

Some optimists might suggest that acid precipitation might actually be a boon to an agricultural state like Minnesota. After all, ingredients in the acids include sulfur and nitrogen, important components of fertilizer. Might not the rain actually enhance our poorer soils?

Not really, said Gorham. While the pollution of acid rain may contain some beneficial chemicals, like nitrogen, sulfur, calcium, and iron, it is also more than likely to transport less desirable elements, like nickel, lead, chromium, antimony, and a host of other toxic and perhaps carcinogenic materials such as polycyclic hydrocarbons.

On the far horizon, an even bleaker prospect may be rearing its head, Gorham

next page

noted: copper-nickel mining. Gorham has been to the great copper-nickel installations in Ontario, such as the immense operation at Sudbury.

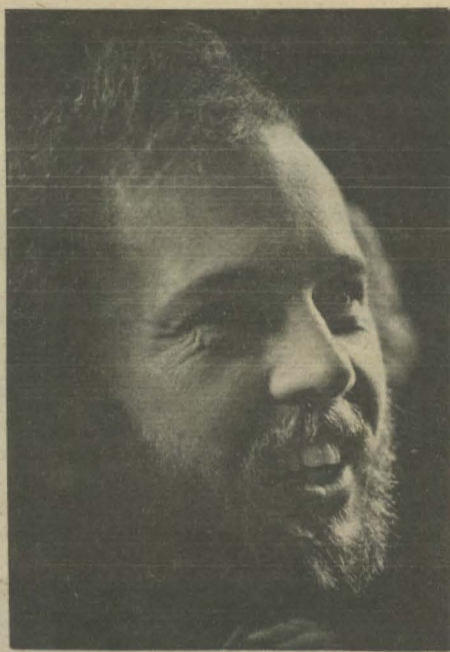
"Sudbury is like a lunar landscape," he said. "The ecosystem is completely shot. All the soil is gone from the rocky outcrops. Where 20 different species of vegetation should exist, there are only one or two. The effects of the mining, and of the accompanying acid precipitation, have been staggering. There aren't even mosquitoes."

There are lessons to be drawn from Sudbury, he said. "What Sudbury tells us is that we should maintain and even strengthen our air-quality standards here in Minnesota, and above all, grant no variances in the standards to the mining and smelting companies."

Gorham contrasted Sudbury with Great Britain, where, with its large-scale conversion from reliance on coal to reliance on other fuels, air quality has shown signs of improvement.

The most significant sign may have also been the most poetic. As the air improved, the urban wildlife, which had deserted the city's parks and rooftops with the intuition that animals exhibit before great natural calamities, began to return.

When the birds returned, Londoners breathed a sigh of relief.



David M. Nelson

student #627186

by Susan Wichmann

David M. Nelson is almost certain he has given an ambulance to the town of Tlaxiaco, Mexico. Not one to exhibit the Elvis Presley-like impulsiveness of bestow-

ing vehicles on unsuspecting strangers, Nelson knows both Tlaxiaco and the ambulance quite well. Whatever doubt remains about their getting together will be erased by time and a phone call.

Nelson, an art student at the University of Minnesota, spent one quarter in Tlaxiaco enrolled in the University's "Winter Quarter in Mexico" extension program, and he has revisited the town often since then. When he and other students expressed a desire to repay the town for its friendliness and hospitality, Prof. Allen Downs of the Studio Arts Department and his wife, Anita Sanchez, brought the offer to the mayor of Tlaxiaco.

The town, which is well equipped with doctors and clinical facilities, has had to depend on a station wagon to transport patients to the nearest hospital for intensive care. The mayor's request for an ambulance was relayed back to Nelson and the search began.

While driving to a friend's place in Minneapolis one day, Nelson passed the ambulance of his dreams with a "for sale" sign in the window. (What constitutes a perfect ambulance? "Mexico has rough roads. They needed something more in the line of a truck.")

Using his own money to purchase the vehicle, Nelson drove home with the used 1962 International ambulance. He replaced the tires and one window, and gave it a coat of paint.

An ambulance without a siren or medical supplies is only second-rate, however, and Nelson wanted to do his best. With the

help of other students and the University Foundation office, he was able to solicit donations, including a siren and stretchers, from medical suppliers. On December 15, 1975, he finally steered the ambulance out of Minneapolis, embarking on the 2,500-mile journey to Tlaxiaco.

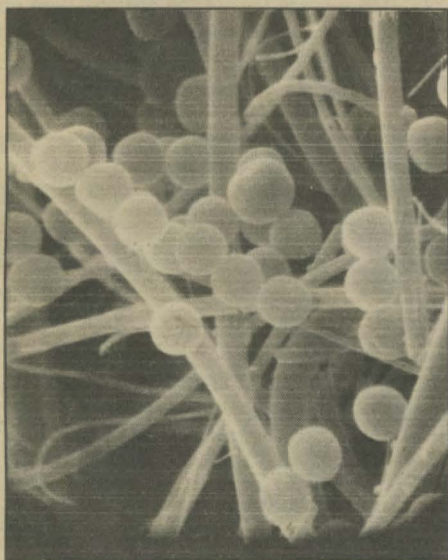
He made it, but the ambulance didn't. At the Mexican border, Nelson was told that he didn't have the necessary permit to bring the ambulance through customs. He was able to finagle his way through to the next checkpoint on the road, but the jig was soon up. He was forced to leave the ambulance with a city official in the nearest town while he traveled by train to Tlaxiaco.

He made arrangements to have someone from Tlaxiaco pick up the ambulance after the permit was obtained and then he flew home. He still has not received word that the ambulance has reached its destination.

Nelson stays by the phone every minute of the day. "I'm not going anywhere for a while," he reported from his bed. After the dysentery he acquired in Mexico turned into Reiter's syndrome, Nelson spent three days in a Minneapolis hospital and is now confined to bed until the arthritis-like symptoms disappear.

Update update: David Nelson, at press-time, is making progress in his recovery from Reiter's syndrome—that is, he isn't totally confined to bed, as he had been for several weeks. As for the fate of the wayward ambulance, Nelson says he received a telegram in March. Although it was in Spanish, he could make out just enough of it to rest peacefully. The ambulance had gotten through.

SCANNING ELECTRON MICROSCOPE



not grapes

No, these little round clusters are not grapes. They are particles of methylene blue dye as photographed by the scanning electron microscope located in the University's Space Science Center. The electron microscope has a magnification power of 150,000 times, but most researchers find it more useful to get a smaller "big picture." These particles are magnified a mere 4,600 times.



Gilbert's design for a medical complex came under immediate criticism by the medical faculty, who felt the four U-shaped buildings and the hospital didn't provide enough space.

the campus that never was: the vision of cass gilbert



by Liz Petrangelo

Picture this: There is no Eddy Hall, no Westbrook Hall, no Jones Hall or Armory. Coffman Union, Walter Library, Ford and Kolthoff Halls don't exist.

You leave Northrop Auditorium and pass the museum, the library, and the three engineering buildings and four chemistry buildings on the mall, and you take a leisurely walk across the grassy Washington Ave. tunnel. It's time to meet your friends at the bell tower by the river and walk with them down the grand staircase

to their small boat moored in the lagoon on the river.

You are now leaving, by water, the University of Minnesota Minneapolis campus—the campus as architect Cass Gilbert envisioned it in 1910.

Lagoon, you say? Grassy tunnel? Grand staircase? Is that the same University you remember?

The University's Board of Regents first saw the need for a comprehensive plan for development after they acquired a considerable tract of land south of the St.

Paul and Northern Pacific Railroad tracks in 1907. The tracks ran directly through the area now occupied by the sidewalk in front of Northrop Auditorium, between Morrill Hall and the Physics Building.

In 1908 the Regents solicited entries for a contest—a contest that would determine the face of the University as it developed. They asked for a plan that would house the University "properly and suitably," that would combine old and new portions harmoniously and not cost too much.

An etching of Gilbert's river's-eye-view of the campus, with the lagoon, theater, and botanical garden in the foreground, is currently part of a traveling exhibit of Minnesota art and architecture.



They further stated that "the architect selected shall be a man of integrity, ability and of broad experience in this special line of work to the end that the interests of the University in this respect may be properly safeguarded."

Gilbert, the "man of integrity" who designed the Minnesota State Capitol building and the U.S. Supreme Court building in Washington, D.C., and the man who has been called the "father of the skyscraper," won the competition out of a field of 20 entrants.

He won a prize of \$1,000—a considerable sum at that time—for his efforts, but no promises. The Regents could not guarantee that the winning plan would be carried out or that the winner would be able to supervise the actual execution of any part of the plan. At that time, as now, the University had to depend on legislative appropriations for any building projects. Furthermore, all University buildings were constructed under the aegis of the State Board of Control, which employed its own architect.

Gilbert's plan called for the lowering and tunneling of Washington Ave. and the railroad tracks to create an uninterrupted expanse of land flowing from a major auditorium down to the river. (Architects entering the contest were warned by the Regents that Washington Ave. could not be cut off, since it was the main throughway for the area.)

The old campus, which extended from University Ave. to the St. Paul and Northern tracks and from Union St. to the river and 11th Ave. S.E., was to be separated from the new campus by a terrace, according to Gilbert's plan. Many of the existing streets that intersected the area where the mall now sits would have to be removed to fulfill the design.

The focal point of the new campus was to be a longer mall than exists now, with a large, gabled auditorium at the north end and symmetrical buildings sweeping down almost to the river. Many of the buildings in Gilbert's design were not designated for particular purposes, as no one was really sure what departments or colleges would expand enough to need new space. The Regents specifically asked for buildings to house a post office, library, auditorium, museums, zoology, botany, geology, astronomy, administration, and engineering.

Gilbert designed buildings to house medicine, engineering, and athletics on the Oak St. side of the mall and buildings for smaller departments and schools on the river side. The engineering buildings, which Gilbert placed directly on the mall, were later located behind the mall after the Regents decided that only buildings housing functions vital to the entire University were to rest on the mall.

A campanile, or bell tower, was supposed to sit where Coffman Union is now and was to be flanked by a terraced botanical garden and a Greek open-air theater. The end of the mall was to open out onto a lagoon in the river, surrounded by boat-houses for small craft. The whole arrangement was to be connected by a grand staircase, walks, promenades, and detailed landscaping.

At the time the contest was announced, the University consisted of six buildings. Gilbert's plan called for 30 buildings, which could have been built at that time for about \$10 million.

After Gilbert completed his plans, the same Board of Regents that selected him as the winning plan dismissed him, saying that his plan was too expensive to execute.

MINNESOTA HISTORICAL SOCIETY



Cass Gilbert, May 9, 1901

With Gilbert's dismissal, the Regents called upon the University's own engineering and architecture faculty members to carry out a compromise plan. The medical faculty was the first to speak up against Gilbert's plan, calling his design for the medical complex, particularly Elliot Hospital, too small. Their complaints were dealt with by architects Edwin Hewitt and C. H. Johnston, and in 1911 the University began its expansion

campus, p. 15

Students would have been able to stroll across the top of Washington Ave. had Cass Gilbert had his way. The fence at right skirts the stairway leading to the underground passageway for vehicles.



sixty-one coachloads of pornographers: comstockianism revisited

by Jackie Archbold

The theory that sexually oriented material itself is corruptive is denied by Iver Bogen, a University of Minnesota-Duluth associate professor of psychology, who asserts that those who persist in destroying such material may base their judgment on personal biases rather than rationality.

Bogen made this statement in reference to a theory known as "the Comstockian Phenomenon."

The phenomenon is named after Anthony Comstock, who in the late 1800s worked as an investigator for the New York Society for the Suppression of Vice. Soon after being hired, he began destroying material that he judged pornographic, including contraceptives, abortifacients, and art works.

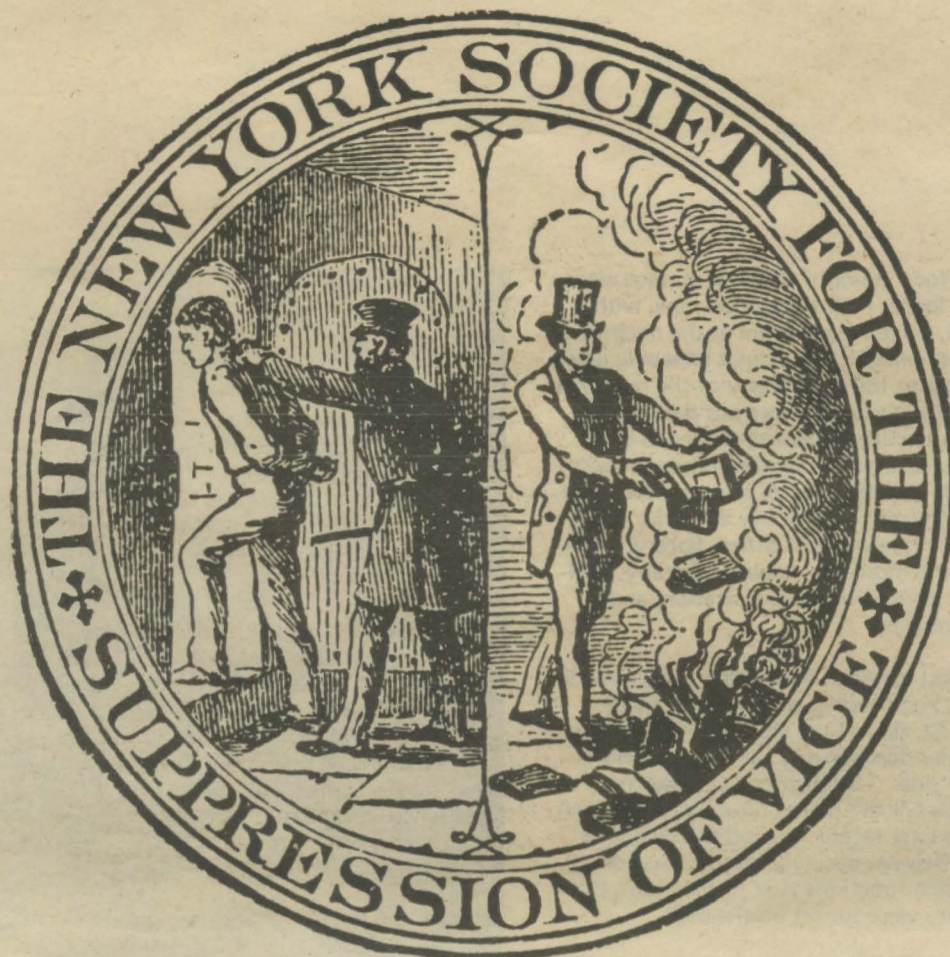
One method Comstock used to track down dealers of "obscene" materials was to write a letter pretending to be the mother of many children, begging a sympathetic doctor for some way to keep from having any more children. The doctor who responded by revealing birth-control information was immediately arrested.

Comstock bragged that the number of persons he convicted on obscenity charges could have "filled a passenger train of 61 coaches." He also admitted that he may have caused some suicides as a result of his treatment of people who dealt with material not to his liking. "The world is better off without them," Comstock said.

Bogen thinks that government and some religious organizations are now assuming the same responsibilities that Comstock undertook in the 1800s.

Some religious organizations believe that God speaks directly to them and for that reason they feel it is acceptable to infringe on the right of others to be free of censorship, Bogen said. He sees a direct correlation between the work of Comstock and the ordinances concerning obscene material that some governmental and religious organizations are now trying to put into effect.

Bogen attributed the present implementation of Comstockian beliefs and actions to several factors:



He suggested that people who feel threatened by erotic material tend to think they can avoid exposure to evil by seeing no evil—a sort of "tunnel vision" that reduces anxiety or pain. He also suggested that those who focus their attention on the perceived faults of others do so to maintain a state of unawareness of their own eroticism. "Gossip serves this purpose," he said. And by attacking eroticism in the environment, he said, people can destroy the reminders of their own unacceptable impulses.



suitable for framing

University Gallery is now the proud owner, thanks to a gift from the American Academy of Arts and Letters, of this "Portrait of John Bageris" by artist Herbert Katzman.

Katzman, who teaches at New York's School of Visual Arts, has exhibited his work as far away as Venice and as near as Minneapolis's own Walker Arts Center. The American Academy of Arts and Letters thinks highly enough of him that it has made gifts of Katzman's work to two other galleries before—which makes three purchases in all, the maximum permitted by the Academy.

University Gallery is one of only 19 smaller museums and university art galleries to acquire Academy gifts this year.



Iver Bogen

necessarily favor obscenity, contrary to much common opinion, he added.

"It is a matter of determining which is the higher value—censorship or freedom of expression as guaranteed by the First Amendment," Bogen said. People such as Comstock prefer to "knock down sinners rather than raise up saints," he said.

Bogen recently published an article on Anthony Comstock in the *Journal of Sex Education and Therapy*.



R. SCHOLES

little house on the prairie

Corner notching and chinking, familiar to a homesteading pioneer, will be demonstrated by a group of St. Paul students in May. Construction of a replica of a log cabin will be one of the many activities taking place on the University's St. Paul campus May 22-29.

The week's festivities on the campus will include an arts and crafts fair, a public auction, square and folk dancing, music by the New Orleans Preservation Hall Jazz Band and University bands, and heritage foods such as fried chicken, hot dogs, and buffaloburgers.

TOM FOLEY



Barbara Bachel

student #958505

Barbara Bachel. A freshman at the University's Morris campus. Comes from Brainerd. ("Brainerd is spelled with an e at the end, but it wasn't always. The town was named after Mary Brainard, with an a at the end, but when the railroad came through, they misspelled the town's name on the station sign.")

Bachel is a poet, author of two published books of verse as well as one novel. "I've been writing poems ever since I could hold a pencil." She says it's just a way of expressing herself. Her family has always encouraged her—more than she can say for her hometown newspaper, which she once worked on. When her first book of poems was published, the paper refused

to mention it. "It would be bragging," she said they said.

She would half like to keep her poetry secret, and would half like the whole world to know. After she confessed to an inquisitive dormitory friend, the whole world did know. Bachel is making the most of it.

When she was younger, even her pen-name was a poem: "Lily Meadows." Now, nature images are making way for more intense, more personal ideas in her work.

"You've got to have imagination," she said, "whether you write or not." She wants to teach high school someday, and not just literature. She's also interested in mathematics. "Numbers are also images," she said, "and they also require imagination."

Barbara Bachel: student #958505.

TOM FOLEY

there are nutritionists, and then there are "nutritionists"

by Mike Finley

It has happened to Margaret Doyle more than once. The acquaintance at a party learns that Doyle is a nutritionist and is elated.

"Nutrition is so fascinating! I've read all of Adele Davis's books on the subject!"



Margaret Doyle

Margaret Doyle is always polite. She doesn't want to get into a fight. "How nice," she says.

Real nutritionists have always had this problem. They know that they're scientists and that they tend, as a group, to know what they're talking about. So why does the public pay so little attention to them?

Instead, Americans spend millions of dollars every year following the advice of "super-nutritionists" like Adele Davis, Jerome Rodale, Drs. Robert C. Atkins and Irwin Stillman, and whatever other food-fad promoters are currently being hawked on supermarket magazine racks.

Food-faddists, Doyle said, just want to be healthy. They want to be thin. They want to be beautiful. They want to live forever. Besides, she said, all those "experts" on the bookracks have also been on the Merv Griffin show, so they must be telling the truth!

The distressing fact, Doyle said, is that these experts aren't telling the truth.

Much of what they say is pure invention and much more of the rest is sloppy or misleading.

"One of the most-often-used techniques is the dramatic anecdote," said Doyle, a professor in the Department of Food Science and Nutrition at the University of Minnesota. "Popularizers are always telling little stories about fantastic results: 'My doctor had all but given up hope for me. After one week on the wheat germ diet, however, my eyesight had returned to normal.'

"Adele Davis, in a passage encouraging pregnant women to take lots of vitamin C, relates that all her obstetrician friends whose patients take vitamin C are amazed at how elastic their tissues are. In another chapter she relates the very dramatic story of how 6,000 micrograms of vitamin C actually cured a child of polio."

Such anecdotes make for great reading, Doyle said, but amount to little more than hearsay on the author's part.

nutrition, p. 15

limits set on liberal arts admissions

Limits on admissions and new programs are in store for the University of Minnesota College of Liberal Arts, Dean Frank Sorauf said early in March.

The restrictions will be necessary because "our enrollments are once again rising faster than our resources," Sorauf said in his first formal "state of the college" address since he assumed the position of dean two and a half years ago.

"Money certainly appears to be at the bottom of most of our problems," he

said, noting that reports of outside reviewers estimate the additional funds "well in excess of four or five million dollars" would be needed to meet the minimum needs of the entire college.

Constraints on freshman admission to the college in fall 1976 have already been introduced by restoring the College Aptitude Ratings required for admission to the traditional top 50 percent, and additional constraints for fall 1977 are being explored, the dean said.

New programs will not readily be added to the college curriculum in the future, Sorauf said. "The truth is that we have already taken on too many obligations for our resources. It can no longer be enough for proponents of a new program to argue that other universities have one. We must reconcile ourselves to the fact that we cannot do everything. Nor can it be enough, sadly, that a sizable group of students or faculty wants the program."

The decision to limit admissions has been difficult, the dean said. "This college has been philosophically committed to providing a liberal-arts education for all qualified students who wished to come.

We have come to the decision to limit enrollments reluctantly and regretfully and only after being convinced that our obligations to students already here outweighed those to potential students," he said.

The College of Liberal Arts is the largest college in the University of Minnesota, with a fall enrollment this year of 17,232 students and a projected increase of 600 or 700 students by next fall, even with enrollment restrictions. In fall 1974, the student enrollment was 16,558 students.

morris gridiron escapades melt into spring



The Cougars

by Mike Finley

Although it may seem as remote as the glacial age, it wasn't so long ago that grown adults were crashing into each other in their frenzied attempts to move an inflated scrap of cowhide up and down a limed lawn.

The name of the game was football. The University of Minnesota-Morris (UMM) Cougars, their bruises now healed, are still resting on the laurels of their 1975 Division I NCAA Championship season. Eight wins and one loss—not bad for a little school on the prairie.

Winning by itself may not be so unusual—although competition like Ohio and Michigan States might give a team in some other division cause for pause—but in UMM's case winning comes as a bit of a surprise.

Not only is Morris (enrollment 1,593) a small school compared to some of its rivals—St. Cloud State University (enrollment 8,934), Moorhead State University (enrollment 4,916)—but it is also one of the few colleges or universities in the country that doesn't offer scholarships to athletes.

Alan Molde, besides being coach of the football Cougars, wears several other hats: assistant professor of physical education, director of UMM inter-collegiate athletics, booster of west-central Minnesota athletes, and physical fitness philosopher.

At the moment, however, he isn't wearing any hat. He's sitting in his office in the basement of UMM's new physical education complex. A contented look—doubtless the lingering memory of a winning season—crosses his face.

"No," he says, "Woody Hayes I'm not. If anything, I probably tend to go the other way. Maybe I'm not tough enough. My principle has always been positive reinforcement. Very seldom have I called down one of the team in front of the rest."

Molde wants this philosophy to spread osmotically to the other sports as well. Every fall he drafts a letter to all coaches and coaching assistants stressing the need to avoid "stressful situations" on the field of play. The young Morris coaching staff—all are in their early thirties or younger—does not bedevil its players to lay down their young lives for "the Gipper."

Still, do enlightened policies alone a championship season make? Molde's not trying to kid anyone. Over his desk looms a watercolor-and-ink painting of a large

wild cat—a cougar, one supposes. Its sinewy shoulders contract, and its eyes scan the plain below in search of prey. Ready to pounce, the great cougar looks like nothing so much as a skilled recruiter.

"If our coaches didn't break their necks recruiting," Molde said, "we would really be up against it. As soon as I finish my last class of the day, I'm off. I travel to local high schools, talk to people, tell them what Morris has to offer."

But Molde can't travel far. Chances are he has to be back on campus for practice or the next morning's classes. Thus he has to concentrate on mining the area within a hundred miles or so of the UMM campus. A cursory glance at the football team's roster reveals just that: except for the rare athlete hailing from, say, New Jersey—he had friends attending UMM—all the players are from towns whose names have the ring of the prairie about them: Glenwood, Canby, Pelican Rapids, Appleton, Marietta, Holloway.

"We're winning with area kids," Molde said, in sharp contrast with schools combing the hemisphere for gridiron fodder. "We may not be able to appeal to the 'blue chip kid' who has offers arriving in the daily mail from the really big schools, but that still leaves the solid, intelligent athlete who can respond to training.

The policy of not offering athletic scholarships, instituted by UMM's first provost, Rodney Briggs, has put the burden of attraction on the Morris attributes. On the one hand, it has meant talking up the unique opportunities for study on the liberal arts-oriented rural campus. On the other hand, it has meant going after athletes who could make use of UMM's need-based financial aid program. And that is precisely what Morris recruiters in the areas of basket-

ball, football, and wrestling have done: athletes seem to be slightly more aware than nonathletes, on the average, of financial aid at Morris. The average UMM student receives \$1,551 in aid annually; the average male athlete receives \$1,636.

There are ways Morris athletes can receive special attention. A local business group, the Gold Club, chips in to offer work/study opportunities to chosen athletes. And coaches take good care of their players, taking equal care not to violate NCAA guidelines.

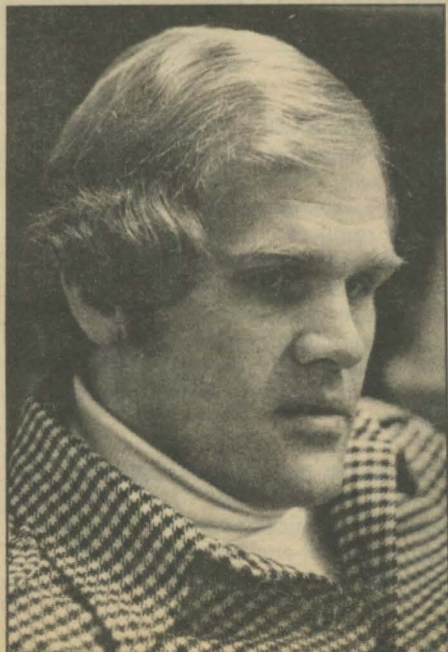
The line in Morris bears little resemblance to Vince Lombardi's Machiavellian motto, "Winning Is Everything." Given the restraint of its coaches, the diminutive character of UMM enrollment, and the decision not to buy players at the athletic meat market, maybe "winning is astonishing" comes closer.

student

#968019

One thing the Morris campus prides itself on is the independence of its students, and in particular how some take on academic projects that surprise even their teachers.

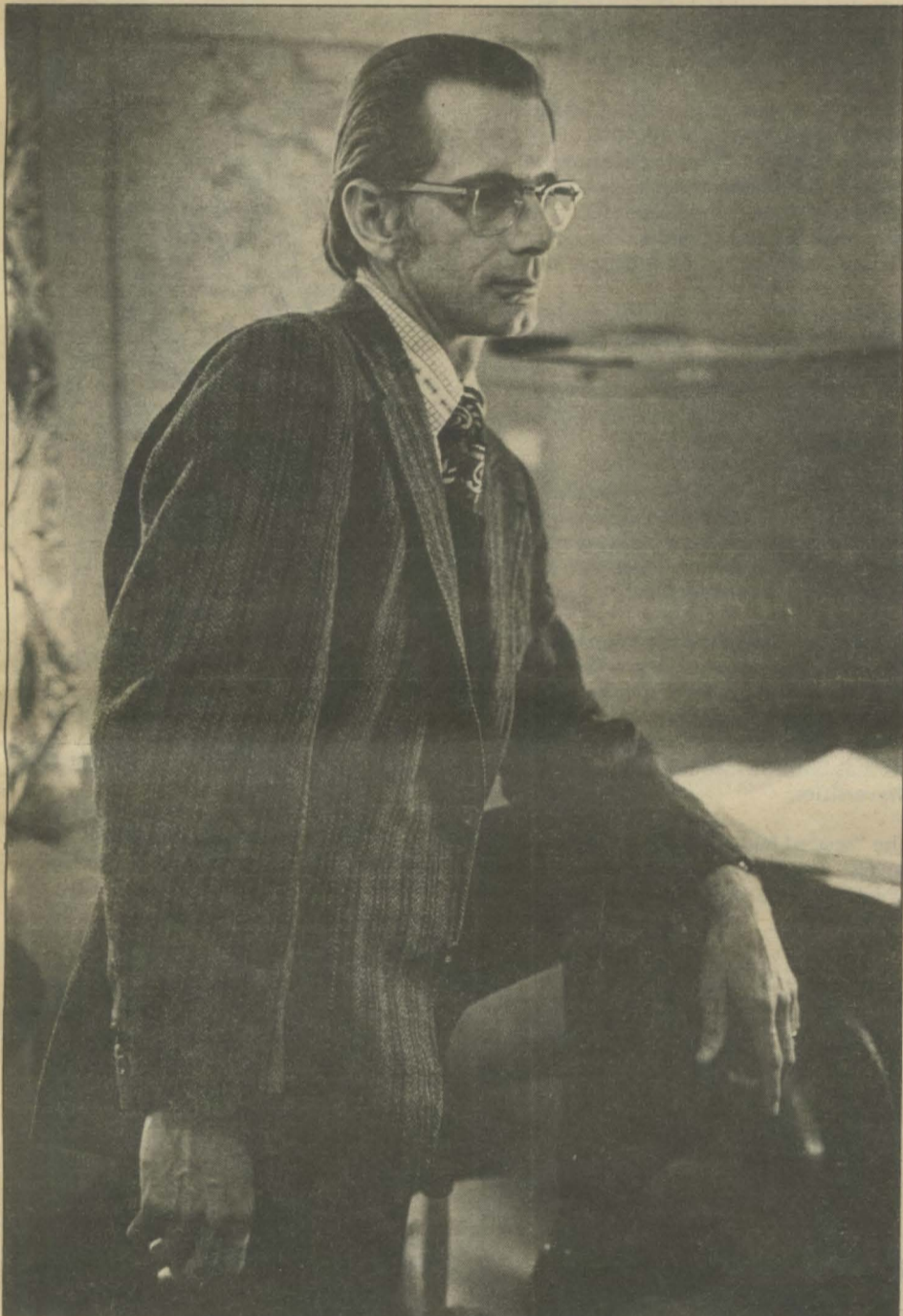
Pictured above is UMM freshman Jane Lietz, undergraduate author of a short treatise on the texture, tensile strength, and cavitation potential of a certain brand of bubble gum, which shall go unnamed. Her tests—which were rigorous by all conventional standards—were conclusive. The bubble gum company sent her a crate of the stuff for her efforts.



Alan Molde

TOM FOLEY

TOM FOLEY



Theodore Uehling

'how do we know what we know?'

wouldn't you like to know?

by Mike Finley

At a time when many noble academic ventures are crashing into oblivion like diseased elms, it's interesting to see the scene run backward at the University's Morris campus (UMM). There one of the loftiest—and least "relevant"—of all disciplines, high philosophy, is showing unlikely signs of vigor.

First, UMM's philosophy department is conducting an ongoing series of lectures and informal talks, under the portentous title "Second Annual Upper Midwest Philosophy Colloquium." The colloquium is structured so that once or twice a month a prominent midwestern philosopher travels to Morris and delivers two talks: the first a "philosophers-only" address to a small gathering of scholars, the second a general-interest talk to the academic community at large.

The philosophers-only lectures are then collected and published in the program's second state, an annual journal of philosophical thought called *Midwest Studies in Philosophy*. Topics for the first volume, corralled under the general heading of "The History of Philosophy," might tend to frighten away those of us who lead unexamined lives. Some of them: "The Necessity of Foreknowledge," "Spinoza and Descartes on Extension," "Autonomy in Rawls and Kant."

Question: When was the last time Aristotelian necessity was a discussion topic on the Merv Griffin show? Answer: Never. Yet the general-interest philosophical lectures have been packing the aisles at the Humanities Fine Arts Center recital hall in Morris.

Prof. Theodore Uehling, who along with Peter French and Howard Wettstein of the UMM philosophy faculty is spearheading the lecture series and journal, suggested that the program's popularity may stem from the unique opportunities philosophy offers for people to disagree with each other.

For instance, last year Prof. D. Burnham Terrell of the Twin Cities campus philosophy department traveled to Morris to deliver a paper, "Franz Brentano's Logical Innovations."

("My paper was an attempt to formalize the implications of Franz Brentano's theories of judgment for logical theory and to highlight the most fundamental and significant differences between, quote, Brentano-style, unquote, logic, and a logic based on standard assumptions," Terrell offered as a 40-word description.)

Chances are that you aren't aware of the character of Brentano's logical innovations. Only a handful of logicians in the world are up on Brentano, and Uehling had to call around to find someone who could critique Terrell's paper.

Prof. Roderick M. Chisholm of Brown University contributed one discussion paper. He found Terrell's ideas about Brentano to be "a very valuable service." Brown University, however, is in Providence, R.I. That left Uehling with the job of finding a *midwestern* philosopher or two who could talk intelligently on Brentano's logical innovations. He finally found two: Kurt R. Fischer and Leon Miller, both philosophy faculty at that renowned bastion of higher thought, Millersville State College in Millersville, Pa. They did not smile upon Terrell's interpretation of Brentano's innovations at all. Far from it, in fact.

"There was quite a lot of heat produced in the process of enlightenment," Uehling said, pointing to the galley proofs of the Fischer-Miller critique. A sample sentence: "Is it not ironic to take irony seriously?"

Uehling recalled that Terrell was disappointed by what he considered Fischer's and Miller's misinterpretation. But the controversy was gobbled up by Morris faculty and students, who thrilled to hear the din and clash of high philosophical discourse.

Terrell also graced the general audience during his visit with what Uehling remembers as the most enjoyable of all the philosophical talks. "Staying Sober in Prague & Vienna" was its title. "A classic," was Uehling's recollection of it. About 200 Morris people turned out for the occasion.

Why the success, in these troubled and practical times, with such a financially risky and utterly impractical venture as a philosophy colloquium *cum* academic journal? Perhaps that's a question that should take a place alongside such heavyweights as "What is life?" and "What is knowledge?" Or, to get right to the heart of the matter, "What is what?"

At any rate, the philosophical furor has exposed Morris undergraduates to a far greater range of thought and inclination than any faculty of three could describe by themselves. For that reason alone, Uehling said, the colloquium must be judged a success.



Jane Lietz and friend

TOM FOLEY

ignatius donnelly: the minnesota don quixote

by Bill Huntzicker

One of the most controversial of the pioneers on Minnesota's colorful political landscape was Ignatius Donnelly, who was at various times the voice of Lincoln Republicanism, radicalism, literature, science, farmers, and the common people.

Through numerous public lectures, political speeches, and books, Donnelly made varied and inconsistent statements on just about every topic of his day. His positions are still the subject of controversy.

Viewing a historical figure with hindsight is a complex process. Donnelly is a person who looks better as time goes on, said David W. Noble, University professor of intellectual history. "To the extent that he was committed to the 19th-century agrarian frontier, I have been critical of him. But, in recent years, I have become more sympathetic to the criticism he makes of industrial society."

Donnelly, who was born Nov. 3, 1831, in Philadelphia, came to Minnesota to develop an experimental city called Nininger. For a time, it was very successful. "Here I am, but 26 years old," he said, "and I have already acquired a large fortune. What shall I do to occupy myself for the rest of my life?"

That question was quickly answered when a depression hit: Nininger failed. Donnelly never again enjoyed such financial success.

At 28, however, he was elected the second lieutenant governor of the state of Minnesota. In 1862 he was elected to the first of three terms in the U.S. House of Representatives. He was a successful Republican Party politician until his ambitions ran up against those of the powerful Alexander Ramsey.

Failing in the Republican Party, Donnelly turned to radical politics, a move criticized by both contemporaries and historians as inconsistent with his party-line record and his promotion of western railroad development.

"You should view a man in the context of his time, however," said Norman W. Moen, a General College professor who teaches Minnesota history. "The Republi-

can Party was the reform party; it was the party of the Emancipation Proclamation, the party of the Homestead Act, and the party of the Morrill Act advocating higher education for the people."

Railroad development was considered important to the well-being of Minnesota, Moen said. Donnelly was later critical of the railroads and sought governmental ownership and regulation of them, according to James M. Youngdale, American studies instructor and author of a new book on populism.

Of the major third-party movements in Minnesota history, Moen said, Donnelly figured prominently in two of them. He was influential in the Patrons of Husbandry and the Anti-Monopoly Party, and later in the Farmers' Alliance, which became the Populist Party. He was the Populist candidate for governor in 1892 and its candidate for U.S. vice president in 1900. In all, Donnelly was a candidate for office 19 times after he left Congress. He was elected only six times to the state legislature.

Moen said Donnelly's on-and-off political career does not fully explain his impact. Donnelly wrote most of the political platforms of the movements of which he was a part. As a prominent speaker on the lecture circuit in the days before television, Donnelly could gather a large audience on

just about any subject, Moen said. His most common titles were "Wit and Humor" and "Topics of the Day."

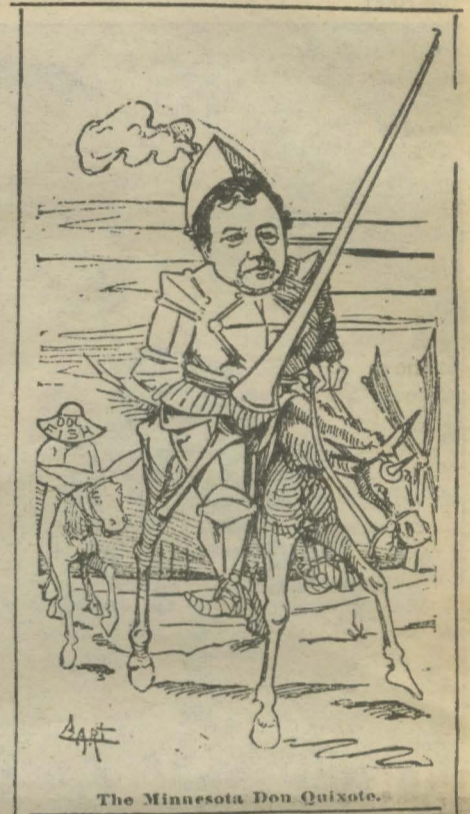
His most famous political tract was the People's Party platform of 1892. The preamble states: "The fruits of toil of millions are boldly stolen to build up colossal fortunes, unprecedented in the history of the world, while their possessors despise the republic and endanger liberty."

In his off-years politically, Donnelly read and wrote books. In 1881 he wrote *Atlantis*, in which he tried to prove there was a lost island, as Plato described, of which all the inhabitants had been destroyed by a catastrophic event.

Ragnarok: The Age of Fire and Gravel was published in 1883. In it, Donnelly attributed the deposits of clay, gravel, and silt on the earth to a collision with a comet in some ancient time.

He became a literary critic of sorts with *The Great Cryptogram*, a two-volume work published in 1888. His theory that Francis Bacon actually wrote Shakespeare's works did get him guest lectureships at both Oxford and Cambridge Universities.

The "sage of Nininger" later published novels: *Doctor Huguet*, the story of a white man who fantasized about the



injustices that would be done him if he were black, and *The Golden Bottle*, which dealt with free silver and other reform issues.

Donnelly's most popular work was *Caesar's Column*, a forecast of a time when the poor of the world become so frustrated that they engage in a massive rebellion that destroys everything on the planet. According to Youngdale, Donnelly is a contradictory figure because of his effort to achieve the American dream while at the same time remaining very critical of the exploitative side of it. "Lacking any hope in social reform," Youngdale said, "Donnelly predicted an apocalyptic destruction of modern society."

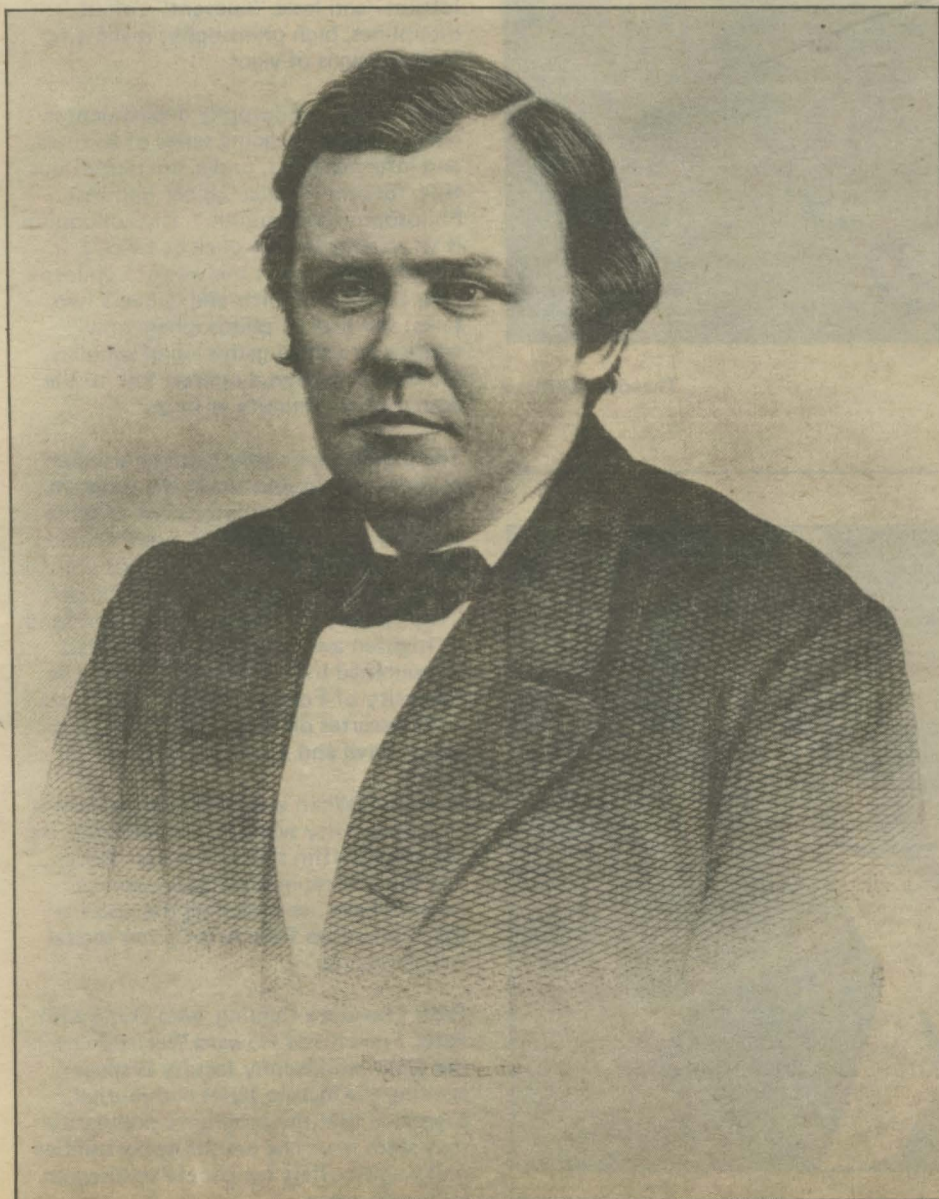
With a society told to accept unemployment as normal and poverty as inevitable, Noble said, Donnelly's prediction of a "permanent underclass" no longer seems absurd. "He was forecasting, a century ahead, a division of rich and poor that doesn't look so inaccurate," Noble said.

Donnelly's arguments against the evolutionary school in favor of "a disaster theory of physical change" resulting from catastrophes does not seem so radical in light of many current scientific theories, Noble said.

Donnelly lacked a coherent political theory, Youngdale said. "At best he could invent suggestive epigrams, which tended to serve as his mode of social analysis."

Yet a few of the epigrams are revealing. "Jesus," Donnelly said, "was only possible in a barefoot world, and he was crucified by the few who wore shoes."

"What we need in religion is a remedy for abuses, not an anaesthetic," he said. Another quote: "Building a farm move-



Ignatius Donnelly

ment that does not engage in politics is like making a gun that does not shoot."

Donnelly's legacy includes his clever rhetoric, his wit, and his contradictory and varied interests, including city design and solar energy proposals that are periodically investigated by curious journalists and historians.

Nininger, Donnelly's utopian Minnesota city, is today part of a field. Moen flew over the area. "You could see only the outline of the building foundations in the field below," he said.

Noble views Donnelly as a diverse man whose interests included the physical sciences, geology, literary criticism, and social science. His many interests were interrelated, Moen said, producing a unique contribution to Minnesota's political heritage.

hunt for the half million presses on: search party 'optimistic'

Somehow over the years, the University has managed to lose track of 500,000 or so of its former students. At the moment, only 150,000 alumni are accounted for. The problem is that students, after completing their tours of duty at the University, insist on moving away from campus and getting jobs, traveling, enlisting in the armed forces, getting better jobs, getting married and changing their last names, dropping out to live in the woods, or moving to states with more tropical climates, like Nebraska.

What's a University to do? The University of Minnesota wants to know where its prodigal alumni have gone off to for several reasons. One is that the University wants its former students—whether they graduated or just took a few courses—to continue to take advantage of the many educational services offered as part of the University's program of life-long learning. Another is that the University needs to know where its sources of private support might be. A third is that the University wants to stay friends with everyone.

If you're a former Minnesota student who has just happened upon this article, or if you know of old classmates who don't get *Update*—but might like to—your alma mater would like to hear from you. Please fill in the coupon on page 2, including the name of the college in which you or your friend were enrolled and the years you attended.

One down, four hundred and ninety-nine thousand, nine hundred and ninety-nine to go.

campus . . .

with the erection of Elliot Memorial Hospital and buildings for experimental engineering, main engineering, anatomy, and chemistry.

With minor adjustments, Gilbert's plans shaped the faces and locations of these buildings. Main Engineering was built within five feet of the spot Gilbert had chosen for it. The original chemistry building, a compaction of the four chemistry buildings Gilbert had envisioned, occupies the spot he had earmarked for it.

In 1924, the St. Paul and Northern Pacific Railroad tracks were rerouted through what is now Dinkytown, eliminating the need for the tunnel beneath the mall.

Memorial Stadium sprouted up next, slightly different in appearance and in a different spot than in Gilbert's design. Gilbert's stadium would have been rectangular, with an oblong field, and would have had a gymnasium attached to its west end. It would not have been parallel to University Ave., but would have been turned with its non-gymnasium end close to the Armory and parallel to Harvard St.

Gilbert's grand auditorium, eventually named after Cyrus Northrop, was erected next. And in 1939, Coffman Union was built on the site of the proposed campanile—effectively putting an end to Gilbert's vision of a mall running uninterrupted to the river. The proposed botanical garden, open-air theater, lagoon, and boathouses were never constructed. The city of Minneapolis owned the land that would have been needed, and still does.

But the parts of Gilbert's plan that have received the least attention in the past 60 years are now coming under new scrutiny. This year the Board of Regents approved a Planning Framework for the Minneapolis Campus Long-Range Development Plan, and the framework reflects some of Gilbert's influence. Among the planning options mentioned in the framework are the closing of Washington Ave. to all but pedestrian and bus traffic, to reunite the two sides of the campus visually, and cooperating with the city of Minneapolis in the development of recreational open space on the river flats.

Architects and planners for the new framework have recommended that no buildings more than a few stories tall be erected—a recommendation that, if carried out, would give the campus a more European than American look, as Gilbert had wanted. The new plan also makes recommendations for the eventual development of the west bank area. Even at his most farsighted, Cass Gilbert never dreamed that the University would actually cross the river.

But the University did cross the river: the plan that looked too "grandiose" to the 1910 Board of Regents proved to be too limited to meet the growth needs of the University only 30 years later.

nutrition . . .

Doyle brandishes a report, called "Americans Love Hogwash," by Edward Rynearson, a retired professor from the Mayo Clinic at Rochester. In his study, Rynearson went to extraordinary ends to discover how valid were the pronouncements and proofs offered by such super-nutritionists as Davis, Rodale, Carlton Fredericks, and Zen macrobiotic diet guru Georges Ohsawa.

Adele Davis, Rynearson wrote, is the best-selling of the super-nutritionists, having such titles as *Let's Eat Right To Keep Fit* and *Let's Get Well* to her credit. In one book, *Let's Get Well*, Davis listed 2,402 references, of whom 95 percent, according to her, were professors in medical schools. Rynearson wrote to the more distinguished scientists Davis listed as sources: hardly any had had any correspondence with Davis, most complained that they had been misquoted, and several works bore no resemblance to the applications Davis put them to.

Margaret Doyle agrees with Rynearson. Although the recipes in Davis's books are often quite good, and while her writing style never lags, Doyle despairs of the harm her "findings" do to readers.

For instance, Doyle said, Davis wrote that she took half a pound of pills every day, to supplement her diet. Not only are such mega-dosages of vitamins likely to be dangerous, but they're also phenomenally expensive.

"Davis is always there to reassure readers that if they follow certain dietary precautions, they won't ever have to worry about cancer."

Last year, Adele Davis died of cancer.

Jerome Rodale, the great organic gardening enthusiast, had a similar career. Editor and author of many books and magazines, he believed that skyscrapers prevent people from getting needed electricity from the atmosphere. He therefore spent 10-20 minutes a day under a shortwave-emitting transformer, soaking up the runaway electrons. He, too, had a cure for cancer: pumpkin seeds.

He once claimed that he would live to be 100, so long as he wasn't "run down by a sugar-crazed taxi driver." The unfortunate fact, Doyle said, is that Rodale dropped dead one night while boasting on the Dick Cavett show.

Perhaps the strangest food fad of all, Doyle said, is the Zen macrobiotic diet propounded by self-styled nutritionist Georges Ohsawa. Ohsawa invented a nutritional system, bearing scant resemblance to any actual Zen practice, in which there are seven kinds of diet, some heavily "yin," some heavily "yang." Ohsawa believes there is no disease that can't be cured by administration of the proper nutritional treatment.

"No illness is more simple to cure than cancer through a return to the most elementary and natural eating and drinking prescribed by Diet No. 7," Ohsawa writes.

Diet No. 7 is also recommended to persons suffering from such "nutritional" disorders as appendicitis, glaucoma, and dandruff. Dandruff, in particular, concerns Ohsawa. He describes it as the first step toward mental disease.

Doyle cites these examples not so much because they typify the mainstream of food-faddism, but because they delineate its extremes.

"Food fads have been around for thousands of years. Most of them are very temporary, like the Metrecal fad, which blossomed and then disappeared a few years back. Other so-called fads, like vegetarianism, are thousands of years old.

"Some of them are bad. The Zen macrobiotic diet has yielded at least one example of an overly zealous practitioner coming down with scurvy. Other fads have much to recommend them. You can hardly argue with a diet that advises you to drink 8 ounces of orange juice every day."

There is nothing wrong, or unhealthy, about either the natural or the organic foods movement. Doyle herself admits to a preference for whole-grain bread. The importance placed on fiber in both diets is something nutritionists have been talking about for a long time. And there is unquestionably, Doyle said, good reason to worry about additives, fertilizers, and pesticides. Many food additives aren't properly tested before being used: she advocates thorough pretesting. As for the pesticides and fertilizers, their effects on the environment need no elaboration here.

But, Doyle said, things are not so simple as natural and organic foods enthusiasts would like. "The natural foods movement would have us believe that our food is no good because our soil has been depleted by agriculture. But if you check with an agronomist, you will be told that the quality of the soil affects yield but not quality of the crop. Thus, a 'depleted' field may not yield many potatoes, but the few potatoes it does yield will be just like every other potato."

Doyle paraphrased Gertrude Stein: "A potato is, after all, a potato."

"Furthermore, if you consider our current world food supply, you will probably begin to understand that worldwide famine can't possibly be averted without the efficient use of fertilizers, pesticides, processing, and modern storage techniques."

Recent organic gardening claims to the contrary, Doyle doubts that organic agriculture has the capability to feed the world's hungry.

Doyle said that nutritionists face a difficult and perhaps impossible struggle in communicating with the general public about nutrition. The people most likely to be recruited into the ranks of the charlatan super-nutritionists, she said, are the people least likely to be swayed by common sense or the weight of scientific evidence.

Twin Cities campus

University Theatre Productions (Rarig Center; call 373-2337 for dates and times)

- Apr. 16-May 2—*Summer and Smoke*, by Tennessee Williams
- Apr. 29-May 9—*My Kingdom Come*, by Ernest L. Hudson
- May 7-23—*The Contrast*, by Royall Tyler
- May 11-13—*School for Wives*, by Moliere
- May 22—*Rip Van Winkle*, by Washington Irving

Punchinello Players Production (North Hall, 8 p.m.)

- May 7-8, 13-15—Bicentennial Production: "American Potpourri"

Recitals at MacPhail Center for the Arts (1128 LaSalle Ave., Minneapolis; 3:30 p.m.)

- Apr. 11—Student Honors Program
- Apr. 25—Faculty Recital
- May 2—Open House, 1-5 p.m.
- May 9—Faculty Recital
- May 16—Student Concerto Program
- June 13—Faculty Recital

Metropolitan Opera Productions (Northrop Auditorium, 8 p.m., unless noted)

- May 17—*Die Meistersinger*
- May 18—*Carmen*
- May 19—*Aida*
- May 20—*A Masked Ball*
- May 21—*La Gioconda*
- May 22—*Trittico*, 1:30 p.m.
- May 22—*The Marriage of Figaro*

Other Northrop Auditorium Music and Dance (8 p.m., unless noted)

- Apr. 10—Michael Johnson
- Apr. 23—University Symphonic Band and Men's Chorus
- Apr. 27-28—Ballet West
- Apr. 29—Music of Henry Brandt
- May 4—Bonnie Raitt, 9 p.m.
- May 7—Symphonic Band Ensemble
- May 8—Gopher Symphonic Band
- May 9—University Jazz Ensembles, 3 p.m.
- May 27—University Symphony Orchestra
- May 28—Concert Band Ensemble
- June 6—All Bands Concert, 3 p.m.

St. Paul Student Center Music

- Apr. 27—Sydney Farear, piano improvisations, 8 p.m.
- Apr. 30—Garrison Keillor's live radio show, 7:30 p.m.
- May 18—University Percussion Ensemble, 8 p.m.

Angles of Vision Film Series (Coffman Union, 7:30 p.m., unless noted)

- Apr. 11—*Marty*
- Apr. 25—*High Noon* and *The Gunfighter*, 6:30 p.m.
- May 2—*Tell Them Willie Boy Was Here*
- May 9—*Mr. Smith Goes to Washington*
- May 16—*Mildred Pierce*
- May 23—*Grapes of Wrath* and *Wild Boys of the Road*, 6:30 p.m.

British Film Series (Coffman Union, 7 and 9:15 p.m.)

- Apr. 28—*The Lady Vanishes*
- May 5—*Loneliness of the Long Distance Runner*
- May 12—*A Taste of Honey*
- May 19—*The Hireling*

Third World Film Series (Coffman Union, 7:30 p.m.)

- Apr. 14—*No Time for Tears*
- Apr. 21—*Valparaiso Mi Amor*
- May 26—*Attica*

Music in Scott Hall (8 p.m., unless noted)

- Apr. 10—Hindustani Vocal Concert, 7:30 p.m.
- Apr. 11—University String Quartet
- Apr. 12—Otis D. Simmons, speaker, 11 a.m.
- Apr. 19—Percussion Ensemble
- Apr. 26—Constance Wilson, soprano
- May 4—Roger Dickerson, composer, 320 Wulling Hall
- May 6-7—Leon Fleischer, pianist, 2 p.m.
- May 11—Faculty Brass Trio
- May 15—Brass Choir
- May 22—Hindustani Vocal Concert, 7:30 p.m.
- May 24—Faculty Brass Quintet
- June 3—Chamber Singers

The Voyage of Edgar Allan Poe, an opera by Dominick Argento, performed by the Minnesota Opera Company and the University of Minnesota Chamber Singers; O'Shaughnessy Auditorium, St. Paul

- Apr. 24—7:30 p.m.
- May 1, 7-8—8 p.m.

Popular Film Series (Coffman Union, 8:30 and 9:30 p.m.)

- Apr. 2-3—*Monty Python and the Holy Grail*
- Apr. 9-10—*Scenes from a Marriage*
- Apr. 23-24—*Shampoo*
- Apr. 30-May 1—*Cries and Whispers*
- May 7-8—*Lion in Winter*

St. Paul Student Center Films

- Apr. 9—*Blazing Saddles*, 7:30 and 9:30 p.m.
- Apr. 10—*Blazing Saddles*, 8 p.m.
- Apr. 22—*The New Land*, 7:30 p.m.
- Apr. 23—*The New Land*, 7 and 10 p.m.
- May 7-8—*Dr. Zhivago*, 7:30 p.m.

University Gallery Exhibitions

- Through May 9—Oil Sketches by Frederic Church
- Through Apr. 28—A Painting Conservation Project
- Through May 13—"The American Scene: Urban and Rural Regionalists of the '30s and '40s"
- May 3-14—Work by Nancy Monk
- May 16-31—Work by Lynn Fitzgerald
- May 20-June 24—Southwest Indian Arts
- May 20-June 12—Ceramic Sculpture by Marilyn Levine
- June 15-30—Work by Christine Jones and Nancy von Haden

Coffman Union Exhibitions

- Apr. 15—Gallery Grand Opening: Sculpture by Katherine Nash and Graphics by Louise Nevelson (through May 14)
- Apr. 5-28—Computer Graphics by Birgit Wassmuth
- May 19-June 9—Work by Clayton Lee and Cynthia Starkweather Nelson
- May 4-19—Chicano Group Exhibit

St. Paul Student Center Exhibitions

- Through Apr. 25—Smithsonian Traveling Exhibit
- Through Apr. 30—Photographs by Mark Luinenburg and Pottery by Steve Williams
- May 3-21—Prints by Sarah Mertz, "Artists and Art Places: Photographs" by Victor Bloomfield, and Drawings by Design Grad Students
- June 1-19—Mixed Media by Dean C. Swanson and "Color Design," a student show

"Cinco de Mayo: Chicano Week" (May 3-7)

- Monday—*El Teatro Campesino*, Northrop, 8 p.m.
- Tuesday—Poets and Writers, Coffman, 11:30 a.m.
- Wednesday—Films: *Yo Soy Joaquin*, *El Teatro Campesino*, and *How's School, Enrique?*; Coffman, 11:30 a.m.
- Thursday—Lectures by Chicano authors, noon and 8 p.m., Coffman
- Friday—Dance, Coffman, 9 p.m.

Duluth campus

Tweed Museum of Art Exhibitions

- Through Apr. 25—Arrowhead Art Exhibition
- Apr. 6-11—Swedish Wooden Handicrafts by Inga and Neta Friberg and Work by Harlan Tjader
- Apr. 13-18—Work by Pat Joyal
- Apr. 20-25—Work by Terri Rose and Ann Walton
- Apr. 27-May 2—Work by Nancy Boettcher and Jana Olson
- Apr. 28-May 30—"Accomplishments: Minnesota Art Projects in the Depression Years"
- Apr. 28-May 30—Photographs by Roger Kreidberg and others
- May 4-9—Work by Mark Belisle
- May 11-16—Work by John Boyer
- May 18-23—Work by Douglas Nelson and Cheryl Mollberg
- May 25-30—Work by Sandra Henkel

UMD Theatre Production

- May 13-15—*Spoon River Anthology*, Marshall Performing Arts Center, 8:15 p.m.

Marshall W. Alworth Planetarium

- Public programs are presented at 2 p.m. each Sunday at the planetarium. There is no admission. Program topics change regularly.

UMD Musical Events (Bohannon Hall 90, 8:15 p.m., unless noted)

- Apr. 9-10—Head of the Lakes Jazz Festival, Marshall Center
- Apr. 8-9, 12, 14—Elizabethan Dinners, Kirby Center ballroom, 7 p.m.
- Apr. 22—Jazz combo concert
- Apr. 25—Donna Pegors, soprano; Marshall Center
- Apr. 29—Marion Valasek, flutist
- Apr. 30-May 1—Regional Music Contest
- May 4—Mark Bufkin, violinist
- May 6—Kathy Chandler, hornist
- May 9—Tom Bostyancic, organist; First United Methodist Church, 8 p.m.
- May 11—Kathy Jagunich, clarinetist, and Nancy Christiansen, flutist
- May 13—Benjamin Allen, baritone
- May 16—Roxanne Patton, soprano, and Tim Gould, baritone
- May 18—Holly Simms, pianist
- May 20—Rolf Krogstad, violinist

- May 25—University Singers, Marshall Center
- May 26—Jenine Olson, flutist, and Gary Jackson, percussionist
- May 27—Varsity Band and Jazz Ensemble II, Marshall Center
- May 28—Kathy Ritz, soprano; Pilgrim Congregational Church
- May 29—Barbara Morris, pianist; 2 p.m.
- June 1—UMD-St. Scholastica-Community Orchestra, Marshall Center
- June 3—Concert Band, Marshall Center

UMD Films (Bohannon Hall 90, 8 p.m.)

- Apr. 2, 4—*Young Frankenstein*
- Apr. 9, 11—*Five Easy Pieces*
- Apr. 16, 18—*Shampoo*
- Apr. 23, 25—*The Godfather*
- Apr. 30, May 1—*Butch Cassidy and the Sundance Kid*
- May 7, 9—*Tommy*
- May 14, 16—*Paper Moon*
- May 21, 23—*Little Big Man*
- May 28, 30—*Eiger Sanction*

Morris campus

- Apr. 26-May 14—"Minnesota Vernacular Architecture: A Photographic Documentation of Buildings in Western Minnesota from 1870-1900," Humanities Fine Arts Center
- Apr. 26—*Hamlet*, by the New Shakesphere Company; Edson auditorium, 8:15 p.m.
- Apr. 27-30—Ice Cream and Lollipop Show, Edson auditorium
- Apr. 28-30—UMM Theatre production, to be announced
- May 6—St. Paul Chamber Orchestra, Edson auditorium, 8:15 p.m.
- May 18—UMM Band Concert, 8:15 p.m.
- May 19-22—UMM Theatre production, to be announced
- May 25—Chamber Choir Concert, Recital Hall, 8:15 p.m.

Crookston campus

- Through Apr. 19—Kerlan Collection Exhibition, Polk County Library
- Apr. 4—Theatre of Involvement performance, Kiehle, 3:30 p.m.
- Apr. 5—Film: *Blazing Saddles*, Kiehle, 8 p.m.
- Apr. 7—Bill Steele Folk Concert, Trojan Inn, 8 p.m.
- May 5—Perpich Band, Kiehle, 7 p.m.
- May 9—UMC Horse Show
- May 13—Spring Choir Concert
- May 14-15—Spring Fling

Waseca campus

- Apr. 6—A Time for Art Series: Photography, 8 p.m.
- Apr. 10—4-H Share the Fun Contest
- Apr. 12—Film: *M.A.S.H.*, 8 p.m.
- Apr. 13—A Time for Art Series: French, 8 p.m.
- Apr. 20—A Time for Art Series: Sculpture, 8 p.m.
- Apr. 21—Dance, Gym, 9 p.m.
- Apr. 27—A Time for Art Series; Mime, 8 p.m.
- May 23—Ruff Ryders' Horse Show

update

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MASSACRED GEN. CUSTER AND 261 MEN THE VICTIMS

NO OFFICER OR MAN OF 5 COMPANIES ALIVE TO TELL THE TALE

3 Days Desperate Fighting

Full Details Of The Battle

What Will Congress Do About It?

Victims Captured Alive Tortured in A Most Fiendish Manner

by Bill Huntzicker

The battle over the Battle of the Little Big Horn has raged ever since the news of an Indian victory over the U.S. Seventh Cavalry on June 25, 1876, startled the nation's leaders celebrating the Centennial in Philadelphia.

The defeat of the cavalry, especially under the heroic leadership of George Armstrong Custer, was unthinkable to a nation that believed its "manifest destiny" was to control the North-American continent.

The battle, which was part of the native Americans' efforts to enforce their sovereignty over what is today western South Dakota and southeastern Montana, has been subjected to continuing controversy and interest since Custer bit the dust on that June afternoon a century ago.

"This is one of those events that reveals the nature of two cultures," said Bill Agee, a University evening classes lecturer in American studies. "Anything that has fascinated so many Americans for so long a time as Custer's 'last stand' must have touched a responsive chord of some kind in the culture."

The Indian victory and the lack of white survivors, an element that left a puzzle for whites to piece together, were among the reasons Agee listed for the continuing interest in Custer, who had been a Civil War hero and gained a reputation as an Indian-fighter in his 10 years on the plains.

"Part of the mystique results from the American cultural assumptions at the time of the battle," according to Ruth Voights, instructor in American Indian

custer, next page . . .

by Mike Finley

D. W. Griffith's famous two-reel western movie of 1915, *The Battle of Elderbush Gulch*, begins unportentously enough. Two young girls leave their home back east and journey westward via stage coach. Accompanying them in the coach are a young married couple with a baby.

Unportentous, perhaps, but significant nevertheless, says Daniel Johnson, speech-communication instructor at the University's Duluth campus, author of several film-history texts, and consultant to the American Indian Task Force. The two orphaned girls, one of them played by Mae Marsh, represent the flower of civilization. The young couple—one of whom is Lillian Gish, no less—are the instruments of civilization. The infant is the promise of future civilization. And civilization, to most of Griffith's audience, meant white people.

The tiny caravan of likable, fragile white people pulls into its destination, a rugged two- or three-horse western settlement. The townspeople are jubilant. The baby is the settlement's first. At this point, in

THE BATTLE OF ELDERBUSH GULCH

A Story Of Adventure

FEATURING

- LOVABLE
WHITE SETTLERS
- CUTE PUPPY DOGS
- REAL ORPHANS
- NEWLYWEDS
- And A Host Of
WILD INDIANS

case audiences are not totally in love with these nice white people, Griffith plays his trump card: two cute puppies, the orphans' pets.

Meanwhile, as is always the case, events are brewing a few miles away that will cast a shadow on the settlers' visions of a peaceful, industrious future. The local Indians are celebrating the Feast of the Dog, subtitled "Wayatamin Sunka E Ya E-E Yo (May You Eat Dog and Live Long)."

elderbush, next page . . .



Custer . . .

studies at the University. Progress was believed to be God's will, and Indians were treated as mere animals on the land, she said.

"Custer has to be a tragic hero," Voights said. "All the forces of destiny center upon him for some mysterious reason, because you can't admit that these primitive, savage, and dumb people out-fought and out-maneuvered the American military machine of the time."

A military historian views the situation somewhat differently. Rodney C. Loehr, professor emeritus of history, said the Indians contributed to the mystique by the number of surprises they had in store for the cavalry.

"The biggest gathering of Indians in the history of the West was there," Loehr said. And instead of fighting in their usual hit-and-run style, they stood to fight the cavalry, he said.

"The biggest thing was in Custer's character," Loehr said. "He reminds me of Patton. He was ambitious, vain, stupid, and willing to sacrifice his men's lives."

Popular literature and newspapers of the day made much of the battle, which probably lasted less than half an hour. Custer and his immediate command were killed on June 25, and the news disrupted the nation's Centennial observance in the East on July 6.

Custer's faults, which Loehr said contributed to his mystique and defeat, are seen as positive attributes in heroic pulp literature. The University's Hess Collection of dime novels and pulp fiction contains a number of examples of the Custer mystique.

A serial in *Boys of New York* beginning in August 1876 described him as "Custer the hard fighter, the yellow-haired devil, whom they [Indians] had always feared, charging along their trail and aiming for the village like a thunderbolt, with his cavalry regiment at his back."

Custer's first biographer, Frederick Whitaker, assured the readers of *Beadle's Boys Library* in 1882 that Custer never told a lie, never got into a single fight as a boy, and "could run faster, jump farther, wrestle better than any other boy of his class."

Custer's death was used, by those who wished to develop the plains states, as another reason for taking the land, Voights said. The press reaction was a violent one geared toward eulogizing Custer and getting revenge for his death, she said.

"The only proper monument to Custer's memory," said one Montana newspaper, "will be the extinction of the Sioux nation." The *New York Herald* said the native Americans should be either confined to a reservation or exterminated. "If the Indian will not submit to civilization," the *Herald* editorialized, "let us cage him as we would a tiger or a wolf."

A similar response was seen in the popular literature, as characterized by Pandy Ellis, hero of the *Boys of New York* serial. "Bust my buttons ef these Reds ain't

woke up wid some o' ther ole fire," Ellis said. "My hate fur 'em war dyin out, but it only needed this ter kindle it . . . I'll have revenge for this day's work."

Many Americans had become sympathetic to the native Americans during the calm that existed in the wake of the Treaty of 1868, according to Rich Lundy, a graduate student in American Indian studies.

"The Little Big Horn had a lot of impact historically," Lundy said. "When news of it reached the East, the impact was great among people who were becoming sympathetic to the Indians, until they received 'reports' of atrocities at the Little Big Horn."

Lundy, whose grandfather's grandfather—Joseph White Bull—is credited by some historians with killing Custer, said the defeat was an embarrassment to the people, the army, and the government generally.

Lundy is not alone in associating Custer's death with violation of the Treaty of

Elderbush . . .

"Notice," Johnson said, "the set of the Indian camp. Griffith had a conscience about certain things. Before going into his New York studio to shoot, he always had a researcher down at the public library, studying dress and customs of the tribe he was depicting. Unlike his fellow Biograph directors, he had qualms about showing Plains Indians living in Seminole houses."

"This does not mean, however, that Griffith's films are value-free. Far from it, in fact. Here in the *Elderbush Gulch* film, the Indians eat a dog, get drunk and disorderly, and then fall down in sleeping heaps. This contrasts sharply with the treatment Griffith gives the settlers."

Meanwhile, back at the ranch, the orphaned girls are determined to sneak their little dogs into the cabin, despite the stern prohibition of their benefactor, a cute and appropriately grizzled old uncle, against having dogs in the house.

The puppies escape. They are found by two hungry Indians—one of them the chief's son—who missed out on the dog feast. "Wanna watinke (Now we eat)," one of them says. The grizzled old uncle arrives just in time to do the correct thing: kill the chief's son and save the life of the puppy.

"Here Griffith shows Indians at their worst again," Johnson said, "ignoring the fact that everyone doesn't have the same attitude about dogs. He also makes the Indians look like dog-thieves, whereas the



dogs were actually loose. The uncle overreacts, to be sure, but only out of concern for the two girls' happiness."

When the chief learns about his son's death, he vows revenge. Soon the whole tribe is on the warpath. What follows, Johnson said, is one of the classic film battles of all time, one that pulled every emotional stop and triggered every cultural fear.

Leaving his wife—Lillian Gish—and the two orphans and puppies behind, the proud young father ventures into town with the baby under his arm. The grizzled uncle is in town, too.

The Indians attack with great ferocity and a minimum of scruples. Men, women, and children are killed and scalped. The young father is wounded and the baby is thrown to the ground. The young mother rushes from the cabin to see what the uproar is about, and in a memorable scene she watches as one of the Indians scalps her next-door neighbor. A close-up of her face as she witnesses the atrocity, and then realizes that her baby is somewhere in the midst of the battle, is one of the great eight-second sequences in silent films.

The surviving settlers gather in the cabin to defend themselves from the mounted Indians. The young mother is in total



1868, which granted sovereignty to the native Americans over the vast territory they were defending at the time of Custer's defeat by Crazy Horse, Sitting Bull, and others.

The treaty, Loehr said, was impossible to keep. The whites had failed to provide the promised food and supplies, and, especially after gold was discovered, they did not stay out of the Black Hills. The Indians, he said, continued to attack settlers and railroads outside their territory.

In 1875, the army issued an order telling Indians they must return to the agencies that were maintained by the government or they would be declared "hostile." Parts of eastern Montana and northern Wyoming became what in the Vietnam years would be called a "free-fire zone"—anyone found in the area would be considered an enemy.

A massive three-pronged campaign was organized to bring the resisting Indians into submission, with one arm coming from the south, another from the west,

and another from the east at Fort Lincoln, near Bismarck, N.D. The first group was turned back in the Battle of the Rosebud a week before the Little Big Horn encounter.

Gen. A. H. Terry of Fort Snelling was commander of the remaining troops, which met on the Yellowstone River to plan the campaign. Terry explained the orders to Custer and Gen. John Gibbon, who commanded the infantry from Bozeman, Mont., Loehr said.

"If someone objected to the plan, then was the time to speak," Loehr said. "American orders are always worded to give leeway if a situation changes, but then, the objective didn't change. The objective was for Custer to join with Gibbon."

By failing to wait for Gibbon, Custer disobeyed his orders, and he divided his already outnumbered command for an attack, Loehr said. In addition, Loehr said, Custer rejected the advice of his scouts, who had told him the village was much larger than expected.

"The Little Big Horn, I think, is an example of about all the military mistakes that could be made, and Custer made them," Loehr said.

It was the group of about 215 men with Custer that was completely wiped out at the Little Big Horn, Loehr said. The other companies under Maj. Marcus Reno and Capt. Frederick Benteen were still fighting when help arrived the next day.

The only survivor of the group with Custer was a horse named Comanche, which has become the subject of story and song. A number of other "lone survivors" have grown up over the years, including ole Pandey Ellis and Buffalo Bill.

Custer has survived in literature and history as a martyr to the progress that Voights mentioned. The view of Custer's martyrdom is ironic, Agee said.

"The battle has no significance whatsoever in the long term," he said, adding that neither the army nor the Indians won the West. It was the railroads, the settlers, the destruction of buffalo, and

the treaties that took the land away from the native Americans.

Voights and Lundy said Custer is a symbol of the belief in the white man's manifest destiny to control the West and of the continuing notion that the Indians don't use their land properly.

"Indian lands are being reduced now just as quickly as they were a hundred years ago," Lundy said. "Reservations are in danger of being strip-mined out of existence."

If American history is viewed in terms of Indian-white relations, Lundy said, a number of questions have to be raised about the meaning of progress. He said the Bicentennial year and the Centennial of the Battle of the Little Big Horn should be the occasion to raise those issues.

shock, swooning and fainting by turns. The older of the orphan girls, Mae Marsh, bravely escapes from the cabin, swoops up the crying baby from under a corpse, and dashes back to the relative safety of the besieged cabin.

"At this point," Johnson said, "people who have seen other Griffith films will realize something familiar is about to happen. In his most famous film, *Birth of a Nation*, another cabin is surrounded by marauding blacks, and the same values—civilization, innocence, courage—seem about to go down the drain."

As if realizing this, one of the characters in the film does a very ominous thing. While gunsmoke billows through the cabin, a pistol appears over Lillian Gish's head. It immediately becomes clear that one of the settlers, seeing that defeat is

imminent and knowing that defeat means that the women will be killed, or tortured, or worse, raped, is taking it upon himself to spare Gish that fate worse than death.

As luck would have it, the cavalry—in *Birth of a Nation*, it's the Ku Klux Klan—arrives at that exact point and disperses the marauding Indians. The two orphans and the baby emerge from the safety of a trunk, to the relief and delight of the remaining settlers. White culture has prevailed.

Probably the most important thing about *The Battle of Elderbush Gulch*, said Johnson, is not that it was Griffith's third-most-famous two-reeler. What interests Johnson more is the fact that it is typical of the 6,000 or so films made in the early

days of movies in which the American Indian was portrayed.

Unanimously, films of that period depicted the Indian as a barrier to the ineluctable progress of a more wholesome civilization. The problem is that, with the exception of what they saw in the movies, few white Americans had any notion about what Indians were like.

Johnson explained that the Indian's role as screen villain was a natural development. In 1910 the film industry began to move to Arizona and California, in order to do short films using the Southwest scenery. But audiences soon tired of shots of cacti and sagebrush, of scenery without action.

Action required conflict, directors reasoned, and conflict required values: good and bad. The invention that resulted is now a staple of films of every period: the chase. Naturally enough, one chase formula involved ordinary white people chasing or, better yet, being chased by unusual red people. To this day, Indians are treated as an alien group in films. There are no movies about Indians made by Indians, Johnson said. His interest in the movie treatment of Indians in the 1900s, and in the 1910s, '20s, '30s, '40s, '50s, '60s, and '70s, is entirely predicated upon that imbalance.

He would like to correct history just enough so that our prejudices can be brought back in line with reality. Reality, he says, was far less entertaining. The great silent majority of wagon trains slogged across the West without ever having to form a circle and fight.

update

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"THE BATTLE OF ELDERBUSH GULCH," BIOGRAPH FILMS

mutant-watchers labor amid the alien corn

by Mike Finley

This is a story about test-tube corn. It is also about mutants. It's about world hunger, too, and about a group of University scientists in St. Paul attempting to do something about it.

But first, test-tube corn. Test-tube corn is not a cash crop. Nor does it have a Pyrex cob. Test-tube corn refers to a kind of research in which corn tissues are kept alive in a laboratory so that their strengths and weaknesses can be studied. Right now a team of researchers with different backgrounds is laying the groundwork for a brand-new approach to plant (in this case, corn) improvement.

Corn is important to Minnesota. If you don't count trees—and forestry people would insist that we do—corn becomes the largest single crop in terms of acreage in the state. Last summer six million Minnesota acres were covered with corn.

"Corn," said Ronald Phillips, associate professor of agronomy and plant genetics, "is unique among plants in that we geneticists know a lot about it. For many decades genetic data have been collected on corn, because, among other things, corn genetics is relatively easy to study."

Corn is a grass and a grain crop, Phillips said, like oats, rye, rice, and wheat. It's different from these grains in that the seeds (the kernels) are separate from the male flower (the tassel). In conventional grains the two are together. It seems an unusual grass until one considers that the grass family also embraces such peculiarities as bamboo.

Beyond Minnesota, said Charles Green, assistant professor of agronomy and plant

genetics, corn is important to the world. It is one of the three or four most important food crops growing anywhere. In less carnivorous parts of the planet, corn is a chief source of protein for people.

The trouble is, Green said, corn's protein just isn't enough. At least not now. "If a child eats nothing but corn," he said, "he cannot eat enough to avoid malnutrition. Of the 20 or so common amino acids necessary to maintain the body, the corn kernel contains inadequate amounts of three or four important ones. These insufficient amino acids are called 'limiting.' Our work is to see if we can't take the limits off their production and thereby increase their availability."

The poet John Keats, in one of his odes, mentions the non-Israelite Ruth "standing in the alien corn." Perhaps Keats was talking about corn mutants? Not true, according to Irwin Rubenstein, professor of genetics and cell biology, who says that corn was unknown to Ruth's world as well as Keats' world. Keats really meant wheat, not corn.

Anyway, the test-tube mutant project is on the look-out for alien corn—corn cells that are different from their fellows, at least. The men on the project hope the results of the work are useful as well as poetic.

The main difference between the project's approach and conventional plant-

improvement techniques is this: whereas normal plant breeders often look all over the world for different strains of corn from different localities to cross with one another to combine different desirable traits, the test-tube approach starts not at the global level, but at the cellular one.

"What we do," Green said, "is to start with a bit of tissue from a corn plant. It can be obtained from the leaves, the roots, or the embryo part of the kernel. We place this tissue on an artificial 'soil' in a petri dish or test-tube and feed it with hormones, minerals, and sugars that encourage it to grow into what is called *callus*."

"The callus tissue, we have found, can grow independently for years, like a tumor, without ever becoming a corn plant. If we choose, by changing the hormone diet we can make the callus grow back into a whole plant, which can be turned over at that point to plant breeders for further development."

Selecting mutations comes into the picture only when Green and Burle Gengenbach, another assistant professor of agronomy and plant genetics, add another component to the artificial soil—something inhibitive to the cells' growth, like poison. All the bits of tissue turn brown and die. But every now and then there is an odd cell that doesn't die. These resistant, mutant cells, Rubenstein said, are not common: desirable mutations occur at a frequency of about one in a million.

"Selection," Rubenstein said, "is a technical term. When we say we 'select' mutants, we are really talking about identifying or selecting out something that has already occurred. To illustrate, think of mosquitoes. If you have a population of mosquitoes, you throw DDT at them. And if you sell DDT you will make money, because it definitely kills mosquitoes. However, there exists in every million or so mosquitoes an individual or two who will love DDT even as his brothers and sisters perish from it. That individual is a mutant. And now he can get all the blood he wants because he has no competitors. If it is in fact a he, all he needs is another mosquito to raise a DDT-resistant progeny. If it's a she, she may not even need another."

Mutation, Rubenstein said, is a change from the majority. Most mutations hinder the individual rather than favor survival. He compared the genetic event of mutation to a sentence typed on a piece of paper.

"Think of the 10 genes in corn as a sentence: 'The quick brown fox jumped over the lazy yellow dog.' Now a mutation would be like a typographical error: 'The quick brown *box* jumped' A mutation can be a change in only one gene, one letter. To revert the individual's progeny back to the original unmutated condition, a double 'letter-change' or



The test-tube corn team: Charles Green, Ronald Phillips, Irwin Rubenstein, and Burle Gengenbach

mutation may be required. Thus, most mutations are stable through future generations."

With regard to beefing up the amounts of limiting amino acids in corn, a similar procedure for mutant selection came into play. After exposing corn cells to inhibiting concentrations of two of the limiting amino acids—lysine and threonine—Green, Gengenbach, and the others watched and waited for those rare cells that thrived under the circumstances. Predictably, a very few mutant cells did.

The process of protein improvement is not as simple as watching and waiting, however. Phillips estimates that last summer alone the project completed more than 10,000 field crosses, with conclusive results still in the tantalizing future.

But the project has made good on two of its basic objectives, Green said. It has proved that it is fully possible to regenerate corn plants from a few cells of callus, and it has proved that the test-tube model for disease resistance really does work.

A third objective, to develop a model for bolstering the amounts of limiting amino acids in corn, has been tentatively proved and awaits only conclusive proof of practicality. Phillips said the four researchers are hoping that initial proof can be made before the year is up.

Green states very plainly that the test-tube corn project is at the cutting edge of new work in the field of plant breeding. Phillips goes Green one better when he says that projects like theirs signal a new wave in the science of plant genetics.

"We're well out of the early phases of mere observation of genetic behavior—

description and cataloguing," Phillips said. "Now we're entering an activist era in genetics where scientists can actually get into the cell and apply their knowledge to the whole plant."

In one sense, what Phillips says is reminiscent of other promises made by scientists in recent years: that this project *may* be on the threshold of an important breakthrough in making plants better for us. In the same breath, Phillips and the others warn that useful ideas from the project have to go to mainline plant breeders next, where their potentials have to be thoroughly tested and appropriate varieties adapted to various locales.

Furthermore, if it is as successful as the project people hope it is, the immediate beneficiaries will be Minnesota farmers, not the hungry of the Fourth World. Political and economic realities tend to have a deadening effect on world-rescue efforts

like the Green Revolution or test-tube plant improvements.

This is not a story, then, about how heroic scientists with a flick of a laboratory switch put an end to worldwide famine. The test-tube corn people know better. The mills of the new gods of bureaucracy, research grantsmanship, and politics grind even high-protein corn flour slowly.

Still, the idea is useful. And geneticists like these are used to the unusual. For instance, there are enough DNA threads in the average human body that if they were all linked end to end, they would be the length of 60 trips to the sun and back (approximately). And if something like that's possible, feeding people good corn should be a snap.



Too much of even good things like carrots can spell trouble in your diet.

TOM FOLEY

The poisons and antinutritional factors found in "natural" foods are fully explored in one chapter of Packard's book, *Processed Foods and the Consumer: Additives, Labeling, Standards, and Nutrition*. Published by the University of Minnesota Press, the book is available in paperback for \$5.95.

Emphasizing that "toxicity and hazard are not one and the same," Packard writes that "toxicity is beyond human control. Hazard, with appropriate knowledge, is predictable and subject to control."

In an interview, Packard said that the chapter on toxins in natural foods was not meant to frighten people or to discourage them from eating natural food, but to help give a more balanced picture of relative risks.

"What may be surprising," he writes, "is that several common foods, if held to the same rigid standards of safety required of synthetic additives, would not pass the test."

"Poisons are a part of our normal diet. Digestion and metabolism mobilize energy and nutrients and screen out impurities. At all times living cells swim in a sea of chemicals, managing at one and the same moment to utilize needed nutrients while rejecting or detoxifying most toxic compounds."

Many people have thought, "Wouldn't it be wonderful if all foods were vitamin-fortified? Then we'd be sure to get all the vitamins we need."

Packard disagrees. "The United States is one of the few nations where it has become necessary to protect citizens against diseases stemming from excessive intake of nutrients, and we must guard against the dangers," he writes in a chapter on nutritional quality guidelines.

"If every food were fortified with every essential nutrient, our penchant for overeating would soon have many of us hospitalized with symptoms of our excess."

As for the energetic Prof. Packard's eating habits, he says, "I enjoy eating. I truly don't worry about these things. In fact, I don't think about them at all at dinner time. Nor, I guess, does my family. They really dig in."

update

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when eating
you can get
too much of
a good thing

by W. R. Hafling

Beware your favorite food, whatever it is. Too much of a good thing can be hazardous to your health, according to University professor Vernal S. Packard, Jr.

"There's nothing at all that we consume that can't be considered a risk—a serious risk—if we eat too much of it," Packard warned.

Nitrates and nitrites, for example, which have caused much public concern as additives in meats, also are found "in potentially toxic amounts in beets, broccoli, cabbage, cauliflower, lettuce, rutabagas, and turnips," according to Packard, an associate professor of food science and nutrition.

the battered child syndrome: the slaughter of the innocents

by Maureen Smith

Think of the cruelest, most heartless kind of abuse that one human being could inflict upon another. Down through the centuries, there have been parents who have mistreated their children in just that way.

Children have been murdered, maimed, tortured, raped, castrated, abandoned, sold into slavery, and butchered and sold in parts by their own parents.

"The farther back in time you go, the worse things were for kids," said Dr. Robert ten Bense, director of maternal and child health in the University's School of Public Health. "I think people don't realize that. Our forefathers were very hard."

It has only been in recent years that the problem has come into public awareness, ten Bense said. Dr. C. H. Kempe at Denver coined the phrase "battered child syndrome" in 1962. The first child abuse law in Minnesota was passed in 1963.

(Wife-beating was even later in coming to public notice, ten Bense said. "There was

The child in this 1930 photograph suffers from lung block disease. Intended as propaganda against child labor, the picture

shows the boy standing in front of a hearse to signal his early death.



no piece of literature before 1969 on wife-beating as such.")

Although an understanding of history can help to put the problem in perspective, ten Bense acknowledged that there have been alarming new patterns of child abuse and neglect in the past few years. Reported instances of child abuse are on the increase, and an estimated 3,000 children die in the United States each year as a result of abuse by their parents.

"Child abuse is a symptom of what is going on in the society," ten Bense said. Violent crimes against adults are up—"the curves are just skyrocketing"—and crimes against children are keeping pace. Economic hard times have traditionally led to more violence. And when they are bombarded with television violence, ten Bense said, people become anesthetized to the reality.

Families are facing new pressures, with the loss of the extended family and the growing number of single-parent families. One child in six now lives with a single parent. Values are changing. "If everybody's going to do their own thing, kids kind of get left by the wayside," ten Bense said. "Some people say that in a self-actualizing, pleasure-seeking society, kids are really a drag."

To illustrate the history of child abuse, ten Bense likes to present a slide-tape show. "People have left their records in art, oftentimes, of the violent parts of their lives," he said. He uses the slide-tape presentation to open his public health course, "The Rights of Children and Youth: Abuse and Neglect."

The slide-tape show was put together by Trude Turnquist, who has a degree in art history and is now doing graduate work under ten Bense. With her art background, Turnquist said, "I knew what sort of things I was looking for." But searching out the right materials was a huge project. "I spent the whole summer



Robert ten Bense



Trude Turnquist

in the archives of Walter Library, where it was damp and dirty and nobody was there."

Turnquist's efforts were rewarded. "It's amazing, when you go back into these books, what you can find," she said. One series of slides shows an illustrated German folktale in which a father kills his children one by one. In life as in art, Turnquist said, "the father did have life-or-death say over his children."

Child-murder is also depicted in a Delacroix painting of Medea and her children and in Brueghel's "The Slaughter of the Innocents"—a popular theme, Turnquist said, that the Flemish painter chose to portray centuries after the Biblical event.

Infanticide was most widespread in antiquity, ten Bensel said. Babies were killed because they were deformed, or because they were female, or as sacrificial offerings in religious or magical cere-

monies. As recently as 1875, ten Bensel said, a law was passed in India "to prevent women from throwing their children into the River Ganges." Even today, he said, there are cultures in which infanticide is used for religious or magical purposes.

Another Brueghel painting shows crippled young beggars. Although it is not known that this was part of Brueghel's theme, Turnquist said, it has been historically documented that parents have crippled their children in order to bring in more money from their begging.

A Dutch etching shows mothers butchering their children during a famine and selling the parts. (Ten Bensel said he likes to use Dutch examples so that he won't be seen as pointing an accusing finger at ethnic groups other than his own.)

Not all of the child abuse shown in the slides is inflicted by parents. Some of the slides show school scenes and factory scenes.

Teachers are shown birching children, paddling children, boxing them on the ear, shaming them by putting dunce caps on their heads.

One slide in the school series summarizes the chilling record-keeping of a 19th-century German schoolmaster, who reported that in his career he administered 911,527 strokes with a stick, 124,000 lashes with a whip, 136,715 slaps with his hand, and 1,115,800 boxes on the ear.

Child labor is another issue that the slide-tape show confronts. Most of the slides in this series are photographs from early in this century. Paintings can have a powerful impact, Turnquist said, but many viewers are even more deeply moved by actual photographs of "eight-year-old kids who are working 16 hours a day."

In 1901 in the United States, 21.4 percent of the boys between 10 and 14 and

8.1 percent of the girls were at work, according to ten Bensel.

Exploitation of children is also shown in a slide about "Prince Leo," who bought children as circus performers in the late 19th century. The children performed dangerous feats with no apparent fear, but only because their greater fear was of the violence Prince Leo would inflict upon them if they betrayed the smallest sign of fear to the circus audience.

The idea of the slide show isn't to horrify people with grisly stories and shocking pictures. A series of slides on physical punishment could be followed by a discussion of alternative methods of discipline, Turnquist said. By developing the historical perspective, ten Bensel said, the goal is to "get eventually to prevention."

how women got lost in the stampede of history

by Ronaele Sayre

Women have traditionally been involved in the private side of history—the home and family. And that, according to Andrea Hinding, is why women have been ignored in much of written history.

"History is what people are interested in—presidents, treaties, and wars. Women have not been considered significant," said Hinding, curator of the University's Social Welfare History Archives.

The historical events of such periods as the American Revolutionary era have overshadowed other activities that took place at the same time. And women, Hinding said, did not leave many records of what they were doing.

During the 1700s, the family was the focus of society and women had important roles. "Simple survival was a struggle and women did what they had to do just to survive on the frontier," she said. "They were valued for their ability to produce, achieve, and survive."

Women were considered strong, necessary, and a scarce commodity, Hinding said, but at the same time there were barriers to their involvement in education, politics, and religion.

Hinding noted that by the 1800s society had become more urban, and the change from a subsistence economy of a rural society to the market economy of the cities changed the status of women to one of isolation.

"They were elevated to the cult of womanhood: genteel, decorative, and the protectors of morals," she said. The pioneer woman suddenly became a Vic-

torian lady with inhibitions set by herself and society.

Hinding described a collection of letters by a young woman who lived from 1783 to 1809. The letters reveal a sometimes giddy but always honest individual who wrote of the conflict between what was expected of her and what she wanted to do.

In a letter to her cousin, Eliza Southgate Bound wrote that she felt she had talents of her own and "would have been quite another person if properly cultivated."

Hinding, codirector of a national women's sources survey, a project of the National Endowment for the Humanities and the



Andrea Hinding

TOM FOLEY



University to search out manuscripts about women, said women's history is a dimension of history that has been lost.

Hinding said that with the exception of women like Eliza Southgate Bound, who was a prolific letter-writer, few women recorded their activities and feelings. She compared the lack of written history about women to the absence of information about the lives of plantation slaves, who, unless they were part of the slaveowner's household, were not mentioned in family records or diaries.

athletic scholarships for women established

The University is launching an athletic scholarship program for women in intercollegiate sports on July 1.

"By July 1978, Title IX requires us to be in basic compliance in providing athletic scholarship aid for women," Walter H. Bruning, vice president for administrative operations, told the regents at their May meeting in Morris.

The scholarships, intended for sophomore women who have demonstrated athletic ability, will be awarded on the basis of need, Bruning said.

Next year, \$20,000 will be used for up to 25 grants of \$800 each, he said. The grants will pay for tuition and fees only. By 1978, the total will be increased to \$40,000.

According to Bruning, the women's intercollegiate athletic program will not recruit, but will encourage female athletes to apply for the scholarships. "The women don't want to get involved in what they call 'cut-throat recruiting,'" he said.

Regents Erwin Goldfine and Robert Latz disagreed strongly with the decision not to recruit. "Especially with regard to core-city and minority women, you will miss many people who would not come to the University for economic reasons," Latz said, adding that an affirmative-action recruiting program aimed at poor women with athletic ability should be begun.

nuclear power: getting the best of a faustian bargain?

by Mike Finley

"People say the issue is extraordinarily complex," says physicist William R. Stratton. "But when it finally boils down to the inevitable choice, it isn't really much of a choice at all."

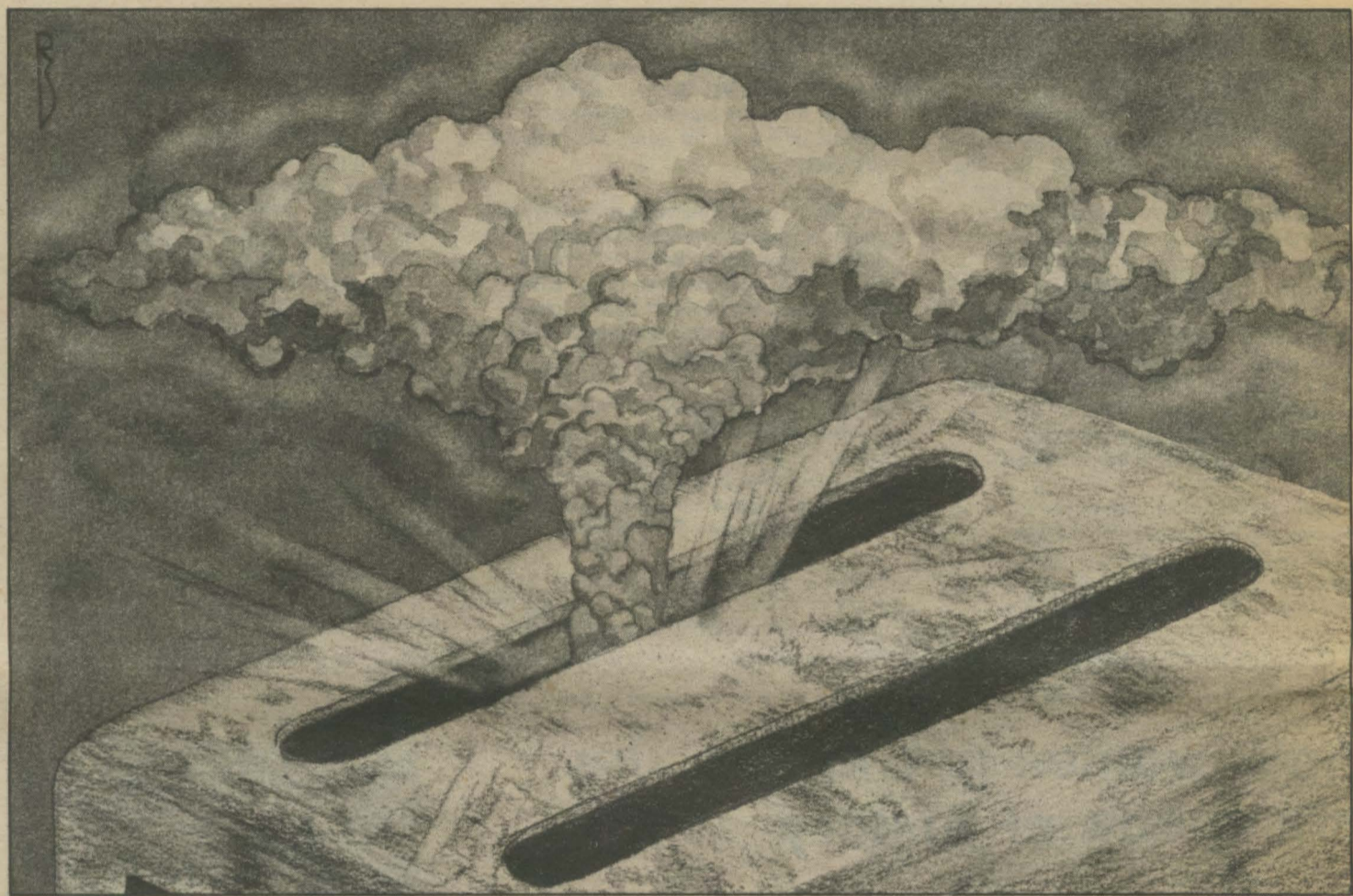
The issue Stratton is referring to is nuclear energy, pro and con. The final "inevitable choice" he sees is between nuclear energy and the end of human civilization.

Stratton was on the side of nuclear energy before this choice became apparent during the Arab oil embargo three years ago. Now that the choice has been spelled out and underlined for everyone, he's surprised how many people seem, judging by their protests, to prefer the voluntary demise of civilization.

Stratton, who received his Ph.D. in physics from Minnesota in 1952, offers this checklist of disappointments to those who hope that other, non-nuclear forms of energy may intervene and render his final, inevitable choice less final, and less inevitable:

- **Natural gas.** "It's the cleanest, handiest, nicest way to heat a home there is. Probably 95 percent of the homes in the Twin Cities are heated with gas. Twenty years ago, only a few homes were. Twenty years from now, our gas supply will be just about exhausted. It's a shame, too, that the oil companies in this country and in the Arab countries don't try to collect gas runoffs near drilling units. Instead of saving this finite resource, and making a profit on it, they find it easier simply to say, 'Flare it!' and get it out of their way."

- **Oil.** "We have 25 years before we hit our peak of energy availability. Forever after that, availability will decrease, year after year. In 50 years, it will, for all practical purposes, be gone forever. Our vast new reserves in Alaska will prove a disappointment, staving off the cut-off date for a few years, no more. These predictions will be true so long as the Arabs don't increase the cost or cut off supply during that time. And if they were to in-



crease the cost, I wouldn't blame them. It's their only natural treasure. When it's gone, they're back on their camels, and we're left wondering what the hell to put in our cars to push them around."

- **Coal.** "Coal advocates have been saying recently that there's enough coal in the United States to last, at our present rate of consumption, 500 years. The hang-up here is the phrase 'present rate of consumption.' As I see it, coal consumption is bound to go up. If we select a modest annual increase rate of 6 percent—about what credit unions pay on savings accounts—we can see that the projected 500 years is closer to 55 years, and we're right back where we started. In the meantime, states with coal reserves—Montana, Wyoming, Colorado, New Mexico—will be devastated by strip mines."

- **Tidal energy.** "All the energy collected from all the tides along the coasts of North America, if harnessed, would provide no more electrical energy than a dozen full-size coal-fired power stations."

- **Windmills.** "There are some new kinds of windmills, funny-looking things, that are really very interesting. But they will operate most practically and most efficiently only for the rancher whose operation is 10 miles from the nearest utility line. Windmills aren't about to light Chicago."

- **Hot rocks (geothermal energy).** "This is still in the research stage."

- **Ocean temperature gradients.** "And this is still a dream."

- **Solar reflectors in outer space.** "Science fiction."

- **Burning garbage.** "Ralph Nader likes the idea."

- **Solar collectors.** "Solar energy is being pushed hard right now for space-heating functions. Before too many years, I think this will be commercially available in the form of heat-supplement systems that homeowners can hook up to their main heating systems. I believe in this, and would be willing to pay a tax to get a major collector built somewhere in the southwestern United States. Solar energy may prove to be very useful in the sunny, least populated parts of the country—which leaves the coldest areas, Minnesota and New England, out—but only supplemental in the less sunny areas."

The lesson Stratton extracts from the false hopes held out by these energy alternatives has far-ranging implications. Without petrochemicals, which are derived from oil, society immediately stands to lose certain of its toys—its lipstick, drinking straws, polyester sportshirts. More seriously, one of the major sources of clothing, lubricants, plastics, drugs and medicines, and fuels will disappear forever from the marketplace.

What will people do when they need a certain medicine? How will they stay warm in the winter in cold climates? How will they keep the axles on their carts greased? If they live, like Stratton, in out-of-the-way places like Los Alamos, N.M., how will they get their food shipped in?

Without energy, our civilization, despite its skyscrapers, hospitals, advertising agencies, and microfilm libraries, will have no alter-

native but to revert, one year at a time, to a climate-bound agrarian society, comparable, perhaps, to the South before the Civil War.

Which brings Stratton to his real topic: fission energy. Stratton likes to quote Glenn Seaborg, who was chairman of the Atomic Energy Commission (AEC) a few years back, to the effect that "fission came along just in the nick of time for our civilization." It alone, in Stratton's mind, is going to permit us to keep going at our current rate of growth with our current societal values.

Stratton does not feel it necessary to elaborate on the advantages of fission energy. In terms of fuel consumption, he quotes from "Power to the People," a paper by David C. Williams, to the effect that one pound of uranium ore, fed to a nuclear plant, yields as much electrical energy as 10 or 15 tons of coal. In this sense, nuclear energy is very nearly inexhaustible, no matter what "inflation" our rate of nuclear consumption experiences.

Thus the prospect of vast statewide mining operations to provide fuel through the 21st century greatly diminishes. Along with that fear go the problems of sulfur-dioxide, fly-ash, and nitric-oxide pollution emanating from the smokestacks of conventional coal-burning power plants.

The fears that remain are the fears that have, in Stratton's mind at least, fed the propaganda machine of the anti-nuclear-power activists of the past few years. Most

of these fears have to do with the terrible alleged toxicity of the radioactive materials used in nuclear-power production or created as a by-product.

The most obvious hazard of nuclear power plants is also the least possible, Stratton said. Power plants simply can't explode like nuclear weapons. Even the opponents of nuclear power concede this point. Beyond this impossibility, nuclear-power opponents raise several major questions, which do involve real risks:

- Given the long life of radioactive elements such as plutonium, which retains its high level of toxicity for many thousands of years, can the advocates of nuclear power guarantee with any degree of credibility its safety for future centuries?
- Isn't it impossible to store these dangerous substances where they won't leak back into the world we live in, wreaking irrevocable damage upon the public health and the environment?



- Isn't it impossible to guarantee that these substances won't fall into the hands of terrorists, who may either use them to construct a bomb or simply release them into the environment, to effect their political ends?

At the heart of all these questions, Stratton says, is one assumption: that nuclear materials, especially plutonium, are so hazardous that mankind dare not get involved with them.

The assumption is not unwarranted. Plutonium's toxicity is not "alleged." "It is just as dangerous as can be," he said. "On the other hand, it must be borne in mind that we've been working with plutonium for 38 years, without anyone getting hurt by it. Accidents have occurred during that period; we've learned from them. Contrary to what you may have heard, we probably know more about the effects of plutonium radiation on living things than we know about any other hazardous material on earth."

One myth Stratton wants to dispel is that plutonium is something that can be scattered in the air, contaminating millions of people. Plutonium, he said, is quite heavy and tends to obey the laws of gravity to the letter. Attempts have been made to make a plutonium aerosol, but the process was found to be very difficult.

Similarly, plutonium dumped into a water supply poses no serious health hazard. The chemical is extremely insoluble, so its toxicity doesn't get a chance to work in water.

"In fact," Stratton said, "if I wanted to, I could rub my hands in plutonium, then wash them off with soap and water, and I'd be all right."

The problem arises when plutonium enters the lungs, he said. Plutonium does cause lung cancer. But it's not all that easy to get plutonium into the lungs. If the particle is too small, it will be expelled with the next exhalation. If it is too big, it won't be in the air to begin with. It will have fallen, harmless, to the ground.

Without denying plutonium its rightful place among the terrible poisons of the

world, then, Stratton does want some perspective brought to bear on the precise nature of its toxicity.

As for the other two major questions—where can you safely store plutonium and how can you protect it from terrorists—Stratton offers straight, conventional answers.

Plutonium can be stored for ages at the bottom of salt mines, he said. Salt deposits are among the earth's stablest areas, immune to earthquakes and other geological changes. Provided the mines are located far enough to the south, nuclear planners claim that the mines will be immune even to the glacial movements of future ice ages.

The question of terrorism has been debated with great heat on both sides, Stratton acknowledged. But the facts are these:

Stored within a nuclear reactor itself, plutonium is not accessible to guerrilla seizure. Within the power plant and the processing and fabrication plants, detectors similar to security machines at airports can tell if employees are sneaking radioactive materials out.

Stratton feels that conventional security forces can safeguard the chemicals from terrorist diversion without endangering the civil rights of employees. He admitted that it is probably in the transportation of plutonium between plants that the greatest vulnerability to theft exists.

Nuclear designers have therefore constructed trucks for plutonium transport that are highly resistant to highway robbery. In one test, it took a band of U.S. Marines 10 hours to break into such a truck. Warning devices within the truck had long since notified authorities of the break-in.

As for guerrillas actually building a bomb, experts differ. Some say building a bomb is the easiest thing one can do with nuclear materials. Stratton thinks it's more difficult than that, requiring at least six people highly skilled in different areas—certainly not your run-of-the-mill group of revolutionaries or counterrevolutionaries.

Stratton denies that he's trying to minimize the danger of an admittedly highly poisonous substance. He does think, however, that there are those in the anti-nuclear-power camp who are trying to do the opposite, to maximize the risks. Obviously, neither extreme is realistic.

Large societal mechanisms, by their nature, involve elements of risk, he said. The dam that broke in Idaho in June helped point this out. In California, a break in Folsom Dam would cause the deaths of an estimated 250,000 people. In the field of energy, sulfur-dioxide poisoning from coal-burning plants results in an estimated 20,000 deaths and 10 to 20 billion dollars' worth of property damage every year. The predicted consequences of a major reactor failure—which, according to certain calculations, may well occur once and only once in the next million years—are 5,000 deaths and \$15 billion in damage.

In that million-year period, it is reasonable to assume that other, equally likely, things will also occur. Jetliners may well crash into Superbowl games. Mile-wide meteors might land in Manhattan. Earthquakes might put our continent under water.

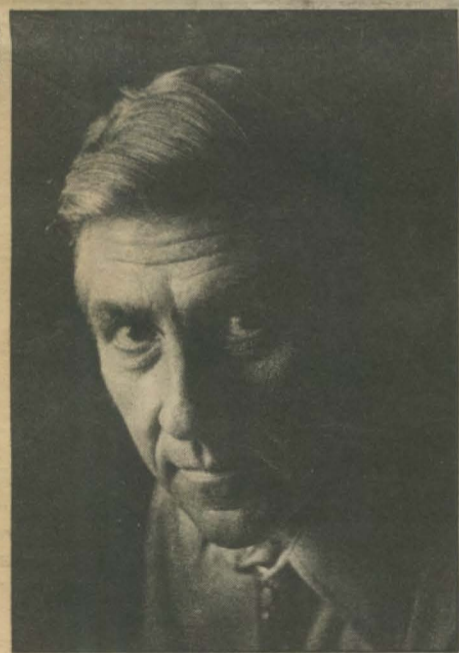
The likelihood of the average person dying in a nuclear accident, even if there were 1,000 more nuclear-power plants in operation in this country, would not be great. That person would still be 1,000 times more likely to die in a runaway motor vehicle accident, even if he never drove or never walked across a street. He would be 100 times more likely to die from being struck by lightning. He would be 3,000 times more likely to be electrocuted while using the electricity produced by the nuclear plant in the first place. Of all the hazards compared in a study conducted at the Massachusetts Institute of Technology, only being killed by a falling meteorite is less likely than being killed in a nuclear-reactor accident. Both *could* happen.

Meanwhile, Stratton notes, there are one or two pluses to nuclear power. We can still have schools, we can still run printing presses, we can still read at night, we can still visit our relatives in the next state, and we don't have to stop our ox-carts every few hundred yards to apply bacon grease to the axles.

It may be, as nuclear-power opponents have suggested, that man's decision to take on the workings of the atom smacks of *hubris*. Humanity may be biting off more than it can chew. The short-term promises of plentiful, clean energy may be the dividends of a Faustian bargain, with dire payments to be made in the future.

To use another legend, however, mankind may be in a transitional period not unlike the one that occurred a million years ago, when the first Cro-Magnon Prometheus took it into his thick, hairy skull to bring the terrible substance, fire, into the sanctity of his cave. The anti-fire people had their work cut out for them.

Several thousand centuries later, William Stratton says the nuclear-power issue is not all that complex when the alternatives are spelled out: risking either the danger of the atom or the end of civilization. He doesn't think it's much of a choice at all.



about william stratton

William R. Stratton missed participating in the birth of atomic energy—the wartime explosions over Hiroshima and Nagasaki—by only a few years. In 1952, shortly after receiving his Ph.D. in physics from Minnesota, he went to work at the nuclear laboratories in Los Alamos, N.M.

For several years he was involved in weaponry design. This led to his interest in nuclear-reactor safety. In 1967 he became a panel member of the government's advisory committee on reactor safeguards.

Stratton made his remarks to *Update* during a visit to the Twin Cities in the hottest part of June. While here primarily on matters relating to his work on nuclear energy, he managed to get in some non-nuclear fishin'.

"My heart is still in Los Alamos," he said. "The altitude there is a cool 7,000 feet. On summer evenings you need to wear a sweater."

TOM FOLEY



Whether it's in the heart of the wilderness or at the neighborhood park, people have different ideas about how to use the land.

wilderness land use: the freedom to use versus the freedom to preserve

by Mike Finley

Timothy Knopp likes the story so much he wants to use it in a television documentary:

It's early morning, midwinter. The two campers pack the last of the equipment, extra clothes, and food into their packs. Stooping, they fit their boots into their skis.

It snowed during the night. Not a track can be seen on the fresh powder. Main-

Timothy Knopp



TOM FOLEY

taining a brisk pace, the two set out for the heart of the wilderness area.

Hours later, the sun hangs high over the two. Already they had seen evidence of winter wildlife, including a set of deer tracks. The two are excited about what experiences lie ahead of them.

That's when they hear the sound for the first time—high and whining, almost like a chain saw. Suddenly a convoy of snowmobilers erupts into the wilderness clearing, whooping and waving. Forty-five minutes before, they had all been drinking coffee outside the wilderness border. In another hour, they will have passed the half-way mark.

The two skiers wave unenthusiastically at the snowmobilers, who plunge into the snowy thickets on the trail ahead. The skiers quickly realize that they don't want to follow snowmobile tracks for the rest of the day and decide instead to return to their cabin.

Timothy Knopp, an assistant professor of forest resources on the Twin Cities campus whose career, more specifically, is in the area of recreational land use, likes the skier-snowmobiler story. He acknowledges that there are more dramatic confrontations occurring every day between parties who have differing ideas about how to make use of wilderness land. A courtroom scene in Duluth, pitting Twin Cities environmental advocates against local snowmobile enthusiasts, would also serve as an example.

"In a sense," Knopp said, "my field—recreational land-use planning—is not a

very sophisticated one. Our job, whether we are working for state government, for local government, or at a university, is to help decide how land designated for recreational purposes can best be utilized.

"One reason why it's a primitive science is that there is no best way or perfect way that enables everyone to enjoy the land without endangering the long life of the area.

"Recreation issues, in addition, are unlike most other issues of the day in that people take them very personally."

People don't want to hear that the thing they enjoy most in life, like snowmobiling, or motorboating, or trail biking, is at odds with the environment, he said. But more than that, who wants to be told that he can't do it any more?

Perhaps, Knopp said, it's a peculiarly American trait to claim that such pastimes are guaranteed constitutional rights following hard on the heels of life, liberty, and the pursuit of happiness. "It's a free country," the peculiar American would say, "so what right does the government have to limit my 'vehicle' of expression?"

Knopp feels that recreational land use is one issue that, for now at least, doesn't have an easy or fair resolution. He cites snowmobiling in the Boundary Waters Canoe Area (BWCA) as a case in point.

A heated debate has been taking place in Minnesota for several years now on banning snowmobiles from wilderness areas.

Considerable evidence exists that snowmobiles shorten the life span of wild areas. Moreover, they make the wilderness experience less pleasant for other sportspeople.

Northern Minnesotans, who enjoy some of the prosperity that goes along with snowmobilers' money, tend to minimize snowmobilers' effects on the wilderness. Environmental lawyers, speaking on behalf of the State Department of Natural Resources or one of the non-public ecology groups, see the question in a different light. In their minds, the wilderness is a fragile entity that gradually ceases to exist as more and more people make their presence felt.

The problem, as Knopp sees it, is that the argument is falsely structured. Lawyers appear in courtrooms while demonstrations of local solidarity occur in the wings for the benefit of television cameras. But the great questions go unasked and unanswered: Who owns the wilderness? What limitations may be placed on the public's right of access to public land? Does this generation have the right to abrogate the rights of generations to come? If there is a freedom to do as one pleases, isn't there also a right to enjoy an environment in as pure a condition as possible?

Recreational land-use issues are in the strange position of straddling two eras. Behind them are all the legal complexities that have developed over the centuries: concepts of property, jurisdiction, and individual liberties. But a new era has

already begun that seems at times to be destined to contradict past notions of property, jurisdiction, and civil rights. Is this limited earth capable of enduring all the conspicuous consumption to which we're subjecting it? People's consciousness rises proportionately to their self-interest, Knopp said. Many of the issues he works with are as much problems of perception, perspective, or language as anything else.

Environmental lawyers can be faulted, he said, on the grounds that they make inadequate effort to empathize with the

feelings of BWCA locals who resent legal intrusions into their livelihoods—indeed, into *their* wilderness. The fact that groups of "concerned citizens" may be wrong ought not to mean that their points of view should be ignored, or worse, ridiculed.

Politicians often make the opposite error, in Knopp's opinion. Rather than educating a plainly misguided constituency about the foolhardiness of, for instance, blacktopping a swamp, they instead capitulate to the short-term public

clamor, in the name of "responsive democracy" or "progress."

The duty of the recreational land-use planner, he said, is to feel around through the pressure groups, the legal complexities, and the environmental-impact statements and try to come up with ideas that allow for a maximum appreciation of the land with a minimum depreciation. That, he said, is easier said than done.

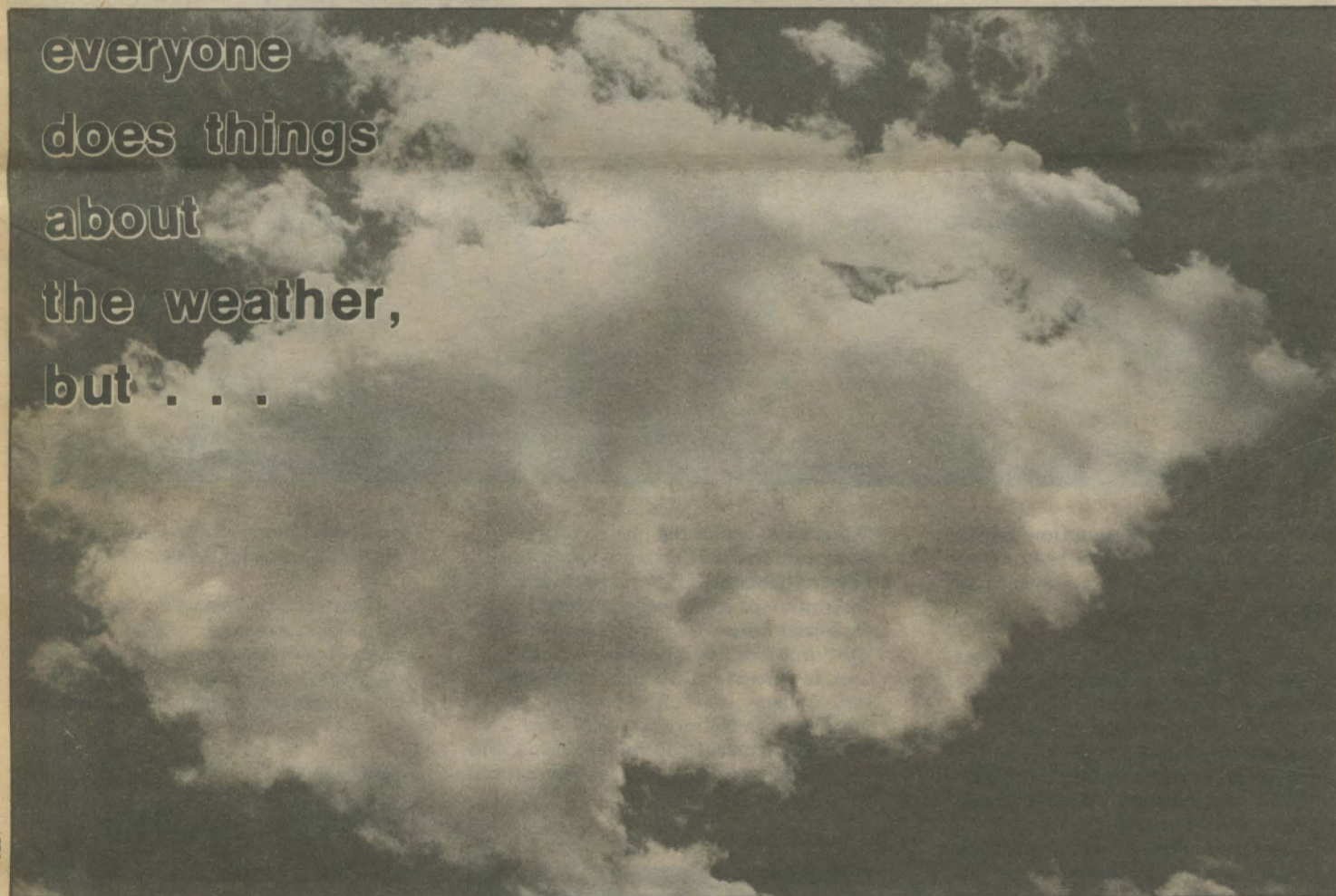
Knopp knows full well how emotional the issues are, how involved people become, how high the temperatures get.

"I should know," he said. "I'm involved, too."

His office is festooned with bumper stickers, cartoons, slogans, and lapel pins, representing every opinion imaginable. One motto, not really standing out from all the others, is an epigram for recreational land-use planners by Aldo Leopold:

"Recreational development is a job not of building roads into lovely country, but of building receptivity into the still unlovely human mind."

everyone
does things
about
the weather,
but . . .



by Jeannie Hanson

Forcing rain out of clouds, melting hail before it falls, diverting and calming hurricanes, shrinking fogs, redirecting lightning—these are not Flash Gordon or Star Trek fantasies. Weather-modification techniques to do all of these things, while not yet perfected, are improving.

According to University physicist George Freier, changing the weather involves working with massive amounts of energy. A single large thunderstorm can release power equivalent to that of a megaton hydrogen bomb, and one to two thousand storms of this power occur over the earth every day, he said.

"Maybe it's not too wise to tinker with God's methods," Freier said. "But the urban world is modifying the weather every day, and we should get more practical information about weather modification before we really need it."

Seeding the clouds to get rain is the oldest successful type of weather modification and is done with silver iodide, a crystal similar to ice. "If the cloud is seeded at the correct time and place, we can almost guarantee success," Freier said. Temperature, water content, and the size of the cloud are measured to determine proper seeding. Once the cloud is seeded, the moisture in it condenses around the tiny silver iodide pellets. Then rain can fall.

Melting hail before it falls works in a similar way, Freier said. A suspicious-looking cloud is "overseeded" so that the moisture condenses around a larger number of silver iodide particles. The results are generally good: more, and therefore smaller, hailstones. Many melt on the way down, and even the ones reaching the ground don't cause as much damage to crops, Freier said.

Hurricane diversion has been much less successful and is just getting started as a weather-modification method, supported by the U.S. Defense Department. "It should be a good idea, but we don't know enough yet about the overall dynamics of hurricane motion," Freier said.

Hurricanes begin over warm oceans, with the warm air picking up moisture and rising with the wind to swirl around the "eye" of the hurricane. The idea is to seed the hurricane near its edge and turn the moisture there into rain, reducing the total energy of the hurricane. Some day, seeding could be done on different sides of the hurricane to change its direction if it were approaching land, Freier said.

Reducing fog, especially around airports, is successful only in certain circumstances, according to Freier. The U.S. Air Force has found that fog-reduction techniques

work only when the fog is neither too cold nor too hot.

Inherent in the peaceful summer sky is the potential of an atomic explosion. The question is, to what extent should people tamper with this power?

work only when the fog is neither too cold nor too hot.

Lightning redirection and reduction are not working out perfectly either, he said. The U.S. Forest Service would like to keep lightning high enough to avoid forest fires. Long, thin metal fibers dropped into suspicious-looking clouds to discharge their electricity have been found to throw off ground radar systems used to predict storms.

Silver iodide pellets are not satisfactory either, he said. Sometimes they seem to cause *more* lightning.

Weather modification is always tricky, Freier said, and it is not always possible to know if human efforts have been successful. Weather varies so much in the normal course of things that scientists cannot really tell if rain was caused by seeding or if it would have fallen anyway, or if the lightning they tried to divert never planned to strike in the first place.

George Freier

TOM FOLEY



Americans have had visions of eutopia from the very beginning. Pictured is Edward Hicks' "The Peaceable Kingdom," painted in 1835.

american utopian novels: in search of never-never land

by Mike Finley

Gerhard von Glahn isn't the only person in Minnesota interested in the idea of utopias. Several Minnesotans have written utopian novels, and Prof. Mulford Sibley of the Twin Cities campus political science department was probably the first University faculty member to do serious work on utopias.

Prof. Glahn of the University of Minnesota-Duluth (UMD) political science department still finds utopias interesting, however. Evidence of his interest is the bulging file drawers in his office, all of them stuffed with different ideas Americans have had over the past couple of hundred years about how an ideal world would be, or about the dreadful kind of world of the future that we are inevitably headed toward.

"My topic is strictly literary utopias," he said, "and only ones written by Americans after about 1790, the millennium of Puritan literature. Otherwise I'd have to deal with all the Kingdom-of-God-on-Earth stuff that came out of that era, and I'm not up to all that. Also, I stick to books about people. There are a lot of stories about bears taking over the world, or penguins taking over the world, but I somehow can't fit them in under my definition of utopian literature."

Actually, von Glahn has more than one definition of utopia. *Utopia* itself is a generic term, taken from the Greek, and meaning "nowhere." From that term two others are derived: *eutopia*, which means "nice place," but which isn't used very much (most people confuse *eutopia* with *utopia*), and *dystopia*, which means "bad place," under which category most "anti-utopias" or Swiftian satires fall.

Utopian novels and stories can take a number of different directions. They can be descriptions of perfect societies or evolved races of human beings or religiously oriented cultures, or they can be ridiculously exaggerated versions of our



MUSEUM OF MODERN ART

own society or grim descriptions of ugly futures, or they can simply be unconventional stories of adventure, romance, or whimsy.

Utopian writers use a variety of devices to describe these never-never lands, whether they are paradise islands, subterranean civilizations, or voyages through time or through the reaches of outer space. Sometimes the stories are all part of the protagonist's dreams, sometimes they are descriptions found in torn manuscripts in secret desk compartments, and sometimes they are simply speculative conversations on the nature of the future. Present-day experiments in ideal living, such as the one described in *Walden Two*, are also used as story-telling devices, von Glahn said.

Von Glahn waded into his filing cabinets full of clippings and manuscripts and brought out some specimens of utopian literature.

"One problem I'm having is that, even after winnowing my topic down to something I originally thought I could handle, I still have to deal with books like *Atlas Shrugged*, by Ayn Rand, which I loathe.

"This book I have here is part of a three-volume series called *Islandia*, by Austin Tappan Wright, published in 1942. At 1,013 pages, it's one of the longest of all utopian works of fiction. It's about an ideal semi-rural society, and it is noteworthy for its very interesting sexual mores.

"Of course, one of the main works of American utopian literature has to be Edward Bellamy's *Looking Backward*, a description of an almost completely socialized future. Bellamy's hero, Julian West, mysteriously brings news of this back to America at the turn of the century. Bellamy went on to be a founder of the American Nationalist party. To him, nationalism meant government ownership of industry, not what we mean by national-

ism today. He ran for the presidency in the 1890s, until he died of tuberculosis.

"A Boston rabbi named Solomon Schiendler, a member of that city's school board, wrote a sequel to *Looking Backward*, using as his hero Julian West's son. The book, which complains about

about gerhard von glahn

When UMD political science Prof. Gerhard von Glahn isn't working on his book on American utopias, chances are he's working at what he considers his real specialty—international law.

"I am what is known in the field of diplomacy as a *doyen*," he said. To back up this remark, he points to two of his more important books. *The Occupation of Enemy Territory*, published by the University of Minnesota Press in 1957, can be found in the hip pocket of many an Israeli field commander overlooking the Golan Heights.

His other major work, *Law Among Nations* (Macmillan, 1965), is available in, among other languages, Arabic script.

Von Glahn's other claim to fame is that he is the senior of all currently employed people—both faculty and civil service—on the UMD campus. He started work in September 1941, when UMD was still a State Teachers College.



Gerhard von Glahn

the awful regimentation of schools in those days, was called *Young West*."

Some of the interesting bits of utopian trivia von Glahn has collected can be found on his list of utopian works—short stories, novels, and novelettes—by American authors remembered for better things.

Edgar Allan Poe, for instance, was moved to write several utopian stories: "The Narrative of Arthur Gordon Pym," "Mellonta Tauta," "The Conversation of Eiros and Charmion," and "MS Found in a Bottle."

"Surely Nathaniel Hawthorne never wrote anything worse than his utopian story, 'The Blithedale Romance,'" von Glahn opined, winking.

William Dean Howells, Ignatius Donnelly, and Jack London also succumbed to the temptation to write utopian stories. Mark Twain wrote an ironic piece called "The Curious Republic of Gondar," which is little else than a description of a chance meeting between an American and a Gondarian. Upon hearing the disagreeable details of life in Gondar, Twain's American, not recognizing the similarities between the two countries, concludes, "Thank God I live in the U.S.A.!"

Even James Fenimore Cooper, whom we associate almost entirely with long, rambling novels of the retreating American frontier and the redoubtable Natty Bumppo, tried his hand at shaping a utopia. His 400-page vision, entitled *The Crater*, is a loving description of how the good life might be led. The tale of peasants enjoying the benefits of a benevolent feudal lord, who asked only that they doff their caps when he rode by, is strangely similar to the Dutch poltroon system of early New Amster-

dam in the days of Cooper's grandparents, according to von Glahn.

In Cooper's book, education at its best was at its most minimal, with children learning the three Rs and promptly graduating. The trouble started when into this happy island kingdom came four ministers, a lawyer, and a newspaperman. In the midst of the ensuing crusades, lawsuits, and muckraking, the fragile eutopia crumbled. Navigators could never even find the island after that.

"One of the earliest American eutopias is by a woman," von Glahn said. *Three Hundred Years Hence* by Mary Griffiths, published in 1836, is a dream of a better United States, guided by the benevolent influence of American women. Among its details was compulsory fire insurance for everyone.

"George Tucker's *A Voyage to the Moon*, published in 1827, was still earlier, however. Tucker, a professor who had among his pupils Edgar Allan Poe, felt compelled to publish his book under the pseudonym "Joseph Atterley," to spare himself the shame of association with popular literature.

"What is most striking about Tucker's book is its detailed description of what a spaceship would be like, including such features as air renewal, insulation against extreme temperatures, and the effects of *bouleversement*, that point in the journey toward the moon at which the moon's gravity exerts as much pull as that of the mother planet below. This was years before Jules Verne. Before Tucker, voyages to the moon were usually undertaken in baskets drawn by geese, or some equally unlikely transport."

Von Glahn has a few personal favorites. One is the 1916 classic *Roadtown*, by Edgar Chambers, which visualized communities that would be built up and down the length of the country's highways. The concept of the "strip" lining our interstate routes with truck stops, hamburger stands, and motels was envisioned in *Roadtown*.

John Etzler's *Paradise Within Reach of All Men*, presciently published in 1833, foretold a day when machines would replace men and the problems that would present themselves to a nation at leisure. Etzler predicted the science of eugenics, the day when the sexes would be equal under law, and the day when greater tolerance for religious differences would prevail—all 120 years before Kurt Vonnegut's classic mechanistic dystopia, *Player Piano*.

Finally, von Glahn referred to *Walden Two* ("which I also loathe," he said), by B. F. Skinner. This fictional experimental colony, which von Glahn calls "a kind of Potemkin Village," is a model of human engineering, of structuring conditions to shape desirable human behavior.

In one scene in *Walden Two*, someone realistically cautions that the world outside will want to have some control over the living experiment. To solve this problem the commune's administrators decide to keep fictitious records of its participants, in case inspectors come calling. Von Glahn finds this solution to be less than the apogee of social ethics. But at least he grants Skinner a sense of reality that he finds woefully lacking in the great bulk of other utopian literature.

"For one thing, I observe that there is an abysmal ignorance, in this kind of writing, of human nature, of psychology. It is the

problem that exists with every blueprint: it is all structural, when there are non-structural problems to be dealt with. Utopian writers fail as a genre to appreciate that people need to struggle, to compete with one another. Few of these writers make any provisions in their dream societies for change. Unlike Skinner's *Walden Two*, most eutopias dismiss the problem of the hostile outside world with the rationale that 'once they all see how wonderful life is here, they will all want to join us.'"

Von Glahn complains that utopian writers also deny the existence of a generation gap. "For every Adam and Eve," he said, "there are a Cain and Abel with different things on their minds. One generation may relax in its paradise while the next generation will lust for the fleshpots of the outer world."

As the reader may by now have guessed, von Glahn relishes his adversary role in dealing with the many harebrained—and usually ultra-liberal—utopian schemes he uses in his instruction.

"Mulford Sibley in Minneapolis teaches his course from one perspective," he said, "and I teach from pretty much the opposite point of view."

Von Glahn was able to raise enough money, going from door to door to Duluth businessmen one day, to fund a good collection of utopian literature for the UMD Library. "Businessmen figure, since they know my point of view, that I'll really demolish all the socialist utopias!"

Asked whether such a Machiavellian attitude didn't conflict with the serious study of paradise on earth, von Glahn smiled. "My real field is international law," he said.

president magrath urges "peace treaty" with government

TOM FOLEY



C. Peter Magrath

University President C. Peter Magrath has called for "a peace treaty and a new partnership" between the federal government and the nation's colleges and universities. He spoke May 9 at commencement ceremonies at the University of North Dakota in Grand Forks.

"There is an imperative need to recreate a climate of civility between higher education and the federal government, as this relationship has seriously deteriorated for a variety of reasons in recent years," he said.

The academic community, on the one hand, must recognize the importance of the reforms intended by federal laws, and the government, for its part, should simplify procedures required for institutions to comply with the law, Magrath said.

Complex compliance procedures have contributed to the decline in the relationship between the federal government and the universities, he said.

Magrath suggested better communication and more respect between government and education. "It will also take trust, and a recognition that the important goals of affirmative action, equal opportunity in employment and education, occupational safety and health, and fiscal accountability can best be accomplished through cooperation, not costly conflict," he said.

University officials should work toward the desirable social changes despite their unhappiness with the federal regulations and procedures, Magrath said. In addition, he said, administrators need to lobby for procedures that don't harm the decentralized nature of a university.

"We must also communicate more forcefully the undeniable fact that increased costs of compliance invariably show up in increased tuition rates," he said.

He noted that people in higher education often see growing federal regulations as a

threat to the freedom of their institutions.

"We are really not talking about the laws themselves—we are talking, rather, about the administrative machinery used to put those laws, including executive orders and other promulgations, into effect," Magrath said.

"A colleague of mine," he said, "has described the situation this way: The basic law creating the Environmental Protection Agency is a good law and runs about seven pages long; the rules and regulations spawned by those few pages could fill a moving van."

Magrath said compliance nationally is expensive, with some estimates running as high as \$2 billion for this year. "This is equivalent to the total amount of voluntary donations our colleges and universities will attract during this same period," he said.

exercise and the handicapped person

by Annette Laabs

Anyone who has tried to lose weight knows how difficult it is, even with the help of jogging or saunas at the local health spa. Imagine, then, how much more trouble physically handicapped people have losing weight.

The importance of exercise in weight-control plans has long been established. "If the calorie intake stays the same and the activity level increases, at some later point weight will go down," according to Vickie Meade.

Meade is a physical therapist for the Children's Rehabilitation Center at University Hospitals and knows a lot about exercises and how to adapt them to the special needs of a particular person.

She is putting this knowledge to good use now in a University program for disabled people who are overweight and haven't benefited from other diet plans. The idea for the program, which began last summer, was conceived by Dr. Joseph Capell, a physician in the University's physical medicine and rehabilitation department.

Conventional ways of dealing with obesity don't work for people with disabilities, Capell said. "If a patient can move only his arms, he can't follow the usual suggestions for weight loss."

This is where Meade comes in. She evaluates each patient and sets up a special exercise program to fit his or her tolerance and needs. Depending on the cause and severity of the problem, handicapped people can have different capabilities. A patient who has weakness on only one side of the body might be able to do more than someone who has a problem such as kidney disease or a serious birth defect.

Meade uses several things to help her in this task. One is a questionnaire that the patient fills out before acceptance into the program in which he or she keeps track of eating habits and activities engaged in over a three-day period.

The questionnaire is useful in determining what might be used to reward good behavior, Meade said, and indicates the kinds of recreation that could motivate the patient to be more active. "You would be amazed at how much time some of these people spend just sitting and watching TV," she said.

When the patient first comes in, Meade does testing to measure the patient's physical abilities. To help her assess the amount of energy used during exercise, she uses a machine called a bicycle-ergometer.

The ergometer measures how much oxygen the patient's body uses during exercise, Meade said. This figure helps in determining the number of calories a particular person burns during various activities, such as pushing a wheelchair for one block or walking up a flight of stairs.

"This test is pretty subjective," Meade said, "and it also depends on how much effort the person puts into each exercise. But it does give us some idea of the number of calories used in a day."

Meade can also use the ergometer to check on whether patients are following the exercise program. If they are, she said, approximately the same amount of oxygen will be consumed each time they are tested.

An attempt is made to get the patient to increase his or her activity level during a six-week inpatient program and to continue being more active after going home.

Meade works with recreational and occupational therapists in encouraging patients to go shopping and swimming. "We want to show them that exercise can be pleasurable and social," she said.

Meade usually has a patient do three exercises in the morning and three in the afternoon. A typical session might include sit-ups or toe-touching while sitting. Patients begin with 15-minute sessions

and work up to 30 minutes as their tolerance increases.

One evening activity, such as going for a walk, is also encouraged for those who are able. "We want to establish a pattern of walking," Meade said. Taking the stairs instead of riding elevators can make a big difference in terms of weight loss over a year's time.

Another tool that Meade uses is charts. The patients are responsible for charting the number of exercises done each day, she said, and they must also keep track of what they eat and the kinds of activities in which they participate. On another chart, Meade graphs the number of calories consumed and the number used up in a day. "The charts are used to teach concepts," she said. "We want them to realize that all these factors are inter-related."

After discharge from the hospital, the patient is encouraged to be more independent, Meade said, and is allowed to choose exercises from among certain alternatives. Program participants are followed for two years as outpatients.

A teamwork approach is used in the program. Besides Capell and Meade, other people working with the patient include a psychologist, occupational and recreational therapists, a dietician, a social worker, and a nurse. Team members work closely with the patient's family, Capell said, because the family is important in the long-term maintenance of the program.

So far, the program has dealt with adolescents. Capell hopes to be able to expand soon to include disabled adults as well as young children down to age four or five. Obviously, in the latter case, involvement of the family would be crucial. "The trick always is to get participants to generalize and get the program to happen at home and not just at the hospital," Capell said.

Vickie Meade

TOM FOLEY



a regent departs,

The University is losing one of its regents to the city of St. Paul and gaining another from the ranks of its own students.

George Latimer, recently sworn in as St. Paul's new mayor, resigned his position on the Board of Regents effective June 1.

Appointed by Gov. Wendell Anderson to replace Latimer on the board was Michael Unger, a senior in the College of Liberal Arts. Besides his tour of duty as a non-voting student representative to the board this past year, Unger has been involved in other student concerns. He has



George Latimer

TOM FOLEY



Michael Unger

another arrives

been a member of the Twin Cities Student Assembly, a director of the Minnesota Student Association Housing Corporation, and chairman of the Task Force on Student-Operated FM Radio set up by University President C. Peter Magrath.

Unger's appointment fulfills the intent of student-regent legislation passed by the 1976 State Legislature.



Regent Rauenhorst has called for greater oversight in the planning and construction of future buildings on the University campuses.

Pictured is the new, mostly underground Admissions & Records and Bookstores building on the Minneapolis campus.

regent calls attention to energy waste

The energy requirements and environmental consequences of University buildings will be the subject of an investigation by the Board of Regents if George Rauenhorst has his way.

Rauenhorst, a regent from Olivia, has been voting against most University buildings for more than four years. At the regents' June meeting, he asked that they undertake an investigation of University specifications for new buildings.

The regents approved Regent David C. Utz's motion to refer the issue to the Physical Plant and Investments Committee, chaired by Regent L. J. Lee, who said the issue would become the subject of a special meeting in July.

Lee said that an ad hoc committee would be named in July to study the subject and that the board would seek advice from independent consultants on energy and environmental specifications for University buildings.

"I don't feel that we could do a report on building engineering without unbiased, expert advice from outside the University," Lee said.

"One of my concerns as a regent," Rauenhorst said, "is that the University set an example in the fields of energy conservation, building construction, operation and maintenance, pollution control, and related fields."

Rauenhorst asked that the board:

- "request a report on the standards, criteria, and specifications" used for new building construction and remodeling;
- compare these standards with minimums established by state and federal agencies;
- review the advantages and disadvantages of applying higher standards to University building construction; and
- "review the methods and criteria by which educational objectives are translated into building specifications."

Although publicly welcoming Rauenhorst's proposal, many University officials feel that they have already tried to accommodate Rauenhorst's dogged pursuit of this issue during the past several years.

Rauenhorst, however, believes that building construction has been getting worse instead of better. He was particularly critical of the recently completed humanities and fine arts building on the Morris campus, which, he said, collects moisture on the walls and has a ventilation system that is too loud for classroom and music-practice uses.

He also criticized the newly remodeled Coffman Union on the Twin Cities campus, which, he said, has too much glass and is wasting energy.

letters

no mathematician

Regarding geology Prof. Sloan's remarks:

"There are more people alive now who should be famous than there have been in the whole history of man. That's because more than half of all people who have ever lived are living right now. ("He Found His Thrill on Purgatory Hill," Winter 1976.)

The item is erroneous. It can easily be proven that the number of human beings who have lived on earth is at least ten times the number (four billion) presently living. My calculations suggest that approximately 400 billion human babies have been born, with the largest portion of that number having died in early childhood.

Prof. Sloan ain't much of a mathematician.

Denis Brasket
Grand Rapids, Mich.

no librettist

Will you please tell me how *anyone* could write an article on the Poe opera ("Descent Into the Maelstrom," Spring 1976) without mentioning the librettist, Charles Nolte?

Incredible!

No Name

no smut peddlers

In response to your article (Spring 1976) on pornography, we, millions of American law-abiding citizens, must oppose those who are out to warp our morality and integrity. If our country is overthrown by another society, we will have no Constitution, no freedoms, no smut peddlers, no—THINK.

Bob Bogen
Bloomington

no thanks

What interest does MPIRG (Spring 1976) serve? As a taxpayer in the state I'm interested to know how, why, and where MPIRG fits in with a tax-supported school.

Paul E. Carlson
Center City

super nutritionists

I must write in reaction to your article entitled "There Are Nutritionists, and Then There Are 'Nutritionists' . . ." in the spring *Update*. What I take issue with is your unjustified attack on Adele Davis and J. I. Rodale. These people may be "super" nutritionists in the serious sense of the word, but they are definitely not charlatans or food faddists. Their careers have spanned decades and contributed to the well-being of thousands. The reason Davis and Rodale deservedly got public support is that

they spoke out at a time when the so-called "real" nutritionists had been content to elaborate on the marvels of the four basic food groups.

The American people are waking up to the fact that food is not all they thought it was (or wasn't), and they *are* vulnerable to the pitches of various charlatans, but please, do not include in this category those who have effected this awakening, people who have dedicated their lives to serving mankind—Adele Davis and J. I. Rodale.

Sally F. Heatley
Nutrition World
Edina

commie finger

It's so easy to dispense with an opposing view by the simple, *unscientific* medium of calling it a naughty word. "Faddism" and "faddists" have been current for soooooo long! Surely that term will be replaced soon just as the McCarthy era grudgingly gave up the "Commie finger."

Mr. Editor, what educational level was this jargon aimed at—5th grade, 3rd? Remember, we've grown up now, have sat at the feet of the might at Minnesota and other name brands. Why was such an upbraiding piece like this found in *UPDATE*, a reputable periodical? Maybe I shouldn't ask. Suspiciously yours,

Harley M. Ferree
Escondido, Calif.

distressed

To group Adele Davis with Rodale and Ohsawa is as logical as classifying Prof. Doyle with clerks in a food store; both are interested in foods, but one is trained on the subject, the others are not. Miss Davis was trained at the universities of Purdue, Wisconsin, Columbia, California-LA, and had a master's from the University of So. California Medical School (do you know how hard it is to get into an institution such as this?). She trained as dietician at famed Bellevue Hospital in New York, and was consulting dietician to doctors in the Los Angeles area. Does Prof. Doyle consider these institutions to be training grounds for quacks?

I cannot avoid the conclusion that your article is misleading, it distorts the truth, it twists facts, it lacks objectivity. If it had appeared in your private publication I would not have a word to say. But because it is printed in a publication emanating from the University of Minnesota I feel resentful and distressed. It makes me wonder about what is happening to the professorial ethics and standards we expect from people in institutions of high learning. I am glad that in my day professors taught standards that have guided me both in private life and in my professional career.

Esther M. Zapata
Madison, Wis.

nuts

You have put into a few articulate sentences my feelings about "super nutritionists." Your article is a personal reward for my years of frustration with my "health nut" friends. Thank you!

Jane Volker Volk, Class of '31

Twin Cities campus

Gopher Homecoming, 1976 (This year's theme: "French-Fry the Illini!")

- Sept. 27—Annual Homecoming All-Greek Party with pledges and alumni
- Oct. 4—West Bank Movie Night
- Oct. 5-6—Co-Rec Football Tournament
- Oct. 7—Alumni Day
- Oct. 8—Floats and fronts judged; Pep Rally on mall, noon; Bonfire with Marching Band, evening
- Oct. 9—Alumni Tours; Brunch; Marching Band, Stadium; Gophers vs. Illinois; Fraternity celebrations

St. Paul Student Center Films (North Star ballroom, 8 p.m.)

- July 6—*Soldier Blue*
- July 13—*Effects of Gamma Rays on Man-in-the-Moon Marigolds*
- July 20—*Joe*
- July 27—*Duck Soup*
- Aug. 10—*The Twelve Chairs*
- Aug. 17—*An Evening with W. C. Fields*

Other St. Paul Student Center Events

- Through July 30—Exhibit: Oils by Rex Mhiripiri
- July 21—Noon Music: Scott Warren
- Aug. 4—Noon Music: Madeline Hart
- Aug. 5—Illusion Mime Theatre: "Furniture Belly Circus," 8 p.m.

Minnesota Centennial Showboat (on the river below University Hospitals; call 373-2337 for dates and times)

Through Aug. 22—*The Streets of New York*

Rarig Center Performances (Whiting Proscenium Theatre; call 373-2337 for dates and times)

July 8-17—*Seven Keys to Baldpate*

Peppermint Tent (Stoll Thrust Theatre, Rarig Center; call 373-2337 for dates and times)

Through July 22—*Scenes from American Folk Tales*
Through July 23—*Bean Bag Stories*

Summer Session Music and Dance (Northrop Auditorium or plaza; call 373-2345 for tickets)

- July 20—Minnesota Orchestra, 12:15 p.m.
- July 24—Jamie Cunningham and The Acme Dance Company, 8 p.m.
- July 25—James Taylor, 7:30 & 10 p.m.
- July 26—Wolverines Classic Jazz Orchestra, 8 p.m.
- July 28—Minnesota Orchestra, 12:15 p.m.
- July 29—The Carpenters, 8 p.m.
- July 31—Judy Collins, 8:30 p.m.
- Aug. 4—Minnesota Orchestra, 12:15 p.m.
- Aug. 4—Paul Winter Consort, 8 p.m.
- Aug. 11—Minnesota Orchestra, 12:15 p.m.
- Aug. 21—Average White Band, 8 p.m.

Music Department Concerts (Scott Hall)

- July 22—An Evening of Opera Highlights, 8 p.m.
- Aug. 12—Vocal Student Recital, 7:30 p.m.

University Gallery Exhibitions (3rd & 4th floors, Northrop Auditorium)

- Through July 16—Contemporary Jewelry: Techniques of an Art Form
- July 6-Aug. 10—Dürer Through Other Eyes
- July 12-Aug. 20—Walter Quirt: Use of White
- July 15-Aug. 20—20th-Century American Prints

Duluth campus

Films (Bohannon Hall 90, 8 p.m.)

- July 21—*Throne of Blood*
- July 22—*Henry V*
- July 23—*King Lear* (Russian version)



The battle cry for this fall's Homecoming (see above) will be: FRENCH-FRY THE ILLINI!

Music (Kirby lounge, 8 p.m.)

July 14—Katie Lee

Lectures (Kirby Student Center)

- July 8, 29—"World Hunger: How It Feels To Starve," 11:30 a.m.
- July 13—"American Indian Politics in Minnesota," 12:30 p.m.

Theater (Marshall Performing Arts Center, 8:15 p.m.)

- July 8-10—*Night Watch*
- July 15-17—*Story Theatre*
- Aug. 11—"Songs and Folklore of the Midwest," Residence Hall Dining Center, noon

Tweed Museum of Art

- July 7-Aug. 3—Permanent Collection
- July 13-18—Work by Susan St. Marie
- July 19-25—Ryiji Rugs '76
- July 27-Aug. 1—Work by Richard Saukko and Pat Wall
- Aug. 3-8—Work by Lisa Meyer and Kathy Taylor
- Aug. 8-Sept. 12—"Our Maritime Heritage"
- Aug. 8-16—"Northwoods Woodcarvers"
- Aug. 10-15—Work by Jill Bugbee
- Through September—Permanent Collection
- Sept. 19-Oct. 3—Fiber Sculpture and Reliefs by Linda Reinohl

Other Duluth Events

- July 7, Aug. 11—Vista Queen Cruise
- July 8, Aug. 12—Architecture Tour of Duluth, leaves Ordean Court 12:30 p.m.
- July 20—Karate Demonstration, Kirby, noon

Morris campus

Aug. 11-15—Mr. Teen Pageant

Crookston campus

- July 15-17—Conference on Rural America
- Sept. 18—Football: Vermilion, 7:30 p.m.

Waseca campus

Sept. 13-19—Farmfest '76, Lake Crystal

update

fall 1976

volume 4
number 2

a publication for friends of the university of minnesota

cancerophobia

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Tom Foley & R. Scholes

god's pie in the face

by Mike Finley

Few things are certain about it. Many people have trouble mentioning its name. It has been called "the disease of civilization." Indeed, there is still a strong, subliminal feeling that it is a punishment from God. One writer has called it a pie-in-the-face from God: an absurd, unexpected, humiliating confrontation with one's destiny.

The government throws billions of dollars at it, challenging its supremacy. Politicians hope the cure is found while they're in office. Scientists hope that some accident will occur, like the spilled cauldron in Sir Alexander Fleming's kitchen that led to the discovery of penicillin. Doctors, researchers, foundations, and proponents of unorthodox cures all argue about methods, priorities, even each other's sincerity.

Meanwhile, people die. This year alone, two million people will die of cancer. And even in cases of cure, and in cases of successful prolongation of life, millions of other people will endure the hardships of side effects, disfigurement, and crippling.

At the bottom of this gigantic whirlpool of death, pain, financial ruin, and fear sits the mystery: Why does that single cell in the body, that single one of all the trillion or so healthy cells in the body, break the rules? And why, one after the other, do neighboring cells also revolt—"go crazy," as Dr. Irving Lerner describes it—sending expeditions to other parts of the body to see where else they can make trouble?

"I think that 'cells gone crazy' is a fair enough definition of cancer for most people's purposes," said Lerner, a clinical associate professor in the University's Department of Medicine. "Cells gone crazy, out of control, corrosive, to the detriment of the host organism."

One of the problems in understanding cancer is why something with such an innocuous description is such a killer. This problem baffles everyone. Even after the growth-crazed cells collect

and form a tumor—a discernible growth involves at least a billion cells—why should a tumor be dangerous? To all outward appearances, a tumor should cause no greater problem, Lerner said, than any benign kind of growth. Some bleeding, obstruction of ordinary functions, probably some pain—that ought to be the total problem. And yet more is happening. A patient may lose weight, wither away, and die, and no one can explain it.

"Some people have cancer, and lots of it, in several places," Lerner said. "Yet they seem to be doing all right, functioning more or less normally. Other people may have a tumor so small that it can't even be located, and they are sick as hell and die." The tumor itself doesn't account for the patient's condition, Lerner said. No one knows what does.

"Some scientists think that cancer cells are in the body from the moment of conception and that these cells are on call through life, until the time comes when they mature and go into action. Most scientists believe, however, that cancer evolves later."

It is said that three fourths of all cancers are environmentally caused, hence the "man-made epidemic" and "disease of civilization" epithets. Yet

some people working for many years with such carcinogenic materials as asbestos never show signs of cancer, even while their fellow workers succumb, one at a time. No one seems to know exactly why this is, either. There is talk that cancer is a kind of contract between an outside material, such as asbestos or tobacco smoke, and a virus in the body that destroys the body's ability to resist danger.

This ability to resist, called the immune system, may theoretically be fooled by the wayward cells into thinking that they're okay. And, Lerner theorized, maybe cancer cells are okay. Maybe cells, some of them anyway, are supposed to revolt. Maybe cancer is a condition of normalcy. At least, no one knows differently.

If it seems sometimes as if no one knows anything at all about cancer, then the wrong impression has been given. Medical scientists have collected an oceanful of data on the disease. As much is known about cancer, probably, as about any other disease. What stands out in all the information, however, is that cancer is different from the others.

next page

cancerophobia

cancerophobia . . .

If it seems as if a cancer diagnosis is the equivalent of a death notice, again, a wrong impression. Cancer therapies work. Many cancer patients are cured fairly routinely. The lives of others are sometimes prolonged many normal and comfortable years beyond the expectations of 20 years ago. For many, a terminal disease has been reduced to a chronic one.

So it isn't that doctors, along with the rest of our society, are wallowing in medieval ignorance. Dr. Victor Gilbertsen, in fact, has the opposite complaint: that the knowledge is there, but we aren't making use of it.

"About half of the two million deaths that occur every year don't have to occur," Gilbertsen, head of the University's Cancer Detection Center (CDC), said in an interview. "If the knowledge we have were used more widely, these people wouldn't die. The

problem is an educational one, compounded by ignorance on the part of people in general."

Gilbertsen compares the ignorance many health professionals have in regard to cancer to the way physicians ignored the discovery of germs by Pasteur and Lister in the 19th century. In 1900, he said, physicians were still performing appendectomies on kitchen tables.

"There are several ideas behind cancer research right now," Gilbertsen said. "One says that if we can only find the cause for it, we'll have cancer licked. But maybe we don't need to know the cause of a disease to treat it. We didn't know the cause of smallpox, but we still came up with a vaccine that prevented it. The same goes for syphilis. Finding the cause may not do us any good at all.

"A second notion says that we have to come up with bigger and better treatments, fancier drugs, more surgery, better radiation. But the facts here are that except for certain innovations in radiation, we've pretty much reached the limits with our conventional treatments. We keep hoping for a drug that will knock off the cancer, but all our evidence suggests that something that powerful might also knock a hole in an artery or something like that, and kill the patient.

"I suppose what we really need is something that will turn cancer cells back into the normal cells they were to begin with. Until that happens, we have to learn to make the most of the therapies we have, and to educate people. Many of our therapies are good. The trick, of course, is to get the cancer before it metastasizes, or spreads. So many cancers are hidden away, though, and never show symptoms until they've already spread."

Gilbertsen is pleased with the results of a Cancer Detection Center project to detect colon and rectal cancers. People with normal check-up results mail stool specimens to the CDC for

amy travis



Amy Travis has lived with cancer, and she thinks she is beating it.

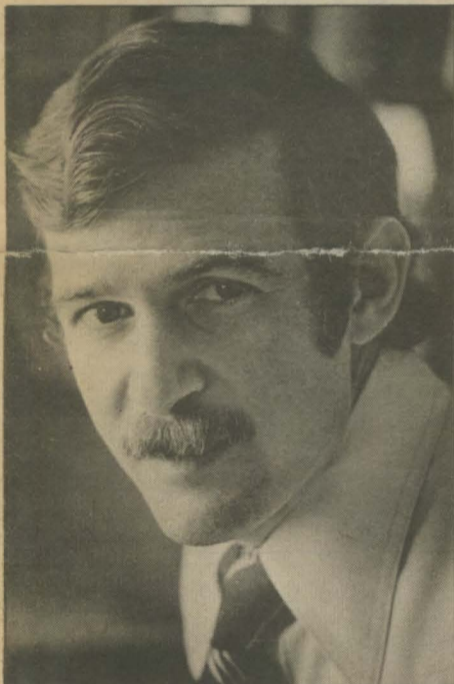
"The word 'cancer' doesn't floor me," she said. "So many things are so much worse. I would rather be told I had cancer than a stroke. I would rather have cancer than diabetes."

Travis learned nine-and-a-half years ago that she had ovarian cancer. She decided right then that she was going to beat it. "You're not going to keep a stubborn Norwegian down," she said at the time.

After surgery in 1967, she was given a series of cobalt treatments and told to return for regular checkups. Five years later, she said, "I became careless and didn't go back. I made my mistake."

A tired feeling and some spotting were signs to Travis that the cancer had returned. Her family doctor called in two specialists, who said that she had only a few months to live. But her doctor wouldn't accept the verdict.

Tom Foley



Irving J. Lerner

Tom Foley

evaluation. Fewer than 2 percent of the returns so far have had blood—a sign of something wrong—in the small samples, and half of those have been found to indicate the presence of a benign or malignant growth.

Despite the promise of this early-detection method, however, the outlook is far from rosy for some people diagnosed as having intestinal cancer. Their life expectancy, whether they are "cured" or not, is only three years. Of all the people alive and walking around today, 20 percent will die of cancer.

In Gilbertsen's area of specialty, colon/rectal cancer, two out of every

100 people may have their lives saved with an annual procto test. People also may be saved from having to have a colostomy, and from all the palliative care necessary to keep them going.

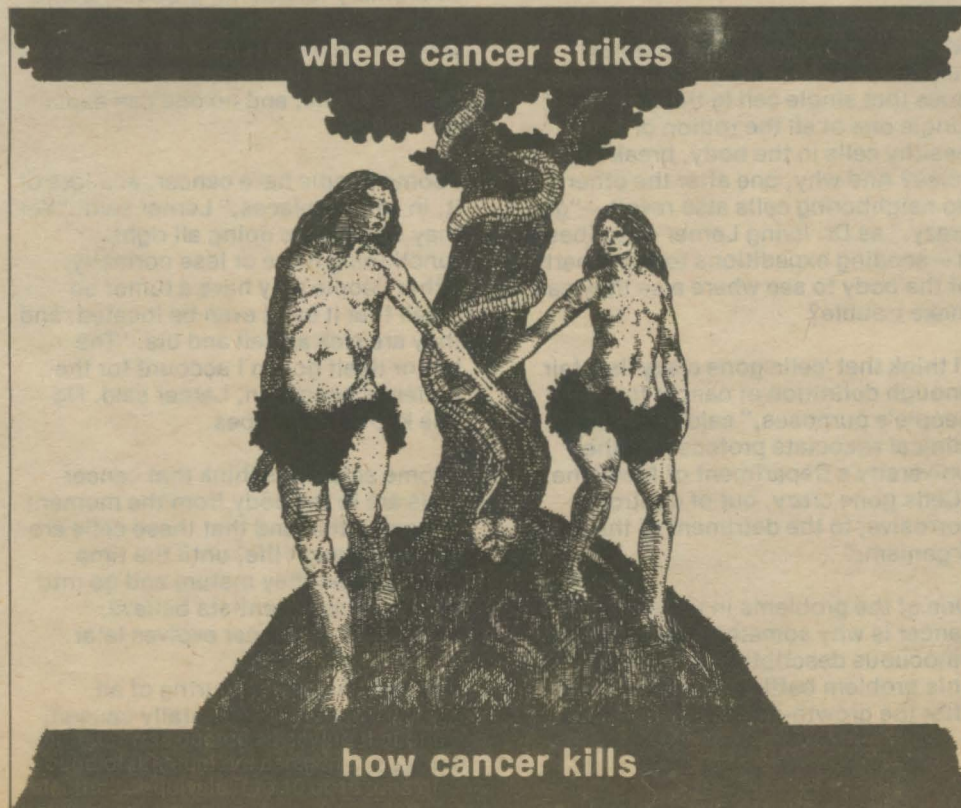
Every year, 100,000 people are treated for intestinal cancer. The cost per person for this treatment averages \$10,000. Although a total of \$1 billion is spent on this one kind of cancer alone, two thirds of its victims still die.

And the death statistics continue to rise. Cancer, along with its attendant realities, myths, and fears, is already a part of all of our lives. Learning to live with it is the next important step.

R. Scholes

- Melanoma of Skin 1%
- Oral 5%
- Lung 22%
- Colon & Rectum 14%
- Other Digestive 12%
- Prostate 12%
- Urinary 9%
- Leukemia & Lymphomas 8%
- All Others 12%

- Skin 1%
- Oral 3%
- Lung 33%
- Colon & Rectum 12%
- Other Digestive 15%
- Prostate 9%
- Urinary 6%
- Leukemia & Lymphomas 9%
- All Others 12%



- 1% Melanoma of Skin
- 2% Oral
- 27% Breast
- 6% Lung
- 15% Colon & Rectum
- 9% Other Digestive
- 14% Uterus
- 4% Urinary
- 7% Leukemia & Lymphomas
- 15% All Others

- 1% Skin
- 1% Oral
- 20% Breast
- 11% Lung
- 15% Colon & Rectum
- 14% Other Digestive
- 7% Uterus
- 3% Urinary
- 9% Leukemia & Lymphomas
- 19% All Others

cancerophobia

3

"I just know they can do something for you," he told her. He made some phone calls and said, "You're going to the University tomorrow."

At the University, Travis underwent surgery to remove her bladder. "I think the hardest part has been getting along with the appliance," she said. "My biggest fear was how I was going to look in clothes."

Travis has found that her "appliance"—a bag in which urine is collected—hasn't kept her from doing the things she enjoys and that she looks just fine in clothes.

Now she visits other patients who face similar surgery. She thinks it would have helped her if someone had come to talk with her. Even if people don't ask about the appliance, she knows it's on their minds. "I try to wear dresses that are rather fitting, not a big gathered skirt," she said.

"It doesn't bother me to have anyone know that I wear an appliance. I respect people who don't want it known, but I think that's one thing that has helped me."

Sometimes Travis still gets discouraged about the need to wear the appliance. But then she says to herself, "Amy, stop it. If you didn't have this problem, you wouldn't be here to have any problem."

Travis always tells people who will be wearing an appliance that they should talk it over with their doctors, but she thinks they can do almost anything they want to. Golf? Swimming? Bowling? Dancing? "There's no problem with any of that," she said. Her doctor has never restricted her except for heavy lifting, and sometimes she lifts more than she should.

In August, Travis returned to University Hospitals for a hernia operation. Her physician, Dr. Konald Prem, went in farther to look for cancer. "Consequently, I'm cut all over," she said, "but the good news was there." After three years of chemotherapy, her tissue is healthy.

In her battle with cancer, Travis has had a lot of help. She trusts Dr. Prem completely. "I think if he told me to jump out the window to get better, I would." She also has a

strong religious faith. "The good Lord was right there with me. He has worked through Dr. Prem's hands. And everyone has been pulling for me and praying for me."

She has had the support of her family. "I couldn't have carried on without them, that's for sure." She remembers one time when she was despondent, and her husband "looked about as low as he could be, just beat. I put myself straight that night. I told myself, 'You're not helping yourself and you're not helping anyone else.' It's easier said than done, though. You have your ups and downs."

Her husband tells her now that he had accepted the idea that she would die within a few months. When she lived instead, it was a glorious gift for him.

The Travises talked freely about cancer from the time it was first diagnosed. But the older of their two sons was in Vietnam at the time and missed the family talks. "It was harder for him to accept it," his mother said. "He's still more afraid of it than the other boy."

Some things don't seem as important to Travis as they did before she had cancer. She doesn't get upset the way she used to when she makes plans to go somewhere and then can't go. She is grateful for the things she can do.

Her job as a home economics teacher in Bloomington is one of the joys of Travis's life. "Just to be able to get up and go to work in the morning is one of the most wonderful things there could be. I hope and pray I can carry on, teaching the next four years, and then retire." She was 62 this month.

Her students sometimes talk to her about cancer. Last year, one girl learned that her mother had cancer. "The first place Sue came to find out about it was to me." Travis figures that her story can only be encouraging to Sue and her family.

Travis knows that she may sound too cheerful to be true. "I don't want to give the impression that I haven't had my down days," she said. "But then if I can go and do something for somebody else, I perk up."

—Maureen Smith

cancer research: a mouse may roar

by Bob Lee

Man's best friend may turn out to be the laboratory mouse if it can help medical researchers succeed in understanding cancer.

At the University of Minnesota, hundreds of physicians and scientists in clinics and laboratories are fervently, yet meticulously, searching for more effective treatment methods and for insight into cancer's mysterious origins.

Dividing cancer investigators into clinical (applied) and laboratory (basic) research categories is in many instances artificial, because at the University clinicians and laboratory scientists often work closely together in testing new ideas prompted by patients or laboratory findings.

It is impossible to summarize the scope of clinical and basic cancer research at the University. Physicians involved in cancer treatment are continually researching better and more effective methods of ridding their patients of cancer.

Basic scientists, on the other hand, are examining the cell itself, trying to understand the processes or factors that cause an otherwise normal cell to grow uncontrollably.

The University's role, according to one clinician, is to test new ideas, develop new care models, and educate students as well as practicing health professionals.

"By addressing ourselves to the needs of community physicians, we hope to improve health care throughout the state," said Dr. B. J. Kennedy, professor of medicine and head of oncology.

Kennedy's oncology group, along with the urology and therapeutic radiology departments, has earned a Special Cancer Center designation from the National Cancer Institute.

While clinicians, faced with the human reality, search for an elusive cure, basic scientists are faced with another tantalizing riddle: what causes that 90 percent of cancer

whose cause is unknown? Is it a genetic defect, chemicals that pervade our environment, a virus, a breakdown of the body's immune system, or some tangled combination?

Basic cancer researchers at the University are fortunate because even though they may be immunologists, virologists, geneticists, pathologists, microbiologists, or biochemists, they have opportunities to "cross over," to share their discoveries and work together; many have joint appointments in both clinical and basic-science departments. Immunogeneticists and tumor-virologists are not uncommon in this interdisciplinary attack on the basic nature of malignancy.

Dr. John Kersey, for example, is a pediatrician and an immunologist. He and his colleagues have given bone-marrow transplants to children with immune deficiency diseases and leukemia, which both cause the child's bone marrow to lose its ability to produce normal, healthy blood cells.

In a bone-marrow transplant, after a patient's own faulty bone marrow activity has been suppressed with chemicals or radiation, the normal marrow of a closely matched donor is transplanted. The new marrow cells gravitate to their new home and, if the transplant is successful, restore normal blood-cell production.

Although childhood leukemias and lymphomas vary widely in their biological behavior and prognosis, a significant percentage of them have "markers" on the cell-membrane surfaces indicating prognosis, according to Kersey.

By looking for these markers, physicians can plan appropriate therapy. In some cases the markers indicate a very poor prognosis, and a

bone-marrow transplant may be the best hope for the patient. Another group of patients without the cell markers have an excellent prognosis: 80 percent survival at two years.

"The problems in cancer are very complex. That's why cross-over research is so important," Kersey said. "For example, we've found out that in certain cancers there seems to be a genetic component, while chemicals have been implicated in other malignancies.

"In laboratory mice, we've found that genetic defects in their immune responsiveness result in infections with viruses that produce cancer. While we still have little direct evidence, it seems likely the results of the mouse research will be similar to what we find in humans," he said.

Dr. Anthony Faras, associate professor of microbiology, is one of **research, p. 8**



B. J. Kennedy

Tom Foley

cancer myths

"There are many myths about cancer, and doctors have been as guilty of superstition as lay people. For instance, people still think that cancer is contagious, as they once thought about leprosy. That it's a punishment. That it always involves constant, excruciating pain (many patients spend much of their time quite comfortably). That it is swift and certain (longevity statistics show cancer patients to live longer than patients with many other diseases, such as congestive heart failure)."

—Dr. Irving Lerner

cancerophobia

cancer therapy: eliminating 'terminal' from the vocabulary

by Elizabeth Petrangelo

The word "hope" does not often appear in the same sentence with the word "cancer." Nor does "cure."

But both words are being used in medical circles more and more in reference to cancer—and justifiably so. The last 20 years have seen advances in the success of cancer treatments, advances that have gone largely unnoticed by the general public.

Conventional wisdom has it that once a disease is diagnosed as cancer, there is no hope. Cancer is invariably incurable and it is only a matter of days or months before the patient dies, or so it goes.

But conventional wisdom has it wrong, according to University of

The knife, the flame, the poison—representing the three major kinds of cancer therapy, they sound more like a choice of weapons. Surgery, radiotherapy, and chemotherapy have come a long way since their medieval forebears.

Minnesota cancer experts. There is much that can be done for the cancer patient, and, although many physicians are still cautious about its use, the word "cure" can now be used legitimately in discussions of certain types of cancer.

Basically, there are three main approaches to the treatment of cancer. Each can be used singly or in tandem with one or both of the others. Surgery is the oldest and the most widely known by nonmedical people.

Use of the "knife" in treatment of visible tumors dates back to about 1000 B.C. But no well-formulated surgical procedure for any type of cancer was available until 1889, when William Stewart Halsted of Johns Hopkins Hospital developed an operation for breast cancer—the "radical" or standard mastectomy.

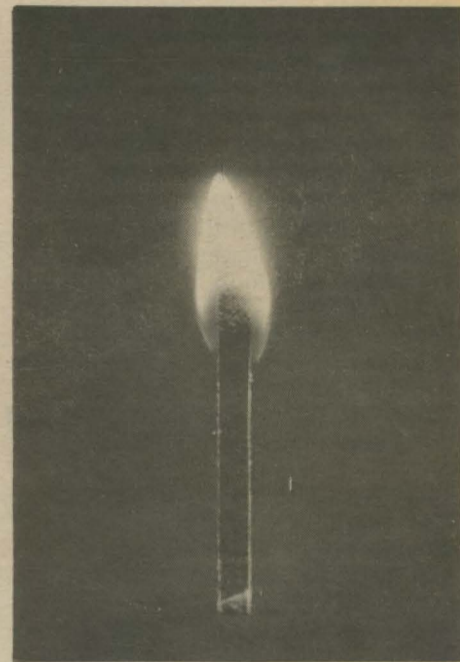
In the Halsted procedure, much was removed: the breast, the lymph nodes of the armpit and their surrounding tissue, and the underlying pectoral muscles, complete with connecting ligaments and tendons.

Halsted's procedure was based on the knowledge that breast cancer



has a tendency to spread to the lymph nodes closest to it. (One of the ways cancer spreads is through the lymphatic system.) The idea was to get completely around the tumor, to avoid violating the tumor's own space, if possible. "In a sense, we've labored with this concept ever since," said Dr. Charles McKhann, a professor of surgery and microbiology at the University of Minnesota.

The concept has been questioned seriously only in the past 15 years, McKhann said. Ironically, the target of the questions is the very same tumor around which the entire philosophy of cancer surgery was built—the malignant breast tumor. "Now the question has been raised as to whether one can, in some



patients, take considerably less tissue and have reasonably good results," he said.

Some of the less drastic procedures used now are the modified mastectomy, in which the lymphatic tissue is removed but the muscles are not; the removal of the breast alone; and the so-called "lumpectomy," in which the lump alone is removed, leaving as much of the breast as possible.

There are questions, especially, about the lumpectomy. "We are aware of the fact that in quite a number of patients the tumor originates not in just one site in the breast, but in more than one," McKhann said. This means that in



Tom Foley

richard todd

Some people didn't think Richard Todd would be able to return home after his surgery for cancer at age 81. They didn't know Richard Todd.

He has lived in Northeast Minneapolis all his life and in his home on Garfield since he built it in 1924. His neighbors are his friends, his home is full of treasured mementos, his garden needed his care. Home is where he wanted to be.

Todd's cancer began on an eyelid and spread over much of his face. His left eye, cheek, and jawbone have been surgically removed, with skin grafted from his leg to cover the cavity. He has to daub the eye socket with peroxide twice a day to keep the skin from scabbing, clean his neck and put salve on it, prepare special food that he can swallow without chewing.

"I knew it would be a lot of work and the outcome wouldn't be too good to look at," Todd said about

the surgery. "But I just took things as they came."

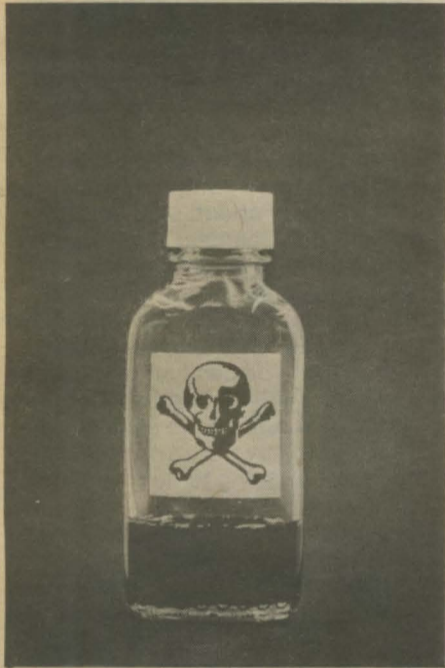
Todd lives alone, with visits from his daughter and a nurse and social worker from University Hospitals. His wife died 14 years ago. He pointed to his wedding picture, taken in 1925. "I've lost a little hair since then," he said.

"I've had to depend on myself for everything, so I've tried to keep my knowledge up," Todd said. He makes sure that the doctors tell him exactly what they're up to.

Taking care of himself isn't all that Todd does. He likes to help out around the neighborhood. His biggest project following surgery was to paint a neighbor's house, fix the roof, and lay cement for a little patio. He didn't do it for pay, but he was pleased when the woman insisted, because it showed him how much she appreciated the work. She told him she was glad to have the job done by somebody reliable.

"I had to ask the Lord for strength to do all the work," he said. He doesn't think he could take on such a big job again, but he still helps

Tom Foley



some women upon whom lumpectomies are performed, there may be another tumor forming in the same breast, and, in some instances, cancer already present in the other breast.

The standard mastectomy is still by far the most commonly performed operation for breast cancer. "You can't blame surgeons for being reluctant to give up a procedure of known value for lesser procedures when the issue at stake may be the life of the patient," McKhann said.

Surgical procedures for specific types of cancers are fairly constant. Cancer of the colon, the most common cancer when statistics for both sexes are added together, is usually not diagnosed during routine examinations. Blood in the stool

usually causes the first questions, and this blood is not normally visible to the patient. More often, the person may be anemic because of the blood loss and visit a doctor complaining of weakness, McKhann said.

If a tumor is found, the liver and lungs also are examined by x ray. They are the two organs to which cancer of the colon most often spreads. The next step is surgery to remove the part of the colon containing the tumor and a wedge of tissue including the lymph nodes nearby.

Cancer of the lung, the most common cancer in men, is usually noticeable in routine lung x rays. Patients often have a persistent cough, and they sometimes cough up blood or experience chest pains. "The only curative treatment for lung cancer is surgical," McKhann said.

If the cancer has gone too far, however, surgical removal cannot help. "In more than half of these operations, we look and see and say no, and nothing is removed," McKhann said. Removal of a lung is not a small thing: it is possible the patient may not survive its removal.

Although surgery for cancer is a clear-cut procedure, there are still decisions for the physician and the patient to make. "In surgical treatment of cancer, we have to strike a balance between the possible trauma and disability caused by the surgery and the benefit to be gained by the patient," McKhann said. "The surgery that one can do inside the body is certainly greater than what one can do on the surface," he said. Tumors of the head and neck are usually treated in another way, if possible, because surgery can be disfiguring.

the neighbor by trimming her bushes in the summer and shoveling her walk in the winter. "I don't cut the grass, because another neighbor has that job and I don't want to take it away from him," Todd said. He also helps the same neighbor and another woman with their grocery shopping. His social worker teases him about his two girlfriends.

Todd likes to show off his grape arbor and his moss roses. "Look at the beauty you've got there," he said of the roses. Already he is looking forward to next spring's flowers. Holding an azalea bud, he said, "That little bud will be exposed to the cold weather all winter, and in the spring it will open up into five or six little flowers."

His home is filled with pictures of his grandchildren and great-grandchildren and of children from the neighborhood. He used to make toys for the children at Gillette Children's Hospital, and he has saved all the thank-you letters. "Santa Claus came early this year," one letter said. "We have given you a new name—Mr. Toymaker," said another.

The home is full of memories. There is the cane that belonged to Todd's great-grandfather, a circuit rider who used to "ride around the country and preach wherever he could find a few people." One of the people he preached to was Abraham Lincoln.

If a visitor has time, Todd will bring out his scrapbook from World War I and turn quickly to the poem he sent his parents after arriving in France. The letter he had tried to send had been censored, so he managed to include all the same information in a poem. His parents had it published in the *North-East Argus*.

Todd has reason when he looks back on his life and says that it has been good. "That's about all the troubles I've had," he said after recounting the story of his cancer and the surgery.

"The Lord has been good to me. I never had any sickness before, no operations, nothing outside of a mild cold. I'm paying for it now. But I can still do some good."

—Maureen Smith

Tom Foley



Charles McKhann

But patients whose cancers cannot be removed surgically are by no means hopeless cases. They often are referred to a radiation therapist for an opinion or treatment, and not just as a last resort. Radiation therapy can be used as a follow-up to surgery or in combination with chemical treatment. And in the case of many cancers, radiation is the first choice.

About 60 percent of all cancer patients receive radiation therapy at some time during the course of their treatment, according to Dr. Seymour Levitt, head of the University's Department of Therapeutic Radiology.

Radiation therapy is the use of high-energy x rays, cobalt, electrons, and other sources of radiation to kill cancer cells. It has been used in cancer treatment since shortly after it was discovered in 1896, but its major therapeutic use has been in the past 25 to 30 years.

The area of the body that needs to be treated is located first, using x rays, radioactive isotopes, or ultrasound equipment. The exact treatment area is then marked on the patient's skin with marking fluid, and patients are told to avoid washing off these marks.

"It's important to be able to duplicate the patients' positions because they may receive as many as 20 to 40 treatments in the same area," Levitt said. "Bony landmarks" also are used to make sure the treatment area is the same every day.

During the course of the treatment, which is usually given five days a week for up to several weeks, these markers are checked for accuracy at least twice a week and usually every day. "Accuracy is a matter of great concern because we are dealing in centimeters," Levitt said. "If we are too far out, not only would we miss the tumor but it is also possible that we would damage normal tissue."

A particular patient might be irradiated from three or four different angles to avoid harming normal

tissue as much as possible, Levitt said. The radiation itself is directed to a small target area; it does not dissipate over the body, nor does it make the patient radioactive.

Different types of radiation are used, depending on the depth of the tumor. "If you have a very thick-set or heavy patient, then you want to use x rays that are very penetrating, that don't dissipate on the surface," Levitt said. Lower-energy x rays used in the past often caused skin reactions. "Now the maximum energy is beneath the surface of the skin," Levitt said. "You can arrange to get a very high dose of radiation to the tumor without serious effects on the skin or organs in between."

Patients going through radiation therapy usually do not need to be hospitalized, and most patients are in and out of the treatment room in about 45 minutes. The actual treatment takes only a minute or two. "You may hear the machine going on, you may hear a click. But there is no sound, there is no sizzle, there's not any real sensation at all," Levitt said.

Most nonmedical people and some physicians believe that radiation treatment makes people terribly sick and unable to function normally. Not true, according to Levitt. "They may feel tired, though, and might not have the energy they are used to," he said.

When the head is being treated, a patient's hair may fall out; in the case of the abdomen, there may be diarrhea or nausea; when the mouth

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update

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cancerophobia

cancer patients: first of all, they're people

by Maureen Smith

When cancer takes over your body, it doesn't stop there. It can take over your mind, your emotions, your family relationships and friendships, your whole life.

Cancer is the dread disease of our time, more feared than other diseases for which the prognosis may be bleaker. Although many cancers are treatable and even curable, a diagnosis of cancer may sound like a sentence of doom. It's a heavy emotional load to carry.

In a series of interviews, University doctors, nurses, and hospital social workers discussed the psychological impact of cancer and some of the ways that health professionals can ease the burden.

Treatment of cancer, while not exactly routine, is usually the easy part, said Dr. Randall Trowbridge, a medical oncologist. "The real fight is going on within the patient's mind."

More than anything, Trowbridge said, what patients fear is the unknown—and that's why it is crucial to give them honest information and a chance

to talk out their fears. As bad as cancer usually is, it's likely to be less bad than they are imagining. "Most cancer patients don't suffer months of protracted pain," said Dr. Russell Wilder, chief of psychological medicine at Veterans Hospital and a University faculty member.

Trowbridge makes a point of talking with the patient and all important family members at the same time. "If you tell the patient one thing and the family something else, or even if you tell them the same thing at different times, you've got a big problem," he said.

Wilder and Trowbridge agreed that cancer patients know they have cancer even when they haven't been told. "The diagnostic steps that most patients go through are enough to alert them," Wilder said: "I go to my doctor for an x ray and he looks worried. Messages on the subliminal level are transmitted. Then I'm sent for more tests. No matter how much denial I use, and many cancer patients use a lot, beneath the denial is an awareness that I may have a bad disease."

To pretend that a cancer patient doesn't have cancer, Trowbridge said, is to take some dignity away.

Most newly diagnosed cancer patients face the perplexity of reconciling the diagnosis with the good general health they still enjoy. "How can I have cancer?" they ask themselves. "I feel fine."

At the University's Masonic Memorial Hospital, head nurse Judy Beck encourages nurses on her floor to spend time with the newly diagnosed patients. It would be easy to ignore them when they don't have physical needs demanding attention, she said, but getting to know these patients on

their first visit makes it easier for everyone in the long run.

Cancer patients are likely to be returning to the hospital again and again for brief stays—and to be welcomed by the same staff members, who take pride in their low turnover rate and in the warm relationships they develop with patients.

Social worker Mary Ferlic coordinates information-and-support sessions for Masonic patients. One of the biggest threats to any hospital patient is loss of control, she said, and for cancer patients this threat is intensified.

Every hospitalization is a crisis for the patient and family, Ferlic said, even though it may not represent a medical setback. The chance to share feelings with other patients and to question



Mary Ferlic

Mary Jones

staff members freely can help. "We believe we are leaving all the doors open. Anything is okay to talk about." The key is that questions are aired in "a protective environment," she said.

The first weeks after a cancer diagnosis are "a completely absorbing time" for the patient, said social worker Edith Johnson. Then comes the difficulty of returning to normal life and reassuming job and family responsibilities. "Suddenly, it all has sort of a pall to it," she said. "Why bother? But you can't sit in that first stage and keep thinking about your cancer. It would be the easiest thing in the world to say, 'I've got cancer and that's all I'm going to do in my life.'"

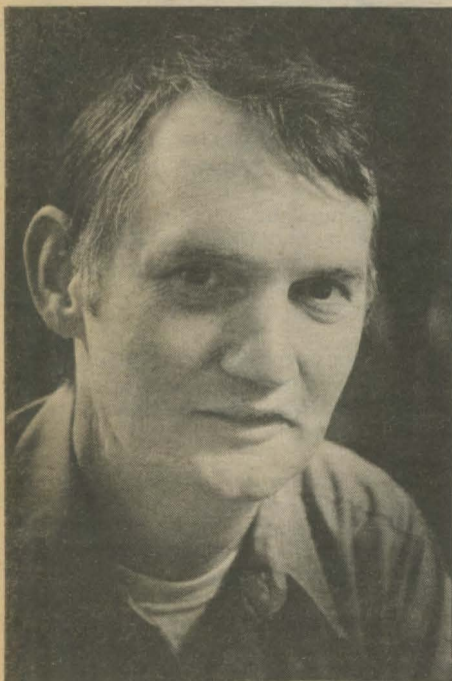
"Just because you have cancer doesn't mean you're accounted for," said Atashi Acharya, another social worker. In working with patients, she said, "I don't see it as death and dying. They're alive today and they're going to be alive tomorrow. We work on how you can still be a human being and not just a patient." Ferlic said that her focus, too, is on "living with cancer instead of dying with it."

Cancer can even present opportunities for personal growth, Ferlic said. "A cancer patient is a very special person. Maybe that person never was special before. People are able to tell cancer patients that they care about them."

The trouble is that the emotional support from friends and even from family may fall off over the long haul, Johnson said. "After a while, anything short of dying is just boring to other people. It gets very lonely for the patient. Nobody is there with you."

A patient's greatest fear may be not of dying but of dying alone, Wilder said. A doctor who feels frustrated and impotent because the patient is not responding to treatment should

Tom Foley



ralph pollard

Whether he's teaching school, playing touch football, or cracking a joke, Ralph Pollard never forgets that he has cancer.

"When you're running with cancer," he said, "you're living from appointment to appointment. I'm always aware that the cancer is there. It's in my thoughts almost continuously, and it will probably be there for the rest of my life."

Pollard had just come from a clinic appointment at University Hospitals on the day he was interviewed. "I'm malignant today," he reported. Yet he was happy that the new malignancy had not gone below the skin and could be treated.

Most forms of skin cancer are curable, but Pollard has malignant melanoma, which usually is not. "It's the bad one," he said of his disease. "You don't want this one." Fortunately, in the five years since his cancer was diagnosed, all lesions have stayed on or near his skin. He has had some scares, but his vital organs are still untouched.

Pollard's cancer began as a mosquito bite next to a mole. It didn't heal, but

for a year Pollard ignored it in the hope that it would go away. "If you suspect something, get it checked," he said. "I stupidly waited a whole year. I won't even say I suspected. I probably knew, because I'm not that stupid, but I still stayed away."

When his cancer was finally diagnosed in 1971, Pollard's first response was to withdraw into himself, closing out his wife and four children. "I wouldn't talk about it, I wouldn't discuss it," he said. "That showed up in the kids."

Now he has learned to include the children in the experience that affects them all. He has taken each of them with him to the hospital to observe a treatment. "They've seen me in extreme pain. They have some idea of what's going on. They can see I'm not going over to the hospital for a vacation."

Pollard said much of the burden has fallen on his wife Elizabeth. "My first reaction was 'Oh, I've got cancer,

therefore I will die, therefore I should make my wife as independent as possible, therefore I will dump everything on her.' Five years later, I'm still doing the same thing at times."

Although he has become more communicative, Pollard said it still isn't easy. "In 1976 I'm doing what I should have done in 1971, but I still have my hang-ups. I was taught to be emotionless."

One of the mistakes he made in the beginning was in not seeking counseling, Pollard said. His advice for other cancer patients is to "get counseling right off the bat. You have to have the whole family involved, even the small children."

Although he keeps busy as a sixth-grade teacher during the school year, Pollard said he uses his cancer as an excuse for laziness in the summer. "I've used cancer many times as a crutch to do as little as possible around the house."

At the beginning of each school year, Pollard tells his class, "I have cancer.

cancerophobia

remember that the patient has other needs and concerns. Underneath a question about treatment, the real question may be: "You'll be here next Tuesday, won't you?"

Not all cancer patients die. But because cancer is a life-threatening disease, and because even those patients who survive experience losses (perhaps the loss of the body image they have known), patients are likely to go through some or all of the stages outlined by Elisabeth Kubler-Ross in her landmark book *On Death and Dying*: denial, anger, bargaining, depression, acceptance.

Some patients may be denying right up to the day they die, Johnson said. A dying patient may still be talking about "next year when I go to Italy." But denial is usually intermittent, and

Johnson sees it as healthy: "The mind has a way of handling very tough things."

Patients have their own time schedules for acceptance, Trowbridge said, and "there's no sense in hammering at a patient who's actively denying." Patients who are dying often need to talk about death, and it is important for the people around them to be receptive. But if the person is denying, Acharya said, "I don't say, 'You've got to tell me that you know you're going to die.'"

Just as some patients stay in the denial phase, Johnson said, there are some "who are angry and bitter right up to the end." Rage may be directed at God, at family members who are perceived as uncaring, at other people simply because they are healthy. Almost all patients feel anger some of the time, Ferlic said, and it is important for them to bring their feelings out into the open and not be ashamed of them.

Patients typically ask, "Why me?" Sometimes they frame it as a moral question: "Am I being punished for my sins?" And increasingly, Ferlic said, with all the talk about environmental and dietary causes of cancer, people are asking themselves if they could have prevented the disease.

Some dying patients never reach acceptance, Trowbridge said. Others reach it magnificently. "I'm amazed at how beautiful people get. Perhaps they are really at their glory when they know they're going to die."

Cancer is "the biggest crisis people can ever face," Johnson said. "If they haven't got anything to face it with, it will be disastrous. But people come through with more than you ever would believe they have."

depressed, courageous

"Usually we expect the patient to make major improvements—which we can almost guarantee with Hodgkin's disease, breast cancer, and leukemia. In these cases we press patients fairly vigorously to undergo the appropriate therapies. When the chances for improvement are slimmer—when they are much slimmer, that is—we tell patients what to expect. We tell them everything. Occasionally someone decides to just take off and see the world, and not undergo any therapy. But this is surprisingly rare. They usually are willing to try something. Also surprising is the very low incidence of suicide. It seems that people become depressed, but they also become courageous."

—Dr. Irving Lerner

Ferlic sometimes asks patients, "If you'd known ten years ago that you would have cancer, would you have thought you could handle it?" They usually answer no. Some say they'd have thought they would commit suicide. "But they're there," Ferlic said, "and they're handling it. People have a tremendous ability to cope and they don't even know it."

Families go through the same phases that patients do, said Dr. John Heefner, assistant chief of psychological medicine at Veterans Hospital. What makes it hard, he said, is that "they're usually not at the same place at the same time." Usually it's the patient who comes to terms with

cancer first. The wife of a cancer patient, for example, still in the denial phase herself, will ask people not to say anything to her husband because it will upset him. "What she means is that it will upset her," Wilder said.

Edith Johnson and Doretta Stark lead evening support groups for cancer patients and their families. Families of cancer patients often feel left out, Johnson said. "All the focus is on the patient, and the patient may be so tied up in dealing with the diagnosis that he or she pulls away. That's a tough thing, really. The patient can be helped to see that the whole family is in it."

The patient and family support groups meet separately to make it easier for everyone to talk freely. Stark said family members sometimes feel that they are just as angry as the patient is but that they must be strong for the patient. The support group may be the one place where family members feel they can talk honestly. "You can't talk to your neighbor about how tired you are of your mother's having cancer," Johnson said.

Wishful thinking sometimes leads families to believe that cancer will make the patient a better person, Acharya said—that suffering will somehow wash all the faults away. These families need to be helped to see that "you do not overnight create a saint out of a human being," she said.

Cancer in children and teenagers is especially agonizing for families—and for the young patients themselves. "These kids have the greatest needs of anyone in the whole world," said head nurse Sue Sauer, who works with patients aged 1 to 17. Cancer is second only to accidents as a cause of death in children under 15.

people with cancer, p. 10



Edith Johnson

There is a chance I could die. I will be out from time to time for check-ups and treatment."

Most of the students have responded well, he said. "Of course, some could care less if you're there or not, but others are affected by it." Pollard had to have a long talk with one student whose own father died of cancer.

After a chemotherapy treatment, Pollard often becomes forgetful. "The kids help me through," he said. And on days when he is "really hurting," his principal or another teacher will spell him for 15 minutes or so in order to give him a chance to regain his strength.

"I think I do a better job of teaching because I have to be prepared to leave at a moment's notice," he said.

Too often when people hear the word "cancer," they think it means a long, agonizing death in a hospital, Pollard

said. And sometimes friends find this prospect so depressing that they drop out of the cancer patient's life.

"Cancer is the leprosy of the 20th century," Pollard said. "We have lost friends. We laugh about it, but I imagine it does grate on us. We have developed new friendships, too, through our church, so it evens out."

Cancer caused Pollard to cut back on some of his activities at first, but now he is resuming them more and more. He is playing touch football again. At age 40, he said, the only problem is that he is "out of condition because of age."

Pollard, whose "favorite occupation is procrastination," said that in some ways cancer has given him the impetus to do things now. This summer he went on the trip to Spain that he has dreamed of for years. By chance, several doctors were with him on the tour. "They were all very pleased to know that I've survived five years with malignant melanoma."

Because he is young and in excellent general health, Pollard makes an ideal guinea pig. He is being treated now

with immunotherapy as well as chemotherapy, and he is ready to try anything the doctors think might work. In September he was going to try a new drug that he knew would make him throw up at first and lose his hair.

Once in a while, Pollard admitted, he wonders if he might have been better off staying away from the University of Minnesota and its doctors. He felt fine before he went, and then he was hit with the news that he had cancer and the painful treatments began. He knows it's irrational, but sometimes he thinks that if he had stayed away, everything would have been all right.

Pollard has mostly praise for the doctors. But he said, "The patient has to ask the questions. The doctors won't give out any extra information. If you don't ask, you will get nothing and be thoroughly confused."

Clinic visits are frustrating because of bureaucracy and delays, he said. "It's the hurry-up-and-wait." But Pollard, who received degrees from the University in 1960 and 1962, feels at home on campus and sometimes goes out for a walk in his pajamas while he's waiting.

The University's Masonic Hospital,

which Pollard has been in and out of for five years, is "a fantastic outfit," he said. "I know everyone on Masonic 2, and they know me. It's almost like coming home."

When a patient at Masonic dies, Pollard said, "the effect is far-reaching through the staff. You can feel it. It's a little bit more somber. It lasts maybe three days. You know that the whole staff is pulling for you and that they don't want to lose anybody."

Pollard has had plenty of time to think about cancer in the past five years. "I'm believing some of the theories that personality has a lot to do with it," he said. "Instead of showing outward emotion, I hold everything inside."

"Whatever is causing cancer," he said, "I think everyone's got it. I think it has to have the right chemical element to break it loose. When you take a healthy cell and all of a sudden it's eating up everything in sight, there's got to be something that triggered it."

By living as long as he has with malignant melanoma, Pollard has already beaten the odds. "I've survived five years," he said, "and I'll do it a day at a time."

—Maureen Smith

cancerophobia

therapy . . .

is treated, there may be irritation and dryness of the mouth, because radiation affects salivary glands; in the case of the chest, the patient may feel a burning in the esophagus and have difficulty swallowing. "But all of these things are controllable," Levitt said.

"Side effects of radiation delivered with modern equipment and in the hands of experienced radiotherapists are really very minimal," he said. "A lot of the horror stories we hear are based on things that happened in the past at the hands of inexperienced people."

In some instances, radiation is more risky. If a patient has had previous radiation or surgery, the normal tissue does not tolerate radiation as well, Levitt said. Also, there is a limit to the amount of radiation a body can take. The spinal cord can absorb only so much radiation without damage. That also holds true for the liver, bowel, heart, lungs, nerve tissue, and kidneys.

Radiation is generally the best treatment for cervical cancer and certain types of vaginal cancer. It is also effective in treatment of cancer of the endometrium (the body of the uterus) when combined with surgery and is used alone for Hodgkin's

disease and lymphomas in the early stages. It is often used alone in treatment of head and neck cancers, and in cancer of the larynx it has the advantage of treating the cancer without destroying the patient's voice.

"The biggest problem we have with cancer treatment is failure to get rid of the disease," Levitt said. "There are many long-term survivors who have been treated with radiation. By and large, most patients who are cured of their cancer are living useful, happy lives."

Perhaps the least understood of the commonly used cancer treatments is chemotherapy. Because of the mystery surrounding it, people are probably more afraid of chemotherapy than they are of any other form of treatment. But it is chemotherapy that caused the medical community to venture its first cautious uses of the word "cure" in reference to advanced cancer.

"The initial concept of what chemotherapy could do was that it could relieve the patient's distress," said Dr. B. J. Kennedy, head of medical oncology at the University. "It was used to shrink the tumor and prolong the patient's life, or at least make the patient more comfortable."

As research continued, it became apparent that some cancers could be destroyed chemically. In looking back at patients who had been treated chemically, physicians discovered many still alive and

healthy, without having received any medical treatment for years.

It is now accepted that chemical therapy can cure choriocarcinoma in women, cancer of the endometrium, cancer of the testis, Hodgkin's disease, other lymphomas, cancer of the bone, and acute lymphatic leukemia in children. In other cancers, the word "cure" is not used, but the results of chemotherapy are "spectacular," according to Kennedy. One of these is breast cancer.



Seymour Levitt

Kennedy stresses that there is no pat recipe for chemical treatment of cancer. "If you ask me how I treat breast cancer in postmenopausal women, I'll tell you a certain pattern of therapy. It's not the same pattern that someone in Louisiana might use, but the results are the same," he said.

The drugs used in treatment can be given orally or by injection into a muscle or vein, singly or in combination with one or several other anticancer drugs. They can be administered once a day, once a week, once every six weeks, depending on the chemical and its action. "We have every combination in the book," Kennedy said.

Several classes of drugs are used, including hormones, antibiotics, and alkylating agents. In some instances, as many as four or five drugs may be given at one time. "The danger is that people think that if one is good, more are better," Kennedy said. "That's not the case. Some of the five-drug therapies are now shrinking back to three-drug therapies."

The idea of chemotherapy was born after World War I, when the use of mustard gas was outlawed by international agreement because the gas was poisonous to cells. Researchers reasoned that if it could kill normal cells, it could be adapted to kill only cancer cells. During World War II, a nitrogen-mustard that was both

research . . .

those basic researchers who are using a virus that induces cancer in animal cells as a tool. He grows mouse cells in laboratory culture dishes and infects them with an RNA (ribonucleic acid, which controls all basic cell activity) tumor virus that causes the cells to become malignant.

"The virus has a parasitic relationship with the cell because it uses cell material to reproduce," Faras explained.

His laboratory is trying to understand how the tumor virus reproduces and how it makes the cell malignant. The recent Nobel-Prize-winning discovery of something called a reverse transcriptase enzyme has enabled Faras to reverse the normal process and manufacture DNA (deoxyribonucleic acid, the molecular basis of heredity) from RNA, to examine chromosome function, and to determine how and where the DNA virus integrates itself into the host cell's chromosomes.

Because the RNA tumor virus that Faras uses has a simple chromosome with only a few genes, his laboratory has been able to isolate the specific gene that is responsible for the malignancy process. He also has observed that the malignant cells he is studying can revert back to a normal condition when the RNA tumor virus is present but, for some unknown reason, inoperative.



Anthony Faras

Faras is using this virus/cell system to understand how the virus's cancer gene becomes activated in the malignant cells and inactivated in the reverted (normal) cells.

Faras is also collaborating in a clinical study that is attempting to find a carcinogenic virus in cells from leukemia patients. He is interested in determining whether human leukemia cells contain carcinogenic tumor virus genes and whether these genes are operative during the various stages of leukemia and remission.

Tom Foley

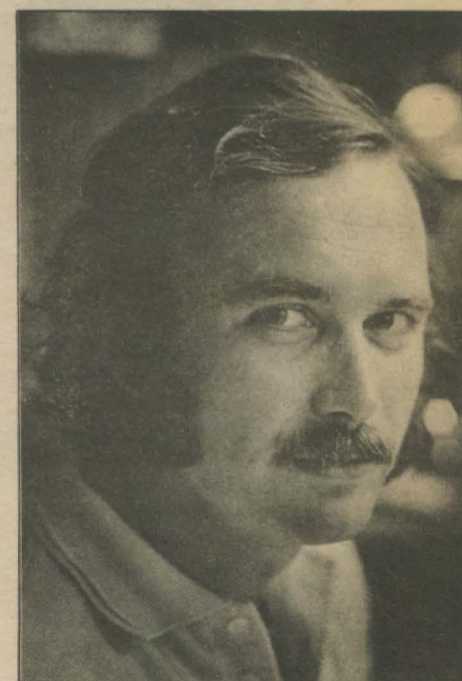
Many advances have been made in the last eight years, Faras said, but he expressed his frustration with the long way yet to go. "Sometimes I feel that if there were a logical answer, science would have discovered it by now. But the mammalian cell is very complex. As we begin to understand how normal cells grow and divide, we will begin to understand how certain cells start to divide uncontrollably and ultimately turn into tumors."

Dr. Leo Furcht, from the Department of Laboratory Medicine and Pathology, believes the cell membrane may control cell growth. In his research, mouse cells are infected with a tumor virus and then frozen in liquid nitrogen. When the medium is cut with a sharp blade, the cell membrane fractures into two layers, exposing certain proteins.

This "freeze-fracture" technique, magnified 100,000 times or more in an electron microscope, clearly shows that glycoprotein molecules that are clustered in normal cells are evenly distributed in malignant cells.

Cancer cells don't go through a normal development process. Furcht and other researchers have been biochemically analyzing cell-surface antigens and membrane enzymes that are believed to "turn on" and "turn off" various cell functions.

"Cancer is not a uniform disease," Furcht said. "It has multiple apparent causes. It is more than just a technical problem, and we're just not dealing



Leo Furcht

with logical events. There are many paradoxes. For example, if we take an immature cell from a leukemia patient and put it into a tissue culture, under the appropriate conditions it will develop normally.

"It's perplexing and frustrating," he said, "but exciting, too, because I believe we've got a critical mass of scientists all plugged into it and a resolution to some critical biological problems should come within the next decade."

Tom Foley

cancerophobia

9

effective and relatively safe was developed.

Kennedy is hesitant to name specific drugs because each drug may be effective in a different set of circumstances. "Many patients are concerned that they are not getting the latest drug," he said. "But the oldest drug may be the most effective for the disease they have."

For each cancer, oncologists attempt to develop a sequential pattern of treatment. "You work with one drug for a while, and then it no longer works," Kennedy said. "So you go on to the next drug. It's important to understand that even though one drug's effectiveness

doubling

Unlike normal cells, cancer cells never stop reproducing. If left unchecked, they will continue to reproduce until they replace the normal cells in the body. Each tumor has its own cycle of reproduction. If a tumor has a 100-day cycle, it would take about nine years for it to grow from a single cell to a lump weighing one gram. But in 30 more months, it would weigh about a pound. This phenomenon, called "doubling," is what makes early detection and control of cancer so crucial.

wears out, there is more ammunition. It takes years and years before you run out of ammunition."

Although most people know next to nothing about chemotherapy, there is a general fear of side effects. But the side effects are often relatively minor and controllable, according to Kennedy. "Many people believe that the side effects are so bad they would not even consider chemical therapy," he said. "But I compare the side effects of a drug to the scar of an operation. I think the important thing to remember is that most patients who are getting chemotherapy treatment can still carry out their daily life patterns—go to work, perform at their jobs. They are functioning people."

The side effects vary. A patient may be nauseated, may lose hair, may suffer a decrease in the number of white blood cells, increasing susceptibility to infection. All of these side effects can be controlled through the use of other drugs, such as anti-nausea pills, and by regulation of the drug dosage and method of administration, Kennedy said.

Chemotherapy patients are not bedridden. As a matter of fact, the average hospital stay at the University's Masonic Memorial Hospital is nine days. The majority of chemotherapy patients are treated in a doctor's office. "The patients who are hospitalized during treatment are usually hospitalized because they are ill from the cancer," Kennedy said.

Chemical therapy is often used in conjunction with another form of therapy. For example, in women with breast cancer that has already spread to the lymph nodes nearby, chemical therapy is begun after surgery. "In this way, the disease is treated by removing the bulk of the cancer cells surgically and then killing the remainder with the chemicals," Kennedy said. "Although this is still a research program, it is very exciting to see the lower rate of recurrence with this combination."

Other forms of treatment for cancer are still in the clinical-trial stages. Immunotherapy, the stimulation of the body's own immune system to fight the cancer, is being used now in conjunction with other treatment programs.

Given the array of accepted cancer treatments and their statistical successes, it appears that medicine is making real gains in the war against cancer. Death from cancer is no longer inevitable.

Kennedy draws a comparison between a heart attack and cancer. "If you have a heart attack in the street, your chances of reaching the hospital alive are less than 50 percent," he said. "At least if you have cancer, you have time to get to the hospital, receive treatment, and maybe live for many years."

"The one term that should be eliminated from our vocabulary is

'terminal cancer patient,'" Kennedy said. "I have no terminal cancer patients. I have patients who are in the dying phases of their disease. The mortician has terminal cancer patients."

extra-medical cures

Faced with a diagnosis of cancer, many patients will turn to the so-called "cancer remedies"—clinically unproven treatments warned against by physicians and the American Cancer Society.

"When in the course of cancer the physician no longer has an effective treatment, when there is no treatment that can make the cancer go away, the patient is very susceptible to supposed 'cancer remedies,'" says B. J. Kennedy, head of medical oncology at the University.

"The real tragedy is that many of the cancer remedies attract the patient at a phase when simple, regular medicine could cure the cancer. Then we see the patient many months later with far-advanced cancer in a noncurable state."

1-800-582-5262

"Is cancer contagious?" "Does a brown discharge from my nipple mean I have breast cancer?" "What is chemotherapy?" These are typical of the nearly 1,200 questions Minnesotans have asked the Minnesota Cancer Information Service (MCIS) since the free information program began May 10.

A toll-free, statewide telephone information service, MCIS answers questions about cancer causes, prevention, symptoms, treatment, and rehabilitation and about available cancer-related community services. Anyone in Minnesota can use the service by dialing 1-800-582-5262.

Most questions received so far have concerned symptoms or treatment of cancer, according to Kristin Gunderson and Dorothy Andrus, supervisors of the information office, which is located at the American Cancer Society's state headquarters in Minneapolis. "Many callers have been concerned with a lump or a symptom they think might be cancer," Andrus said. "Others want to know about the latest treatment for a particular kind of cancer or their risk of getting cancer."

The center has available the most up-to-date information from the American Cancer Society, the National Cancer Institute, and other authoritative sources. Questions about services to

cancer patients and their families are answered with information gathered from a variety of health and social agencies, particularly the American Cancer Society through its service program.

Some calls touch upon the doctor-patient relationship and are concerned with a particular doctor's diagnosis, treatment, or competence. "The staff is very careful to make absolutely no judgment about a physician's capability to diagnose or treat a case," said Thomas P. Cook, chairman of the Minnesota Cancer Council, which sponsors MCIS.

"We avoid any interruption of an established patient-physician relationship," he said, "but we do tell callers that if they have further questions about their doctor's diagnosis or treatment, they should ask the doctor. We urge the patient and family members to express their feelings frankly with the doctor."

When questions require a medical opinion, the caller usually is referred to his or her private physician. But for those callers who have no physician, the staff consults a list of doctors who have agreed to see cancer or cancer-suspect patients and provides callers with the names of those in their geographic area. The list was compiled last April from a Minnesota Cancer Council questionnaire sent to all licensed physicians in Minnesota.

Some questions are not immediately answerable by the staff, which consists of well-trained volunteers in addition to the supervisors. Time for research or follow-up with a statewide panel of cancer experts or other

gloom

One reason why cancer is a difficult topic to discuss is the gloom surrounding it. Mention cancer at a party and people will instantly dredge up all their cancer "horror stories." Everyone has a relative who "just wasted away," and no one is quite comfortable with the realities of cancer. The individual either is swamped with feelings of dread or reacts with a tinny, false-sounding optimism. In the midst of such cancerophobic responses, we tend to forget that cancer patients don't all "waste away." They aren't "doomed from the moment of diagnosis." Even the most perplexing forms of the disease can be maintained, often very comfortably, for a long time. Cancer patients don't all die of cancer.

information sources is then needed. The panel of experts was drawn up after consultation with the professional education committee of the American Cancer Society,

Minnesota Division; the cancer committee of the Minnesota State Medical Association; and cancer specialists at the University of Minnesota and the Mayo Comprehensive Cancer Center.

Many of the MCIS callers wish to remain anonymous. "Most of the questions are intensely personal, and we don't feel it is appropriate to ask for names and addresses," Andrus said. Although evaluation of the information service is an integral part of the project, no callers are questioned unnecessarily. All calls are completely confidential.

The service is open from 8:30 a.m. to 4:15 p.m. Monday through Friday. Callers during off-hours hear a recording asking them to call back during office hours, to leave a number so the staff can return the call, or to call a 24-hour number at the National Cancer Institute.

According to the American Cancer Society, 100,000 lives a year might be saved if existing knowledge about cancer prevention, early diagnosis, and treatment were more widely used. About 1,000 Americans die of cancer every day, and in 1976 about 12,000 Minnesotans will learn they have the disease.

—Bob Lee

people with cancer . . .

Sauer tells the nursing staff to "go ahead and love these kids—you can't help loving them—but always keep in mind whose needs are being served, yours or the kids'." If professionalism means "never crying with a child, never squirting a child with a squirt gun," she said, "then to heck with professionalism."

Ida Martinson, associate professor of nursing, has worked with families to enable them to care for dying children at home. "Detached compassion" is the term Martinson uses to describe her degree of involvement. "I still possibly get too involved," she said, "but at the same time I want to say there's no way you can get too involved. That contradiction is where we have to be." Detached compassion means "you're constantly thinking of that parent first, above yourself and possibly above the child. There's no way we should come between the parent and the child. That's where I'm taking a stronger and stronger stand."

At first, Martinson thought it would be important for her to be with the parents at the time of the child's death. Now she thinks she has done her job best if the parents don't need her. "It's a very private experience, a very precious time in the life of the family. I don't think we need to be there."

At home or in a hospital, Sauer and Martinson agreed, it is the small triumphs that count for a dying child. Sauer remembers one boy who was determined to build a kayak before he died, another who wanted to go home from the hospital long enough to lie beside his Christmas tree, a little girl whose dying wish was to hold her pet goose. The hospital rules are kept flexible enough to allow for the visits of pet geese, and parents may stay through the night if they wish.

Health professionals occasionally talk of parents who abandon their sick children in hospitals. "It does occur," Martinson said, "but I wonder if we force the parents to withdraw." She said it has been her experience that parents welcome the chance to participate fully.

Martinson encourages parents to let the child take normal risks and enjoy as many experiences as possible. "It's much better to bring the child to Bridgeman's than to bring an ice cream cone to the child," she said.

Small goals are important for adult cancer patients, too. "Going home one more time can be as important as being alive in five years," Judy Beck said.

"If I didn't have the diagnosis of death," patients have told Trowbridge, "I'd be living my life the way I always did." In the face of death, each day is treasured more. "I honestly believe a few months of life can be fantastic," Trowbridge said. "This helps me help my patients."

Talking honestly with patients never means destroying all hope. "It's impossible for anyone to say how long someone is going to live," Trowbridge said, "and even if we could, I'd

shudder to have that pronounced on someone."

"People travel hundreds and hundreds of miles to come to the University of Minnesota," said Beck. "To turn them away and say there's no hope would be the ultimate discouragement. We'll say, 'There's something we can try. It's the best we've got.' That's our attitude here—not giving up with people. No one is stepping up and saying, 'Let me die.'"

Trowbridge remembers a patient a year ago who was thought to have just hours left to live. "We tried some rather heroic things, not really believing they would make any difference. I saw her in clinic a few days ago. She's living a perfectly normal life. You just need to know a few of those people to know that you can't say with 100-percent certainty that someone will die."

"People who die with cancer are no worse the day they die than they were a day, a week, a month earlier," Wilder said. "In some ways it seems to be the individual's choice."

Mary Jones



Randall Trowbridge

Dr. B. J. Kennedy, head of medical oncology, has studied patients who once had advanced cancer but have had no recurrence or treatment in at

least five years. Before they began the study, Kennedy and his colleagues thought such patients would go through the rest of their lives with a black cloud over their heads.

"What we found," Kennedy said, "was that each of those people had a very positive attitude toward life. They valued time and friends much more than they had before. Money meant less to them. They were not depressed as we thought they would be, nor were they discouraged or anxious. The experience of having cancer was actually very good for their character development."

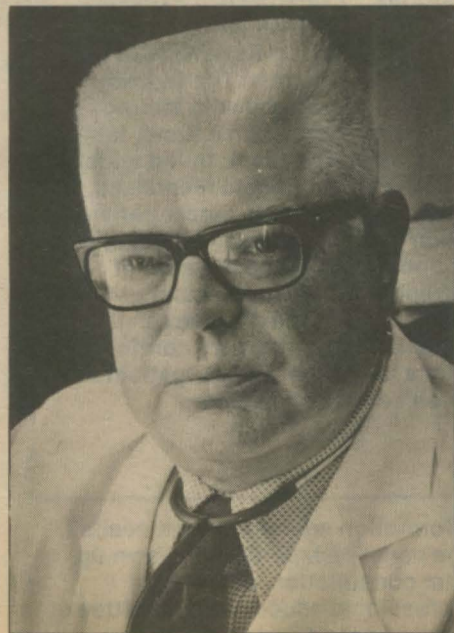
And the experience of knowing cancer patients has had an impact on the lives and values of health professionals as well. "I don't take the sunshine for granted any more," said Sue Sauer.

"If we lead lives assuming that we're immortal—and we're all children in not believing that we will die—we are not as concerned about the quality of life every day," Trowbridge said. "That has been the most beneficial insight that cancer patients have given me."



cancer detection center

Tom Foley



Victor Gilbertsen

The University's Cancer Detection Center (CDC) in Masonic Memorial Hospital since 1948 has been proving the benefits of a thorough annual physical examination for people over 40.

Although some cancers are admittedly almost impossible to detect early, others such as cancer of the breast, thyroid, and bowel can be detected early enough to greatly improve the chances of complete recovery.

Breast cancers are the most common fatal cancer for women and at least half are incurable by the time they are diagnosed. But an annual physical examination for women over 45, combined with regular self-examination, could substantially increase their life expectancy.

In fact, a 25-year study at the CDC, when compared with U.S. Census Bureau figures, showed that women treated for a breast cancer diagnosed at the CDC live as long as women in the general population who have never had breast cancer.

Another mass screening campaign started this summer by the CDC is testing for blood in stools as an indicator of cancer in the bowel. Some 20,000 Minnesotans between the ages of 50 and 80 have already volunteered and another 10,000 volunteers are expected by January.

Present diagnostic methods are just not effective in detecting cancer in the upper part of the large intestine. Volunteers in this project are asked to mail to the CDC a very small stool sample in a special matchbook-sized container. The specimen is then tested for blood that is not ordinarily visible.

Dr. Victor Gilbertsen, CDC director and screening coordinator, emphasized that the results are preliminary but said the low cost of the test (10 cents) and the early-stage diagnoses make him optimistic that the testing will prove beneficial.



Vincent Bilotta

Kansas' loss, Minnesota's gain

The extroverted new executive director of the Minnesota Alumni Association says he will turn introvert for the early part of his tenure.

Vincent J. Bilotta, approved for his new post in August by the Board of Regents, said he will concentrate on internal matters at first. This will be a switch from his largely external responsibilities at the University of Kansas, where he was involved in organizing alumni gatherings such as homecomings, trips to the Orange Bowl, and a family camp.

Not that these sorts of activities will be ignored by the 40-year-old associate director of the Kansas alumni association.

"They'll come," he said, "but for the time being I'll have to work on

mastering the internal affairs of the association."

Bilotta's activities in Kansas were praised highly by Kansas Chancellor Archie Dykes, who said Minnesota "is lucky to get him," and by University of Minnesota President C. Peter Magrath, who noted the exceptionally high—28 percent—paid alumni membership at Kansas and various innovations introduced there in recent years.

These included computerization of alumni records, an "honors program" that involves alumni in recruiting outstanding high school students, an on-campus alumni seminar on environmental issues, and organization of the transport, care and feeding of 1,000 alumni for the Kansas Jayhawks' Orange Bowl competition in Miami in 1969.

For these and other undertakings, the Kansas alumni association in 1972 won the highest national award possible for alumni programming.

Even in view of his success at Kansas, however, Bilotta said each

alumni association is different, understood fully only by its current director. In the case of Minnesota, that's 67-year-old Edwin Haislet, who is retiring after 27 years.

"I'm very comforted," Bilotta said, "that Ed Haislet is going to be around for a year or so as a consultant."



The mystery alum

struggle is on to offset tuition increases

Financial aid to students from middle-income families who may be hurt by tuition increases will be given a high priority in the request the University will take to the 1977 Legislature.

Without changing the amount of its \$411 million request for the 1977-79 biennium, the Board of Regents voted in September to reorder its priorities and request an additional \$3.7 million in financial aid above the current biennial appropriation of about \$4.3 million.

The Regents' action increases by \$2 million the amount of student aid in the request by reducing the amount the University will seek for increases in a number of other areas, including equipment replacement and maintenance and various service facilities.

In a three-part resolution, the Regents voted "to place a high priority on significantly increased student financial aid, geared to the actual needs of middle-income University students, by reordering the biennial request."

The resolution also endorsed efforts by the Minnesota Higher Education Coordinating Board (HECB) to increase the amount of money HECB has available for state scholarship and grant-in-aid programs and the state work-study program. In addition, the Regents voted to support efforts under way in Congress to broaden the definition of "need" to include more middle-income students.

Tuition increases of 25 percent are projected for the University over the two-year period beginning in the fall of 1977, if the Legislature approves the University's request.

University President C. Peter Magrath said students enrolled in the General College and College of Liberal Arts in the Twin Cities and at the Duluth and Morris campuses, for example, would have to pay \$35 more per quarter, beginning in the fall of 1977, than the \$221 they will pay this fall.

"This would represent a 16-percent increase in their tuition charges over the current year," Magrath said. In the second year of the biennium, tuition for those students would increase by about \$20 per quarter, another 9 percent.

Magrath said the University's student-aid program would be geared toward families in the middle-income range who may be hurt by the tuition increases but who do not technically qualify as needy under current state and federal formulas.

help us identify this man

Can you help us identify this Minnesota alumnus? Perhaps he was a classmate of yours when you were in vet med school. Or perhaps he studied across from you in the home economics library. Maybe he was that second bassoonist in the concert band.

Whoever he is, he's not alone. More than a million people have spent time studying at the University. Of that million and more, the University has only 150,000 valid names and addresses. Where everyone else is is anybody's guess.

If you know the whereabouts of Minnesota alumni who have unwittingly strayed from the ranks of the faithful, please let us know. We not only need all the friends we can get, we also need to know where they are.

Name _____

Street or Box _____

Community and Zip _____

College and Years Attended _____

human rights statement

Title IX of the Education Amendments of 1972 requires that the University give public notification of its policies and practices with regard to non-discrimination on the basis of sex. The following Human Rights Statement is the official statement of policy.

The Board of Regents has committed itself and the University of Minnesota to the policy that there shall be no

discrimination on the basis of race, creed, color, sex, age, or national origin. In adhering to this policy, the University abides by the requirements of Title VI and VII of the Civil Rights Act of 1964, Revised Order No. 4, Executive Orders 11246 and 11375, Sections 799A and 845 of the Public Health Service Act, the Equal Pay Act of 1963, and all other federal regulations and pertinent acts of Congress.

It is also the policy of the University of Minnesota not to discriminate on the basis of sex in its educational programs, admissions, activities, or

employment policies as required by Title IX of the Education Amendments of 1972.

Inquiries regarding compliance may be directed to Lillian H. Williams, Director, Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, University of Minnesota, Minneapolis, Minnesota 55455, (612) 373-7969, or to the Director of the Office of Civil Rights, Department of Health, Education, and Welfare, Washington, D.C. 20201.

Tom Foley



Owen H. Wangensteen

by Bill Huntzicker

"I came as a raw youth from the farm in 1915, so I've known all the University presidents," said Owen H. Wangensteen, Regents' professor emeritus of surgery. "I only knew one president on a first-name basis and that was Mr. Wilson."

Wangensteen, 78, was interviewed about the influence of the University's

owen wangensteen: presidents matter

e.c. stakman can't stay away

11 presidents, whom he knew while he was a student, teacher, and department chairman. Wangensteen became a student some years after William Watts Folwell, the University's first president, had retired from the presidency to return to teaching.

Folwell doubled as head of the library when he became the University's chief executive in 1869. Following his retirement 15 years later, he pursued a long career as a professor and scholar. Among other things, he wrote a four-volume history of Minnesota.

"I lived in a fraternity house in Southeast Minneapolis not very far from where Mr. Folwell lived, so I had the opportunity to walk down to school with him occasionally," Wangensteen said. "He was about 80 then and a brisk walker." Wangensteen said they did not talk much about important University issues, but engaged, rather, in light conversation.

Cyrus Northrop, the University's second president, was perceived as a peacemaker both within the University, where conflicts had developed over priorities in the creation of a professional faculty, and outside the academic community, where he supported peace groups seeking to avoid World War I.

"We came to know Northrop because he was a teetotaler—a total abstainer—and we had some wise old boys in the fraternity house who persuaded Mr. Northrop, who had by then retired, that they were the only fraternity on campus that didn't tolerate any suggestion of alcoholic drinks in the house. He came to dinner a few times and we called on him a couple of times. He was a wonderful old man with a great penchant for compromising."

"Until Northrop, we were a group of sleeping, self-satisfied colleges," Wangensteen said.

"George Edgar Vincent was our third president and, I think, our greatest president," Wangensteen said. "You couldn't listen to Mr. Vincent without appreciating that he was a great man. He had wit, humor, and an unusual capacity for analyzing attitudes and things. He got along quite well with the Legislature, which is strange in light of his wanting to upgrade the University."

Vincent, who was president when Wangensteen enrolled at the University, was concerned with the professionalism of the colleges. He named many new people to the faculty, including later presidents Lotus D. Coffman, Guy Stanton Ford, and Walter C. Coffey. "Vincent wasn't here long enough," Wangensteen said. "He came in 1911 and he left in 1917, but through the short period of six years, he really changed this to a great university from a group of mediocre colleges."

Marion Leroy Burton succeeded Vincent and made his mark as a builder of the physical facilities as Vincent had made his as builder of the faculty.

"I think Vincent having been here and having done so much had created a new image of the University in the minds of legislators," Wangensteen said. "Burton persuaded the Legislature to give us more buildings, which were badly needed." Raising money was Burton's forte, Wangensteen said.

President Burton and his wife also dined at Wangensteen's fraternity

the University during two of those summers. He joined the plant pathology faculty in 1909.

Stakman is featured in the University's award-winning new film, *Reaching Out*. In the film he talks about the University and about world hunger but not about himself. "If I say anything about myself, it's merely to give you some idea of the credibility of the witness," he told the film interviewer.

Getting Stakman to talk about his own achievements isn't easy. What is he proudest of? "I'm proud that the University hung on to me for as long as it did." What about the development of new varieties of wheat and other cereals that could resist disease? "Most of those things were so much team effort that I just don't want to get it out of perspective."

What about making a contribution to feeding the world? "I take satisfaction in it, but I don't deserve any credit. We were driven to regional

by Maureen Smith

E. C. Stakman can't stay away from his office on the St. Paul campus. How could he, when "things keep getting more and more interesting?"

At 91, Stakman still keeps up with the latest discoveries in plant pathology. "And there are always students around, and students are always interesting."

Cyrus Northrop was president of the University and Theodore Roosevelt was president of the United States when Stakman came to the University as a freshman in 1902. He has "never been permanently disconnected" from the University since that time. He spent three years teaching high school but returned to

house, but Lotus D. Coffman was the only University president Wangensteen ever saw attend a meeting of the Medical School faculty.

"Coffman was president when I joined the faculty—he became president in 1920 and I became a member of the faculty first as a surgical fellow in 1923 and then as a teacher in 1926," Wangensteen said. "He came only once to our medical faculty meetings. I think if I were president of a university I would want to know the faculty, and how better to do that than to come to the meetings?"

Wangensteen listed Coffman with Vincent as a great president. Under Coffman, Wangensteen said, the Department of Surgery was able to stabilize its budget and staff during the difficult Depression times.

"He saved my neck when I had a little difficulty with one of the administrative deans. When I took over the chairmanship of the department in 1930, we had one surgical resident and, I think, two interns, and I wanted to appoint another one." A battle of the budget began that was resolved by President Coffman.

Guy Stanton Ford was the sixth president of the University. "My wife worked in Dr. Ford's office while he was dean of the Graduate School," Wangensteen said, "and subsequently in his office annex to the Library of Congress when he was executive director of the American Historical Association. She said that he would frequently be telephoned by university presidents and committees as to who were the eligible people for wise appointments in many disciplines."

Between those two major positions, Ford was University president for three years. He had often presided when Coffman was absent from the campus and was close to retirement age when he was appointed.

"Ford and Coffman were a great combination. I think Coffman was a builder of this university, an effective man, but he didn't know eligible faculty like Ford did. Ford had a unique capacity for this, but he didn't distinguish himself as president as did Vincent and Coffman," Wangensteen said.

wangensteen, p. 14

early years. Now, he said, faculty members have become more "people of the world."

"Some people function best with a lot of noise," Stakman said. "But there is such a thing as contemplation. Critical reflection is awfully important."

He remembers a man he used to work with who always raised two questions: "It is right?" and "Is it wise?" "In complex situations, those aren't matters to be settled like that," Stakman said, snapping his fingers. "Today it seems to me there's a little too much of a tendency to look for easy answers."

When he was an undergraduate, Stakman said, students recognized

stakman, p. 14

From Folwell and Northrop to Malcolm Moos and C. Peter Magrath, Stakman has known all 11 of the University's presidents. "I'm sort of getting acquainted with the present president," he said of Magrath. "I think if everything goes well he could be one of the best. But each one had his own particular virtues."

In the film *Reaching Out*, Stakman has the last word about the University: "I hope to heaven that it will always be a living organism, and that it will be even better in the future than it has been in the past. And if it's better in the future than it

has been in the past, it will be pretty good."

How has the living organism that is the University of Minnesota grown in the three quarters of a century that Stakman has been associated with it? Without criticizing the present University, Stakman is regretful about some of what has been lost.

"It was comforting—the relatively quiet, semisecluded academic atmosphere to luxuriate in," he said in describing the University of the

Elvin C. Stakman

effort and finally to international effort to control our own diseases."

What about being named one of the 100 most important people in the world in 1952? "I never took it too seriously." (The 100-most-important-people list, compiled by Donald Robinson for a book he wrote, was headed by such world figures as Churchill, Stalin, and Truman. The 11 scientists on the list included Einstein, Fermi, and Bohr as well as Stakman.)

But giving Stakman an opportunity to express his affection for the University is another story. He remembers the talk he gave at the Cap and Gown Day ceremony in 1953, the year he retired. "I felt at that time like almost laughing and crying at the same time, because I simply had to say that nobody could have had greater freedom and more opportunity than I did."

Some of Stakman's strongest University memories go back to his own student days. Seventy-some years later, he is still grateful for his education. "Not too many rich people came to the University in those early days," said Stakman, who came from a Wisconsin farm family.

William Watts Folwell, the University's first president, had retired as president by the time Stakman came to the University, but he was still on campus as a professor of political science. "If he met you in the hall, he'd always greet you," Stakman recalled.

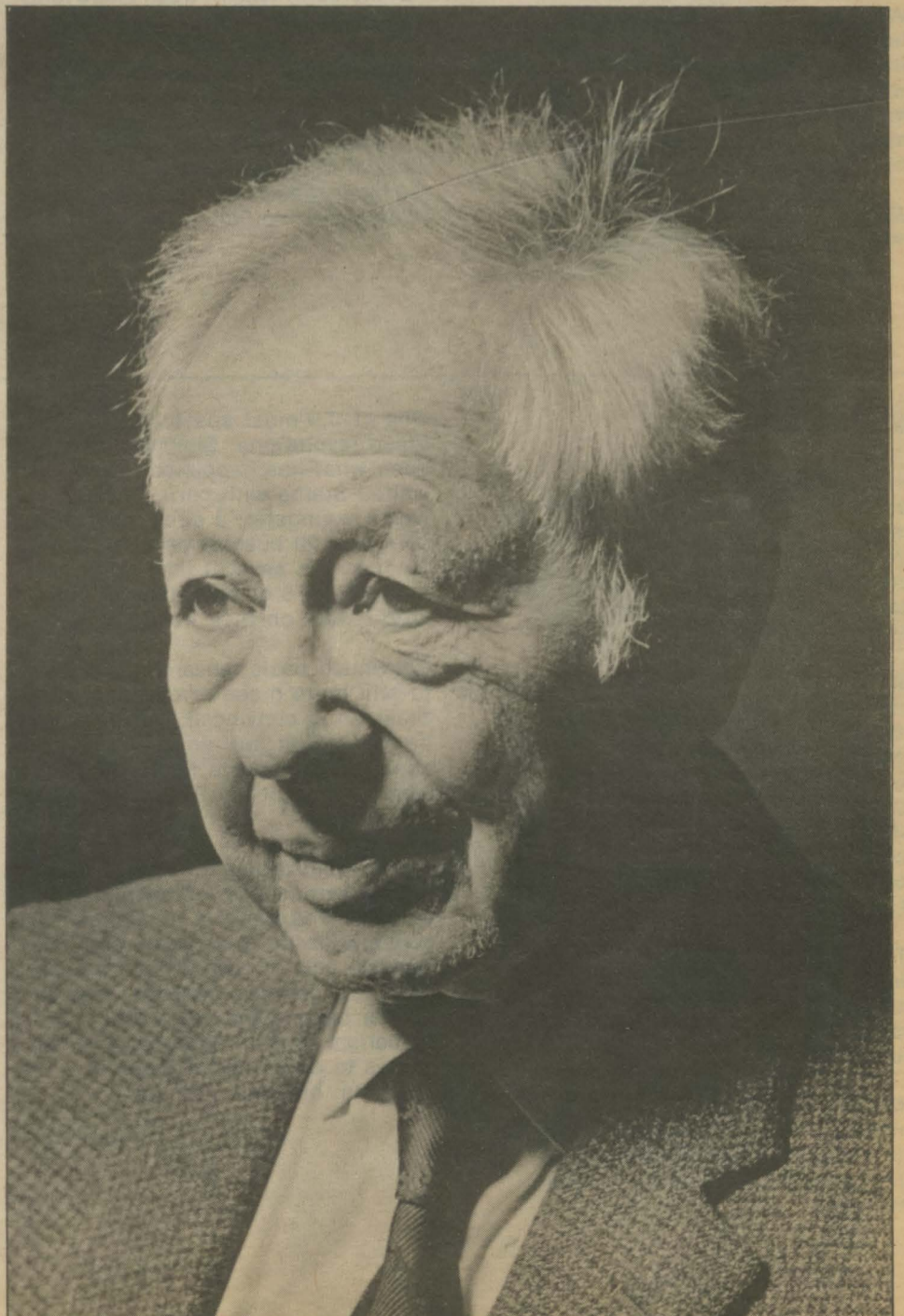
happiness

The Department of University Relations is happy to announce that several of its projects for the past year have been cited for excellence by the Council for Advancement and Support of Education (CASE).

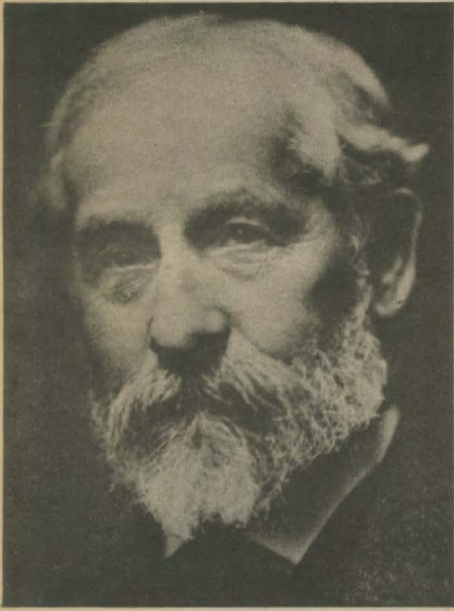
Foremost of the awards went to the University's new film, *Reaching Out*, which won the CASE Grand Award for films made by educational institutions. The 22-minute color film is an image-essay on the different ways the University affects the lives of the people of Minnesota.

(*Reaching Out* is available, free of charge, to any group in the state that wants to see it. Write Audio-Visual Library Service, 3300 University Ave. S.E., Minneapolis, MN 55414, for information.)

Three other University entries were honored in the CASE awards competition: *Update*, the publication you have in your hands; *Report*, the University's newspaper for faculty and staff; and a series of television news clips produced by Gail Gendler of the University News Service.



Tom Foley



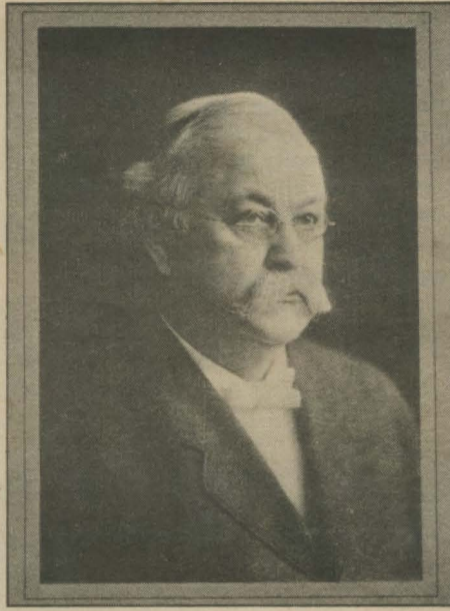
William Watts Folwell
1869-1884

wangensteen . . .

Wangensteen said he knew President Walter C. Coffey, who had moved to the presidency from agriculture, through a mutual friend who shared an interest in sheep with Coffey. As seventh president, Coffey improved the College of Agriculture and presided over the University during World War II.

Wangensteen recalled frequent lunches with Coffey and their mutual friend to discuss sheep. He added that when the friend died, he willed his money to agriculture instead of to medicine, to which he had made large contributions during his lifetime.

James Lewis Morrill, who is now retired in his native Ohio, came to



Cyrus Northrop
1884-1911

govern the University at the end of the war. "I came to know Morrill fairly well. I think he was a strong president," Wangensteen said. "In many respects, he was a peacemaker like Northrop, but he was bolder in execution than Northrop and he continued to build a faculty." The University expanded in both enrollment and physical size during Morrill's 15 years.

"O. Meredith Wilson wasn't here long enough to leave a great impression, but he was very popular in the community and very popular with the legislators," Wangensteen said. It was during Wilson's administration that the prestigious Regents' professorship, of which Wangensteen was a recipient, was established and that Wangensteen officially retired.



George E. Vincent
1911-1917

Tenth president Malcolm Moos, Wangensteen said, appointed great men and had the courage to make difficult administrative changes. "Moos got on reasonably well with the faculty," he said, adding that although he had retired before Moos came to the University, he had worked with him on some fund-raising efforts for the Medical School.

Wangensteen has not worked with current president C. Peter Magrath, who succeeded Moos two years ago. "I've met Magrath and I've visited with him," Wangensteen said. "I think he has a good background."

Does it really matter who is University president? Wangensteen believes it does, particularly in the importance of making appointments, bringing good people to the University. "I would select Mr.



Marion L. Burton
1917-1920

Vincent, Mr. Coffman, and Mr. Morrill as the strong presidents whom I have known," he said.

Although he is retired, Wangensteen is still very busy. He and his wife have just completed a manuscript on the history of surgery that they have submitted to a publisher. He retains a spacious office in Diehl Hall, a building, he said, that his money and that of his patients helped to build.

Wangensteen said he's had plenty of chances to leave the University of Minnesota during his career, but he liked the environment here. "I realized that a professor's chief function is to create an attitude friendly toward learning. You can't really put it in your suitcase and take it with you. It has to be recreated."

stakman . . .

their ignorance and viewed education as "a prolonged period of infancy" and a preparation for life. "I haven't found any reason to change my mind about that," he said. "You can pluck at a rosebud too much and spoil the blossom."

Stakman said he wouldn't have gone into plant pathology if he hadn't realized that there was a problem in feeding the world. Human subsistence is the most basic problem of all, he said: "I'm not saying the most important, but the most basic. It's very hard, indeed, to embellish life if you can't sustain it."

"I am proud of the record that the University of Minnesota has had in contributing to a solution, at least a partial solution, of the problem of human subsistence.

"Minnesota has played a very important role in the development of the series of green revolutions. There hasn't been just one green revolution."

One of the most spectacular of the green revolutions, Stakman said, has been what has happened in the United States with corn. "When I was a youngster, a good yield of corn was 20 bushels an acre. Now, for heaven's sake, if they don't get more than 75 bushels they've got a crop failure on their hands."

Continued basic research can lead to still more green revolutions, Stakman is convinced, but he said he is a realist, not an optimist, about the prospects for feeding the world. "I've got my fingers crossed, obviously."

The biggest problem, he said, is the "cantankerousness" of the human animal. "The greatest impediment to cooperation on a big scale and in a humane sort of way is man himself. We know perfectly well that man is not far beyond the stage of barbarism or even savagery when it comes to a conflict of material interests, or other interests.

"If civilization is to progress toward intellectual enlightenment and spiritual refinement in a very human sense—I don't necessarily mean sectarian Sunday-school stuff—we've got to think in terms of the golden rule."

Four days a week, Stakman goes to work in his office in the building named for him, Stakman Hall of Plant Pathology. He stays home most Mondays because he likes a long weekend.

He is writing a series of essays on the role of hunger in the history of agriculture. He reads the scientific literature, attends seminars, talks with students, speaks to classes occasionally on invitation. And most days he meets three friends for lunch.

They call themselves the Council of the Ancients. Clyde Christensen, Carl Eide, and Matthew Moore, all professors emeritus of plant pathology, are the other members.

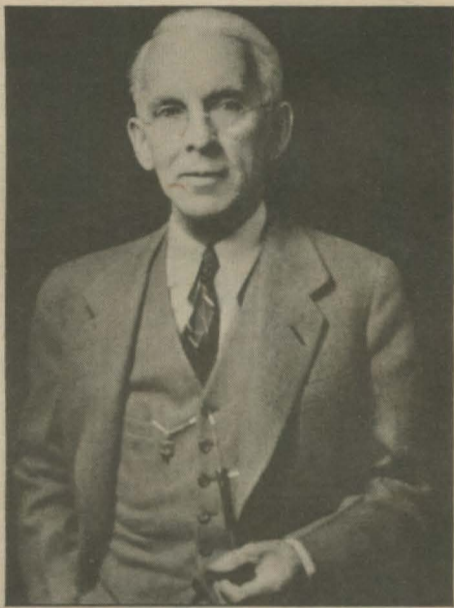
"We have rights and privileges in the department," Stakman said, "but mostly we get together and have a self-improvement society."

When he talks with students, Stakman tells them that "I will tell them all I know as quickly and expeditiously as possible if they'll tell me something I don't know." Graduate students who are doing research "ought to be able to tell me more than I can tell them," he said.

As Stakman looks back on his career, he finds himself thinking most of all about his relationships with colleagues and students. "I'm proud that we learned together as well as we did."



Lotus D. Coffman
1920-1938



Guy Stanton Ford
1938-1941



Walter C. Coffey
1941-1945



James Lewis Morrill
1945-1960

letters

semi-duds

Thanks for the comments of historian Rodney C. Loehr (Summer 1976) regarding the character of Custer, which was much like Patton's. They were both ambitious, vain, stupid, and willing to sacrifice their men's lives. The fact that Custer was at the wrong place, at the wrong time, and with the wrong people has never really been made clear. Having completed the ROTC program while attending the University and having later served in the Army and Reserves, I feel that if we are going to have heroes in uniform, let's get men of calibre and not semi-duds.

James B. Lazenby III
Macon, GA

confusing maize

As a foreign student, I must point out a misleading statement in the article "Mutant Watchers Labor Amid the Alien Corn" in the latest issue. The author states that "Keats really meant wheat, not corn." But Keats *did* mean corn. "Corn" does not refer specifically to any one grain crop. To the English (I can put myself in Keats' class for this alone!), corn is wheat. To the Scottish, corn is oats. And to the Americans, corn is maize. Until one realizes this varying local meaning of the word "corn," it can be most confusing to study crops in different countries!

Elizabeth A. Branford Oltenau
Ithaca, NY

either ore

At one point in your interview with Dr. William Stratton on the subject of nuclear power (Summer 1976), you refer to a paper I wrote entitled "Power to the People: The Case for Nuclear Energy." Two corrections are in order with that reference:

- First, I was quoted as saying that one pound of uranium *ore* can generate electricity equivalent to 10 or 15 tons of

coal. Actually, in currently used reactors, it is one pound of *uranium* that is roughly equivalent to 10 or 15 tons of coal. Since uranium ores are typically only 0.1 or 0.2 percent uranium, considerably larger amounts of ore are required.

- Second, it was suggested that nuclear energy is very nearly inexhaustible. This is true only if we eventually utilize the so-called breeder reactor. Breeders can obtain 50 to 100 times as much energy per pound of uranium as can our present-day reactors. With breeder reactors, U.S. uranium reserves are adequate for thousands of years, at least.

David C. Williams
Albuquerque, NM

the plutonium solution

The conclusion reached by Dr. Stratton regarding the future of nuclear power seems reasonable, but certain aspects of his arguments do not appear to be complete. For example, he points out that plutonium metal (or its oxide) is water-insoluble and relatively innocuous. However, it should be added that the corresponding chloride and bromide salts of plutonium are soluble in water, and presumably are highly toxic. By analogy, soluble salts of mercury are much more toxic than mercury metal itself.

It is not inconceivable that one could obtain at least small amounts of plutonium-239, and not necessarily by illegal means. Routine conversion to a water-soluble salt would yield a material of potentially great toxicity whether taken orally, through the skin, or by inhalation.

Peter C. Ruenitz, Ph.D.
School of Pharmacy
University of Georgia

faust's fate

While it would take an essay to rebut your pro-nuclear power article, allow me to make the following points:

- Due to the depletion of most high-grade uranium ore and the dwindling supplies of low-grade ore, nuclear power must in the future rely on plutonium-fueled reactors. These reactors, especially breeder reactors, could likely explode as a bomb.

- Reactors, waste storage sites, re-processing plants, etc., are vulnerable to terrorist sabotage from outside the plant via surface-to-surface weapons.

- While anti-nuclear groups have been criticized for using "scare tactics" and appealing to "the emotions" concerning a highly technical area, what does William Stratton do? He presents the alternative to nuclear energy as the end of civilization. This is not to engage in rational, objective discourse, but to traffic in hyperbole worthy of P. T. Barnum.

- Finally, one should not invoke myths in a frivolous way as you have with Faust; they often are profound human insights (*passim* Levi-Strauss). Consider what Faust's fate was.

Larry Legus, CLA '69
Minneapolis

dyspeptic cybernetics

Did you know your computer is jealous? I'm sure of it! Over the past four years I've asked it to change my name once (which it did, half-way) and my address four times (which it could never figure out). Now, I know it's disheartening to sit in the same spot year after year knowing the rest of the world is moving from place to place. But couldn't you please tell your computer not to take it to heart? Maybe if your computer understood I really enjoy *Update*, it would change my records. I promise not to move again for a few years. OK?

Criss Magnuson
Minnetonka

OK. And many thanks for the other get-well cards our computer received during its bout with dyspepsia. In the event of a relapse, please use the change of address form we have included on this page.

update

change of address

To change your address, attach the incorrect label from the cover of *Update* to this coupon and fill in your correct address below.

Incorrect address (attach label):

- Alum (College & Year: _____)
- Parent of a currently enrolled student

Correct address:

Name _____

Street or Box _____

Community and Zip _____

Mail to Update, Department of University Relations, S-68 Morrill Hall, University of Minnesota, Minneapolis, MN 55455.

Twin Cities Campus

St. Paul Student Center Galleries

Oct. 3-29—Oriental Paintings by Mun Chung Park, "Wild Life of the Canoe Country" (photographs) by Lynn Rogers, Baskets by Jenny Yellowleaf, Master's Exhibition by Rick Skare
Oct. 31-Nov. 29—Drawings, Paintings, and Prints by Nancy Leeper and Laura Blaw; Acrylics by Walter Goldstein; Sculpture II, Native Stone, by Don Holmquist
Dec. 1-29—Mixed Media by Ruth Oseid; "Buy-some-tenial" (photographs) by Mark Luinenberg; Sculpture in Clay by Jean Bruns

West Bank Union Gallery (lower concourse, Auditorium-Classroom Building, 8 a.m.-7 p.m. weekdays)

Through Oct. 15—MFA Thesis by Helen Sarkissian
Oct. 18-29—Honors Thesis by Phil Waters
Nov. 1-19—Ceramics and Drawings by Joe Havel, Ceramics and Drawings by Bruce Lindert
Nov. 22-Dec. 10—MFA Thesis by Kerry Mildon

University Gallery Exhibitions (Northrop Auditorium; 11 a.m.-4 p.m. weekdays, 2-5 p.m. Sundays)

Through Oct. 31—The Classical Revival (photographs)
Oct. 11-22—MFA Photographs by Keith Laumb
Oct. 15-Dec. 3—East-Indian Miniature Painting
Nov. 1-Dec. 3—Recent Acquisitions
Nov. 5-Dec. 3—Ross Moffett Monotypes

Concerts and Lectures Events (Northrop Auditorium; tickets: 373-2345)

Nov. 6—Marching Band, 8 p.m.
Nov. 7, 14—Marching Band, 3 p.m.
Dec. 3-4—Nikolais Dance Theatre, 8 p.m.
Dec. 10-11, 17—*Nutcracker Fantasy*, 8 p.m.
Dec. 11-12, 18-19—*Nutcracker Fantasy*, 3 p.m.

St. Paul Student Center Films (North Star ballroom, 7:30 p.m. unless noted)

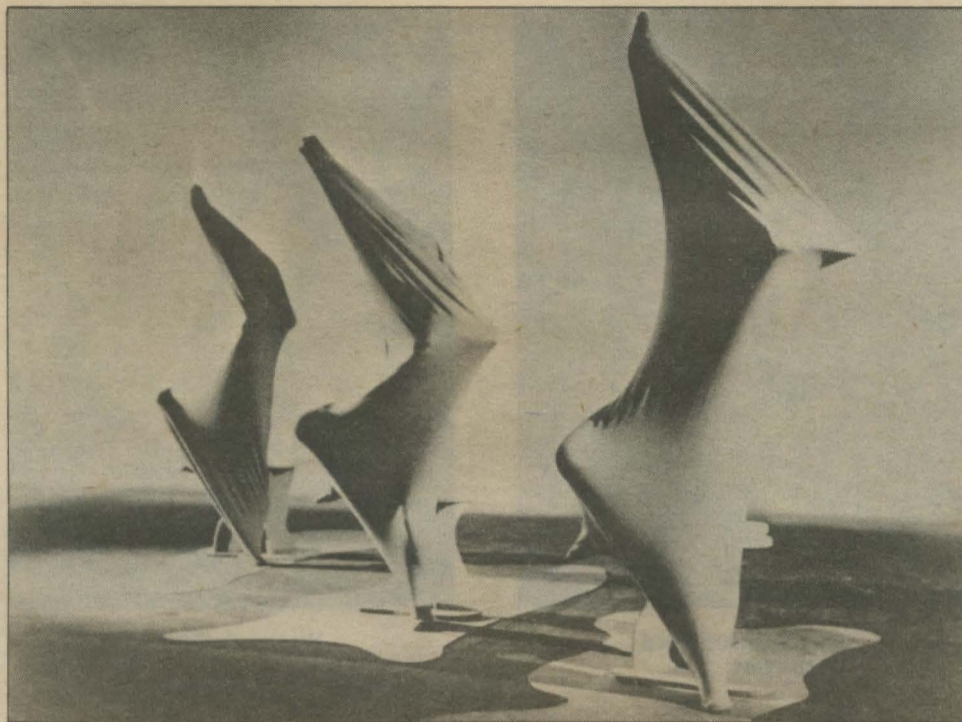
Oct. 15—*Sleeper*, 7 & 10 p.m.; *Bananas*, 8:30 p.m.
Oct. 16—*Sleeper*, 7:30 p.m.; *Bananas*, 9 p.m.
Oct. 20—*The Producers*
Oct. 29—*Phantom of the Paradise*
Nov. 10—*Duck Soup*
Nov. 12—*Emmanuelle*, 7:30 & 9:30 p.m.
Nov. 13—*Emmanuelle*, 8 p.m.
Nov. 17—*A Hauntin' We Will Go*
Dec. 1—*The Mouse That Roared*
Dec. 3—*Alice in Wonderland* (Disney's), 7:30 & 9:30 p.m.
Dec. 4—*Alice in Wonderland*, 2 & 8 p.m.

St. Paul Student Center Noon Films (North Star ballroom)

Nov. 2—*Hot Air Salesman; No, No, a Thousand Times No; Banana Peel Deal* (Betty Boop)
Nov. 9—*Mama's Little Pirate* (Little Rascals)
Nov. 16—*The Dentist* (W. C. Fields)
Nov. 23—*Any Old Port* (Laurel & Hardy)
Nov. 30—*Helping Grandma* (Little Rascals)

Other St. Paul Student Center Events

Oct. 13, Nov. 3, 24—Noon Music, Terrace Lounge
Oct. 24-29—Ski Swap
Nov. 10—"Star of Bethlehem," lecture by Karlis Kaufmanis; noon
Nov. 21—"Poets' Party," vegetarian dinner and readings by poets (time to be announced)



Alwin Nikolais and his troupe of mind-stretching dancers pull up to Northrop Auditorium for two visual extravaganzas, Dec. 3 and 4, 8 p.m. For tickets, call 373-2345.

Northrop Auditorium Events (sponsored by the Music Department; 8 p.m. unless noted)

Oct. 24—Bernhard Weiser, pianist
Nov. 6—Marching Band Indoors
Nov. 7—Marching Band Indoors, 3 p.m.
Nov. 13—University Men's Chorus
Nov. 14—Marching Band Indoors, 3 p.m.
Dec. 2—Requiem in C Minor (Cherubini), University Symphonic Chorus
Dec. 5—University Wind Ensemble, 3 p.m.

Scott Hall Events (sponsored by the Music Department; 8 p.m. unless noted)

Oct. 8—Reginald T. Buckner, piano improvisation
Oct. 10—Jeffrey Van, guitarist
Oct. 17—Clifton Ware, tenor; David Baldwin, trumpeter; Paul Freed, pianist; John Anderson, clarinetist
Nov. 3—Yannis Xenakis, composer and music vivant; all day
Nov. 4—A Conversation with Alexis Weissenberg, pianist; noon
Nov. 8—Scholarship Benefit: Eileen Davis, lyric soprano
Nov. 20—University String Quartet
Nov. 22—Contemporary Music Ensemble
Dec. 4—"An Evening of Orpheus," Opera Workshop; 8 p.m.

Coffman Music (sponsored by the Music Department; 8 p.m.)

Dec. 1—Band Concert
Dec. 6—Band Concert

MacPhail Center for the Performing Arts

Nov. 7—Movements from Concertos, MacPhail faculty; Walker Art Center, 8 p.m.

Punchinello Players (North Hall, 8 p.m.; tickets: 373-1570)

Nov. 5-6, 12-13, 19-20—*The Fantasticks*

University Theatre (Rarig Center; tickets & times: 373-2337)

Oct. 29-Nov. 14—*Jacques Brel Is Alive and Well and Living in Paris*
Nov. 11-21—*Medea*
Nov. 19-Dec. 5—*Romeo and Juliet*

Third-Century Poetry and Prose (125 Auditorium-Classroom Building, 8 p.m.)

Oct. 20—Lyn Lifshin, poet
Oct. 25—Cary Waterman
Nov. 15—Philip Dacey, poet

Coffman Union (Main Ballroom, 8 p.m.)

Nov. 17—"Here Is Israel '76"

Football (Memorial Stadium, 1:30 p.m. unless noted)

Oct. 9—Illinois (Homecoming)
Oct. 23—Iowa
Nov. 13—Ohio State, 1 p.m.

Hockey (Williams Arena, 7:30 p.m.)

Oct. 22-23—St. Louis University
Oct. 29-30—UM-Duluth
Nov. 12-13—Michigan State
Nov. 19-20—North Dakota
Dec. 3-4—Wisconsin
Dec. 27—Harvard

Basketball (Williams Arena, 8:05 p.m.)

Nov. 27—North Dakota State
Dec. 6—Northern Michigan
Dec. 18—Vermont
Dec. 23—Kansas State
Jan. 8—Iowa

Duluth Campus

Music (Marshall Performing Arts Center, 8:15 p.m. unless noted)

Oct. 22—High School String Concert, 7:30 p.m.
Nov. 23—Jazz Ensemble I & II
Nov. 30—UMD-St. Scholastica-Community Orchestra
Dec. 2—University Choral Society
Dec. 5—"Sounds of Christmas"

Tweed Museum of Art (8 a.m.-4:30 p.m. weekdays, 2-5 p.m. weekends)

Through Jan. 1—Selections from the Permanent Collection
Oct. 5-12—Senior Show by Kathy Taylor and Lisa Meyer
Oct. 8-17—"Minnesota Art and Architecture"
Oct. 20-Nov. 17—Work by art faculty
Nov. 22—Student Art Auction, 7:30 p.m.

Theater—(Marshall Performing Arts Center, 8:15 p.m.)

Nov. 11-13, 17-21—*Celebration*

Dance (Marshall Performing Arts Center, 8:15 p.m.)

Oct. 9—Bill Evans Dance Company
Dec. 14—Chamber Concert One, Duluth Ballet Company

Football (Griggs Field, 1:30 p.m.)

Oct. 16—Southwest State
Oct. 23—Bemidji State
Nov. 13—Michigan Tech

Hockey (Duluth Arena; 8 p.m. Fri.; 7:30 p.m. Sat.)

Oct. 15—Michigan Tech
Oct. 22-23—Lake Superior State

Nov. 5-6—Wisconsin-Madison
Nov. 19-20—Colorado College
Dec. 27-28—Boston University

Men's Basketball (PE Building, 7:30 p.m. unless noted)

Nov. 26-27—UMD Invitational, 6 p.m.
Dec. 13—Wisconsin-River Falls
Dec. 20—St. Thomas

Volleyball (PE Building, 6 p.m. unless noted)

Oct. 12—Macalester, Wisconsin-Superior
Oct. 13—Northland, 7 p.m.
Oct. 19—UM-Twin Cities
Oct. 20—Bemidji State
Oct. 30—Mankato, Wisconsin-Superior, Wisconsin-Stout, Lakehead, St. Catherine's; 10 a.m.
Nov. 2—St. Cloud State
Nov. 12-13—State Tournament

Miscellaneous Sports

Oct. 9—Women's Tennis:UMD Invitational, PE & Fieldhouse, 9 a.m.
Oct. 18—Field Hockey: Carleton, Griggs Field, 4 p.m.
Oct. 29—Men's Swimming: Northland, Wisconsin-Superior, PE, 5 p.m.
Nov. 20—Women's Swimming: Relay Meet, PE, 1 p.m.
Nov. 29—Men's Swimming: Northland PE, 4 p.m.
Dec. 3-4—Women's Basketball: UMD Invitational, PE; 6 p.m. Fri., 10 a.m. Sat.

Morris Campus

Music (Edson auditorium, 8:15 p.m., unless noted)

Oct. 15—Bill Doyle and the Buffalo Chipkickers
Oct. 15—Dance: Trick, PE Annex
Oct. 22-23—Coffeehouse: Deb Anderson, 9 p.m.
Oct. 26—James Tocco, pianist; Recital Hall
Nov. 5-6—Coffeehouse: Tim-Gadban, 9 p.m.
Nov. 12—Oregon Mime Theater
Nov. 19—"Catch a Rising Star"
Nov. 29—Walter Carringer, tenor; Recital Hall
Dec. 4—Jericho Harp

Film (Edson auditorium, 8:15 p.m. unless noted)

Oct. 5—*La Ronde*
Oct. 8—*Cat Ballou, Country Hospital*
Oct. 19—*Seven Samurai*
Oct. 29—*Duck Soup, The Dentist, Anniversary Trouble*; 7 & 10 p.m.
Nov. 3—*Shoot the Piano Player*
Nov. 20—*Carnal Knowledge*, 7 & 9:30 p.m.
Dec. 7—*Throne of Blood*

Football (UMM Field, 1:30 p.m.)

Oct. 16—Homecoming: Michigan Tech
Oct. 30—Winona State

Volleyball (PE Center, 6 p.m., unless noted)

Oct. 7—Southwest State
Oct. 9—UM-Duluth, 11:30 a.m.
Oct. 11—North Dakota
Oct. 14—North Dakota State
Oct. 23—North Dakota Science
Oct. 29—Mayville State
Nov. 9—St. Benedict's

Men's Basketball (PE Center, 7:30 p.m.)

Nov. 19—Northern State
Nov. 22—Huron
Nov. 27—Mankato State
Dec. 1—St. John's
Dec. 16—Mayville State

Miscellaneous Sports

Oct. 12—Women's Tennis: UM-Duluth, 3:30 p.m.
Nov. 20—Wrestling: Alumni-Varsity, PE Center, 7:30 p.m.
Dec. 14—Wrestling: Southwest State, PE Center, 7:30 p.m.