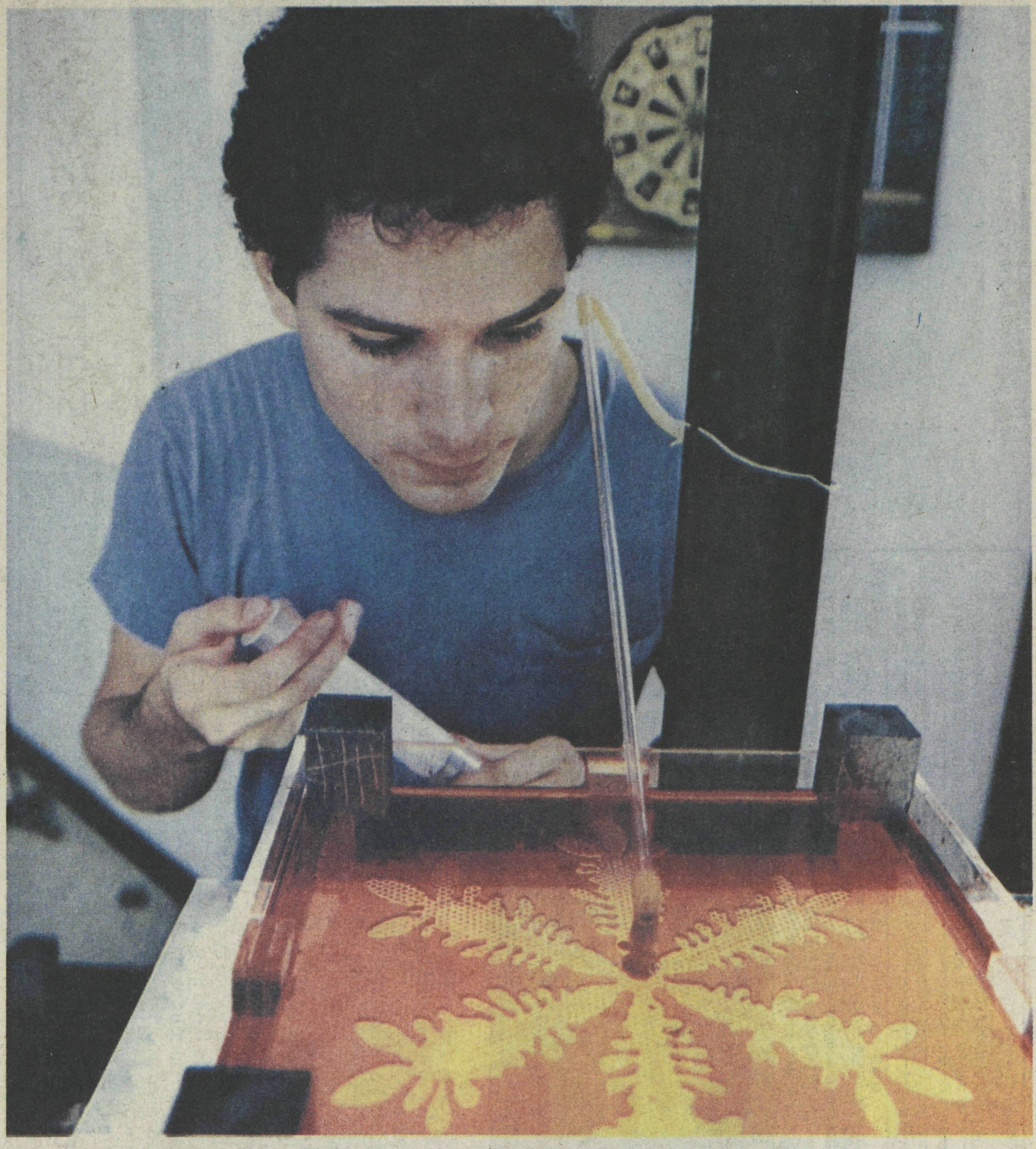
Michigan Today

Clues to the Mystery of the Snowflake



Physics student Tom Mueller pumps out a fluid 'snowflake' in an experiment that earned him and a fellow undergraduate a prize and an appearance before the American Physical Society.

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GYPSIES

They were no more born to steal than to suffer

By Terry Gallagher

The Gypsy's recipe for Chicken Kiev? Step No. 1: Steal a chicken.

The stereotype contained in that old slur is long-lived. Only this year, for example, a major state's Gypsy Criminal Activities Task Force held a seminar at which a policeman defined Gypsies as a "wandering group of people whose main reason to live is to steal" and then declared that Gypsies "are better organized than the Mafia."

Prejudice against Gypsies (or Rom, as they call themselves) is a worldwide and long-lived phenomenon, rooted in elite culture as well as folklore, "but that doesn't make these stereotypes less bigoted, painful or unjust," says U-M anthropologist William G. Lockwood.

According to the U-M scholar, who has studied Gypsies in the United States and Europe, "So-called Gypsy crime in the United States or abroad, to the extent to which it exists, is not so much the result of Gypsy culture — as some police officials would have us believe — as it is a reaction to the pariah status inflicted on Gypsies ever since their arrival in Europe, and the poverty this has meant for so many of them."

Gypsies are thought to have begun their odyssey in the Indian subcontinent, arriving in Europe around 1400 A.D. "Until the late 19th century," Lockwood reports, "Gypsies were literally slaves in the area now called Romania. And in this century, half a million of them were murdered by the Nazis. Even today, you can see signs on shop fronts in Europe that say 'Closed To Gypsies.' Is it any wonder that some individuals among them have adapted by resorting to petty crime?"

Prof. Lockwood notes that it is as false to generalize about Gypsies as it is about any other ethnic group. "Some Gypsies are in fact thieves," he says, "as are some members of every group. But others are doctors, lawyers and university professors clad in business suits and living in well-to-do neighborhoods."

As an anthropologist, Lockwood is interested in learning how the world's five to six million Gypsies adapt to the dominant cultures in which they find themselves — how, in particular, they have maintained such a strong sense of identity despite the severe cultural dislocations involved in moving from nation to nation.

GYPSY NOMADS preserve many images of the past within the present, as this photograph of a small settlement in Yugoslavian farmlands shows. Anthropologist William G. Lockwood, who took this and the other photos of Gypsies in the Bosnian region, says that the greatest wrong committed against Gypsies is the widespread notion that crime is natural to them.

"Most of this adaptation took place in the United States 60 or more years ago, when Gypsies were still immigrating here in large numbers," Lockwood says. "But in parts of Europe, the process continues today."

The features that identify Gypsies, according to Lockwood, include their language, Romany, which is related to the North Indo-Aryan (Indic) languages; a cohesive family structure; and a core of beliefs and attitudes about freedom. "These are the things that tend not to change even when the surface characteristics of Gypsy life do," Lockwood says.

Working for an hourly wage is anathema to many Gypsies who live in a traditional style, according to Lockwood, and many of their traditional occupations are suited to nomadism. Especially common are smithery or metal working, entertaining as musicians or animal trainers, trading in livestock, fortune-telling and manufacturing items for which the raw materials are free or relatively cheap, such as sieves, tambourines, brooms, baskets and rush mats.

"Begging is also common for some groups," Lockwood adds, "but in many cases it takes place as part of non-Gypsy festivals and must be understood in its traditional context. Often, it is akin to kids begging for candy on Halloween."

(Continued on page 2.)

THIS PASTORAL scene belies the Gypsies' harsh past, when an English city in 1636 could order the 'men to be hangied and the weomen to be drowned, and suche of the weomen as hes children to be scourgit throw the burg [whipped through town] and burnt in the cheeks.'

GYPSIES CONTINUED

(Continued from page 1.)

That law enforcement officials should adopt special measures to catch Gypsy wrongdoers is reasonable in one regard, Lockwood concedes, because of the insularity of the Gypsy population. "American Gypsies have maintained their sense of ethnic identity much more strongly than most groups," he says. "It is very common for fourth, fifth or sixth generation American Gypsies still to speak Romany as their first language, marry within the ethnic group and possess a very strong sense of ethnic identity" compared with other American ethnic groups.

But neither positive nor negative generalizations describe the variety in Gypsy societies, Lockwood emphasizes, which are "particularly heterogeneous and complicated, due probably to their great dispersal and the necessity of adaptation to different cultures in different places. Balkan Gypsies are not Spanish Gypsies are not English Gypsies. Even within a given area, there are settled and nomadic Gypsies, different national groups, different Gypsy tribes, each with its own dialect, subculture and characteristic occupations."

In Europe, Lockwood has studied the migration of Bosnian Muslim Gypsies from the Balkans into Western Europe. This migration and other pressures of modernization have deprived Gypsies of their accustomed place in society and brought them into new conflict with the standards of more settled societies.

"They've lost that niche they had, and are still in the process of finding a new one," the U-M scholar says. "All of a sudden, they've had to reexamine their lives."

THE FAMILY of Halil Salkanovic (center, back row), at one time the headman of all Bosnian nomadic Gypsies. Salkanovic befriended Lockwood and made the anthropologist the godfather of his son Safet (left). As Lockwood narrates in his reminiscence, the latter relationship ended unhappily.

THREE YOUNG smiths scallop the edge of a cooking pan. In 1478, a Balkan ruler granted the Gypsies 'freedom of air and soil to wander about and free fire and iron for their smithy.' Most of them, however, soon became serfs and were ultimately reduced to chattel slavery like that of Black Americans. Their freedom was proclaimed in various Central European countries from 1780 to 1866. There are now about 6,000,000 Gypsies in the world; 500,000 were murdered under German fascism.

In 1782, 45 Hungarian Gypsies were charged with murder. They pleaded innocent but were tortured until they indicated where the victims' bodies could be found. But no bodies were at the spot, so the Gypsies were accused of cannibalism and stretched on the rack until they confessed, 'We ate them.' They were hanged. Later, Emperor Joseph II ordered an inquiry into the incident; it was then discovered that no murder had been committed, except that of the falsely accused Gypsies.

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Jon Cosovich
Vice President for Development and Communication

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Sondra J. Covington, Terry Gallagher, Alice Garrison, Pat Roessle Materka, Suzanne Tainter, Suzanne Ramljak
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Bob Kalmbach
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Lockwood emphasizes that this is only the latest wave of Gypsy migration out of the region, a movement that has been going on ever since Gypsies arrived in Europe. "Most of the Gypsies in the earlier waves of migration have formed new Gypsy cultures as they adapted to new local environments," Lockwood says. "Many have taken up sedentary lives, some have lost their language, but all remain Gypsies."

Lockwood hopes that his study of today's migrating Gypsies will illuminate the process by which earlier waves have adapted to dominant societies. "I want to find out how Gypsies carve out new niches for themselves," he says.

In many respects, until World War II the rural areas of the Balkans were not much different than they were when the Gypsies arrived in the Middle Ages, Lockwood says, and a viable peasant society thrived.

"In such a society, the Gypsies served very important functions," he notes. "Their crafts and skills were not only desired, but needed. The baskets, sieves and woodwares, the rope and bricks, the iron goods and copper utensils they produced were the stuff of daily life."

Among horse traders the Gypsies served as middlemen, and the entertainment they brought to the marketplaces, through trained bears and such, was a relief from the sameness of daily life. Even the Gypsies' fortune-telling filled a need in a society "where there were neither psychiatrists nor self-help books," Lockwood adds.

"All that is changing now," Lockwood says. "With the switch from copper utensils to cheap enamelware, the nomadic coppersmith who came each year to re-tin is put out of work. And where there is television to hurry home to, no one pays attention to the trained bear in the marketplace."

A KALDERASH Gypsy woman hawks a copper pot in a Bosnian marketplace. Kalderash, the Rom word for coppersmith, identifies the Gypsy group that travels from place to place repairing household utensils. Prof. Lockwood says nomadic Gypsies choose occupations that allow freedom of movement. They resist working for an hourly wage, he says, 'as do certain segments of other immigrant groups, like the Greeks or the Chinese who prefer self-employment.'

On Becoming a Godfather

Prof. William G. Lockwood has become particularly close to the Gypsy family of Halil Salkanovic. This relationship has given Lockwood a perspective on Gypsy life that few scholars share. But, as he describes below, it also has brought unusual obligations.

In 1967, while I was in Yugoslavia collecting data for my doctoral dissertation on Muslim Slavs in Bosnia, I managed to visit every passing Gypsy band that camped in the area. Time after time my hosts in the Gypsy camps would tell me that I "had to meet Halil Salkanovic," then the headman of all Bosnian nomadic Gypsies.

One day, at the local weekly market, I met a Gypsy new to me who turned out to be none other than Halil. He told me that everyone had been telling him he "had to meet" this American who was interested in Gypsies. We became close friends. One day he came to me and asked me to be the "kum" (godfather) of his youngest son.

In Yugoslavia, this is a much stronger bond than the equivalent relationship in the United States, carrying a strong obligation of mutual aid between the godfather and the father of the godson. As Halil said when he asked me, "I know you would like to have a Gypsy kum, and I would like to have an American kum." In other words, we were in a good position to be of use to one another.

Giving Halil's son Safet his first haircut was the key part of the ceremony, a rough equivalent of a baptism, by which I became his godfather. He was between 1 and 2 years old, just barely walking. It was expected that I make a gift and I was told that gold was the appropriate thing to give. Not having any gold, I gave him some American money.

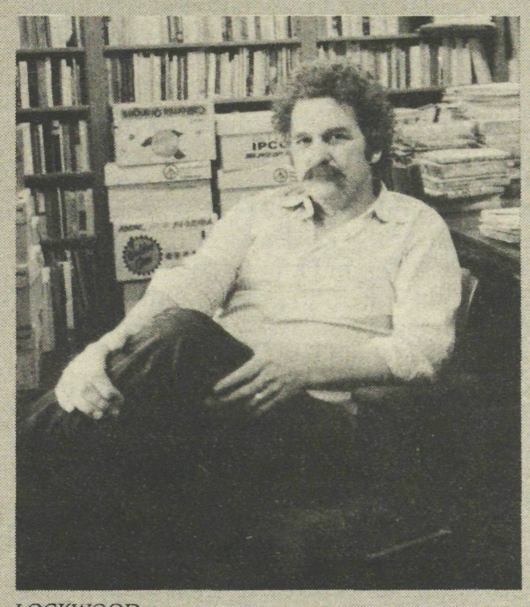
The ceremony was held in a room, bare except for a woodstove, that Halil had rented as a winter residence from a settled Gypsy. Halil's family camped in the room.

This place was a three- or four-hour walk from where I was staying, so I often remained overnight with Halil and his family. Because Halil was such an important figure among the Gypsies in the region, there would often be other guests and I became acquainted with many of them.

Other projects, always concerned with ethnicity, my principal research interest, followed this first one. My interest in Gypsies continued to develop, and when my sabbatical rolled around, I decided to initiate a project among Gypsies and to use my relationship with Halil to gain access to the community.

Meanwhile, Halil had taken his family to Western Europe, part of a wave of Yugoslav Gypsy migration to the West beginning about 1970. His sons and daughter had married and together with their children formed an extended family of about 30 members. This group traveled together, spending greater or lesser amounts of time in Italy, France, West Germany, and the Netherlands, and even toured North Africa for six months.

Last year, I received a telegram from Halil, saying that my godson was going to be married. After some negotiation, it was decided that I would contribute $2,000 to the bride price, part of my responsiblity as godfather. (I would like to convince the Internal Revenue Service to consider the $2,000 a legitimate research expense.)



LOCKWOOD

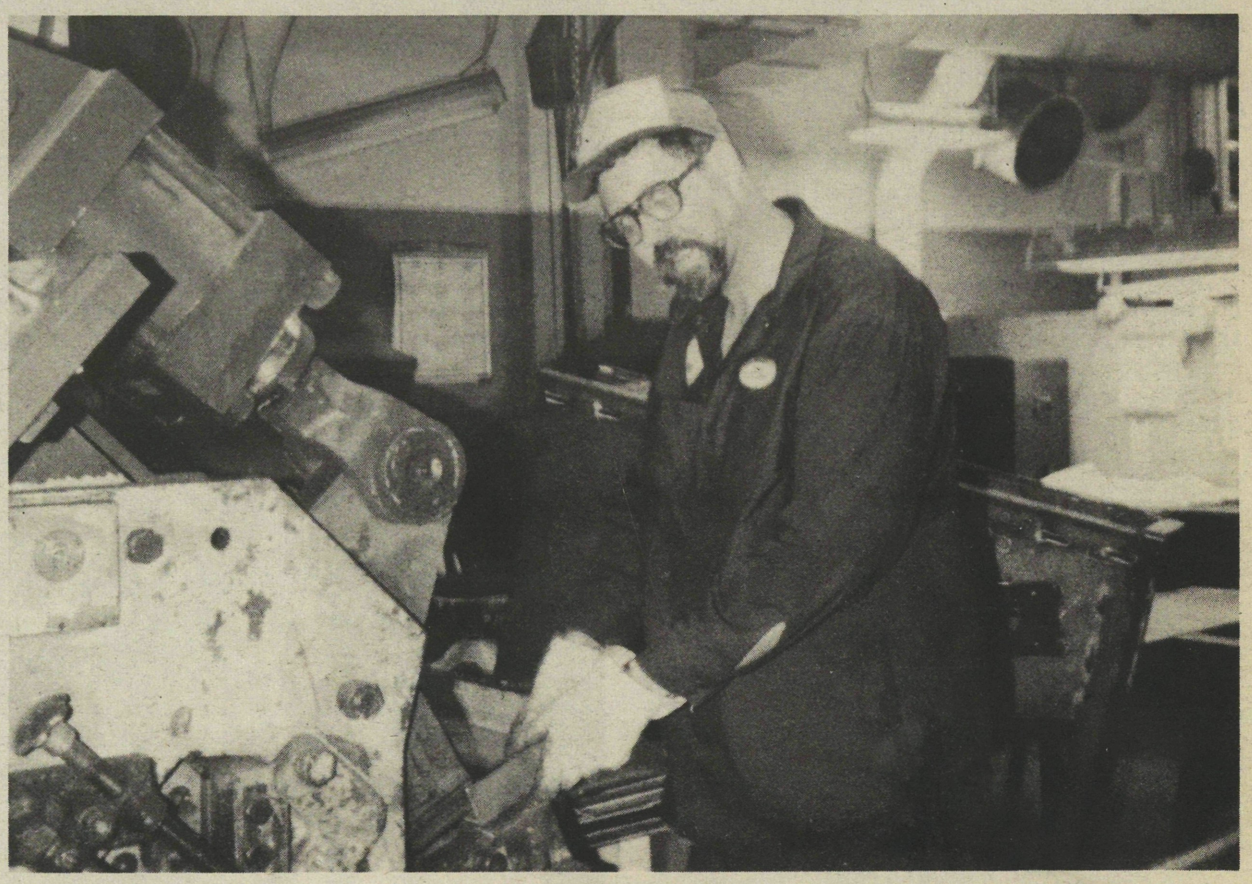
I met up with them in France where the wedding was to be held, but before the wedding could take place, I had to go off to Yugoslavia for a meeting. When I met up with them later in Rome, I found out that Safet had been electrocuted climbing a high-tension electrical tower — whether it was a desperate act or the accidental result of youthful bravado, I don't know.

My contribution to the bride price was used to erect an elaborate tombstone over his grave in Yugoslavia.

AUTOTOWN PHILOSOPHERS

Seeking to make the leisure class a reality

By Alice Garrison



AUTOWORKER Bill Love, a millwright in GM's steel fabricating factory in Flint, Michigan, supports the efforts of two U-M philosophy professors to transfer the time-saving benefits of automation to workers. The professors, Frithjof Bergmann and Richard Gull, have founded the New Work Center to study the feasibility of rotating jobs and reducing work time by four to six months a year. Love likes the idea so long as there are no losses in workers' living standards or benefits.

When a one-industry city is devastated by auto plant layoffs and closings, it doesn't look to philosophy professors for help. But in Flint, Michigan, potential aid has come in that unexpected form.

The professors, Frithjof Bergmann of the Ann Arbor campus and Richard Gull of U-M-Flint, began their collaboration on Flint's economic woes in 1980, when Gull saw Bergmann's 10-part cable television series, "Culture After the Elimination of Labor," and discovered that he and Bergmann shared an interest in the connection between social conditions and social thought.

The series dealt with the impact of automation on all aspects of work. Bergmann's premise was that automation has become not only broader, swifter and more powerful than many experts expected, but also far more destructive to workers, their families and their communities.

More specifically, Bergmann argued that "through a radical alteration of the structure — essentially of the scheduling — of work, productivity could be increased and jobs provided for many who otherwise would be unemployed." He proposed that, rather than push for a four-day work week — a trade union objective that Bergmann thinks is inadequate to solve unemployment and attendant social problems — society should mass leisure and work times into long periods — four or six months or more of intensive work, and then four or six months off.

That was thought-provoking TV fare, Gull felt as he watched the program, but could such lofty abstractions from academe be applied to the realities of the factory floor? He contacted Bergmann and proposed Flint, plagued by a more than 20 percent unemployment rate in recent years, as an ideal testing ground for some of Bergmann's ideas. Bergmann accepted, and last year, after a stint of determined fundraising, the two established the New Work Center in downtown Flint as a place to devise and test ways to revitalize workers and work.

Gull points out, however, that in the 1890s, with a million Americans unemployed (one-ninth of today's figure), scholars were pooh-poohed at first when they supported labor's call for limiting the workday to eight hours. He cites an article in the *Quarterly Journal of Economics* of 1895 entitled "The Effects of an Eight Hours' Day," which said: "The arguments of workingmen that the general adoption of an eight hours' day would raise wages and absorb the unemployed is well-known. A reduction in hours of work would be equivalent to the withdrawal from the ranks of men now employed of a certain number of laborers. The gap thus made would be filled by the unemployed."

"The main reason we've met with such interest and cooperation in Michigan," says Bergmann, who, with Gull, has lectured on their ideas in California, Texas and Canada, "is that this state has led the nation in automation technology and in unemployment in recent years."

Flint Mayor James A. Sharp Jr. agrees that Flint "is a good testing ground for the program. If it meets the needs of workers in Flint, it will probably work in other cities." But he believes that any restructuring of work "must retain the same benefits, salaries and opportunities for advancement that are currently available to workers."

So, far however, the New Work Center's programs are still on the drawing board. No company has as yet engaged the Center to help it implement a job rotation plan.

To test their ideas among workers, Gull and Bergmann have organized meetings with both employed and unemployed workers throughout the Flint area. In one such meeting last November, workers and union officials from the United Auto Workers (UAW) Region IC expressed interest in the idea of rotating jobs. Some, however, felt the plan threatened their job security and were worried that any effort to promote this idea to management would be turned against them.

Kathy Smith, whose husband builds Chevrolets, echoes the concerns of many working families. "The people in the plants are scared," she says. "They're excited about these new ideas. My husband is working seven days a week, and we'd like him to have more time at home, but he can't turn down the work because there's no job security."

Many employed workers feel pressed to work as many hours as possible as a hedge against the threat of future layoffs; others expressed concern that supplementary benefits would be cut in half if they shared jobs on a rotating basis.

"The benefit package is very important," Buick millwright Bill Love says. "There are a lot of questions that need answers. For instance: Who pays workers' comp? Who gets workers' comp? How will benefits be continued?

"The ideas about work have always come from the upper echelons, but they have ideological blinders," Love continues. "Management has a different reality — a different mentality. They're basically military men — engineering types — who fit well into the pyramid structure. They don't think about the human aspect."

Yet it is this human aspect that has stirred many women in the factories to action. According to Dionne Cooper, a member of UAW Local 651 and an active supporter of the New Work Center, "In 1982, when benefits were taken away because of lost time, women on the line at AC Spark Plug began talking during their lunch breaks, and organized a successful job-sharing project. If that worked, why isn't it possible to have six months on the job and six months off?"

Citing predictions of an additional loss of between 60,000 and 120,000 jobs in Flint during the next five years, on top of the 100,000 already lost, Michael Bennett, president of UAW Local 326, says, "We must conceptualize our role as union leaders, and we must plan for change. The problems we face in Flint and Genesee County are the problems the nation will face. If we can solve these problems here, we may be able to solve them on a much broader scale."

Mike Westfall, chairman of the UAW Local 598 adds, "Some people think Bergmann and Gull are ahead of their time with their beliefs, but we had better start thinking ahead of our time in order to get the people off the streets. We need to look at anything we can do to help the situation."

Despite some unanswered questions and concerns, union interest in Gull and Bergmann's ideas is clear; the UAW Council of Presidents endorsed a $50,000 donation for seed money for the development of the New Work Center.

Frithjof Bergmann (left) and Richard Gull

The Center's temporary headquarters in the Flint Newman House were donated by the Rev. James B. Bettendorf, director of the Flint Newman Center, and the Michigan Department of Commerce recently provided a $25,000 grant to help the Center create entrepreneurial opportunities for jobless and laid-off residents. Other support has come from the U-M administration in Ann Arbor.

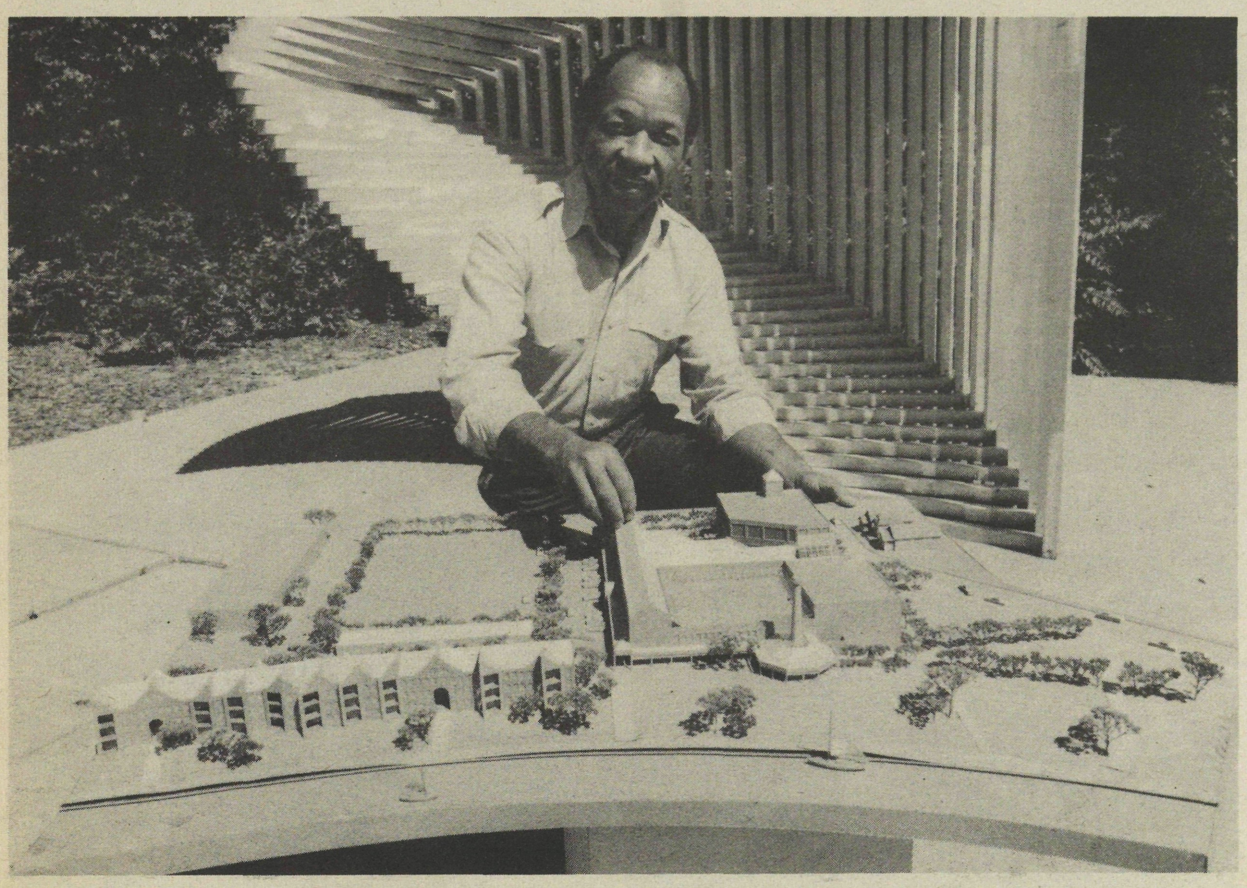
The two thinker/activists are often asked how two college professors have seemed to overcome their ivory tower images and relate to the unemployed factory worker?

"It's been easy," Gull says. "We all share the same problems. We all need to feed and clothe ourselves and our families. We all need to have meaning in our lives. Unemployment threatens our ability to accomplish these things. There may be a difference in how we earn our living, but that is the only difference, and it is not one that separates us."

Alice Garrison is an assistant editor in the Office of University Relations and Development at U-M-Flint.

Down From The Ivory Tower

Architecture professor links students to communities



JAMES CHAFFERS says architecture students' projects like this model for Port Huron, Michigan's, riverfront are 'at once visionary and real world.'

TWO ARCHITECTURE graduates who worked with Prof. Chaffers's first Community Design Workshop on Detroit's near west side check the progress of rehabilitation projects they planned with residents. Bud Ofiara ('80, at left) and Shan Lee ('85) now work with Detroit-area firms. 'Young people from the blighted neighborhood are now seeing you can't run from it,' Chaffers says. 'You've got to take a stand and fight to make it better.'

By Pat Materka

The scale model of a river development project in Port Huron, Michigan, is only paper and paste, a cardboard cutout of tiny storefronts, work places and residential dwellings.

But shrink yourself to step inside the buildings and stretch your imagination. The abandoned factories have been turned into office complexes, retaining the wood-beamed interiors and rustic infrastructures. Adjacent to the factories are renovated homes, shops and a farmers market, creating a public gathering place along the St. Clair River.

"It is an example of directing change," says James Chaffers, professor of architecture, "instead of letting change happen."

The Port Huron design is typical of hundreds of urban revitalization projects conceived by graduate students in Chaffers's Community Design Studio. The projects are visionary and idealistic, yet firmly grounded in the "real world." Each is aimed at improving the quality of life of an existing community.

Achieving this means gathering input from area residents and city government. The student who developed the Port Huron project, for example, commuted to and from the city on weekends to consult with planning officials. He surveyed area businesses to assess their interest in moving into the renovated factory space.

Other Community Design Studio students have formed liaisons with neighborhood associations, and even canvassed door to door to find out what would most please area residents.

"Architects must move down from the ivory tower and engage people in decisions that affect their living and working environment," Chaffers insists. "Rather than assuming the role of 'expert,' we need to gather community input and tap indigenous resources."

Under his guidance, the students have come up with a wide range of inventive designs for recycling abandoned buildings, melding old and new architectural concepts and reversing urban decline:

— For an area of northeast Ann Arbor, one student designed multigenerational living quarters that would encourage cooperative interaction among young families, students and elderly people of all ethnic and economic backgrounds..

— Another proposed a futuristic solar-heated institute of interdisciplinary studies for the space on the University's Diag occupied by the Economics Building before an arsonist destroyed it.

— A Muskegon student designed a lakefront recreation center and concert hall for his native city, aimed at reviving pride in Lake Michigan as a community resource.

Like Port Huron's riverfront complex, most of the Community Design Studio projects are still on the drawing board and most will remain there. But the forerunner of these efforts, a neighborhood revitalization project on Detroit's west side, is a full-scale success. It epitomizes the changes that can take place with architects and neighborhood residents working together to re-create a community.

The idea took root in 1969 when Chaffers was a U-M doctoral student eager to put his urban planning theories into practice. Detroit, in the aftermath of the 1968 riots, "had a dangerous, forebidding atmosphere and a general feeling of defeatism," he recalls, adding, "I guess that was part of its attraction."

Chaffers approached the Detroit Planning Department, and was met with "an almost unanimous, unyielding belief that what the city needed was more experts and specialists." Doubting that, Chaffers instead sought out neighborhood residents who had grassroots influence and determination to rebuild their community. His early contacts led him to Mrs. Wyona Howard, whom Chaffers credits with much of the success of the rehabilitation effort.

"Mrs. Howard has been president of the Grass Roots Organization of Workers (GROW) since its inception," he notes, "making it her full-time unpaid job." Firmly rooted, the collaboration among Chaffers, his students and the Detroit neighborhood residents continues today.

The two-square-mile GROW area includes 250 city blocks and 8,000 people. At the close of the 1960s, the area, hit by poverty and rioting, was in a marked state of decline, with inconsistent garbage pickup, abandoned houses, and streets and lighting in disrepair. The schools were locked after 3 p.m., and recreation space was almost nonexistent.

Chaffers set up his first Community Design Workshop in a formerly condemned building on Buchanan Street in the heart of the district. There, neighborhood residents met with U-M graduate students to plan and carry out rehabilitation efforts. Besides students in architecture and urban planning, others studying such fields as economics and social sciences have participated.

"A team that includes a student in economics might look into whether a neighborhood is getting its fair share of city services in return for its taxes," Chaffers explains. "A student in landscape architecture might assist in long-range planning for parks and recreation space."

The work has been painstaking and rewarding. "In Detroit, we haven't hopscotched from one part of town to another, but have chosen to work with one large body of people over time," Chaffers says. "That gives you a long-term basis for evaluating your efforts."

The neighborhood that once seemed destined for demolition is thriving. Vacant lots have been "adopted" by families and turned into playgrounds. Gardens blossom. Young families have moved back into this area where they grew up, buying and fixing up homes, returning to their roots.

The Port Huron riverfront development represents an ideal. The Detroit project is reality. In each case, Chaffers believes exposure to urban environments and the value of community involvement has significantly influenced the students' outlook and career goals.

"In architecture, as in other fields, the tendency is to specialize," he explains, "to become known for designing only school buildings or only supermarkets, narrowing your ideas to fit one mold.

"We are looking for grander patterns and relationships. A community is more than houses and buildings. It is people working and living together and caring for each other. By fostering this, we enhance the quality of life for everyone."

How to Learn a Language

Linguist says it's more adult's play than a child's

By John Woodford

Everyone has heard of the American tourist — the stock figure is a Midwesterner — who overhears a toddler jabbering away in its own language, asks its mother how old the child is, and learns it's 2 years old. "Imagine that," the tourist marvels, "only 2 and speaking Hungarian!"

"It's not that Americans or Midwesterners are less intelligent than other people," says Prof. John (known as Ian, as in his native Scotland) C. Catford, in analyzing the joke. "It's just difficult for many people from places like America, and particularly from an interior region like the Middle West, to realize that speaking more than one language is perfectly normal."

Prof. Catford, who was chairman of the Department of Linguistics before retiring this summer, notes that there are regions in Africa and Asia where historical and social factors make it common for people to know many languages.

In other areas, he adds, geography may influence people to know two or three languages, as the Swiss do. Or there may be a linguistic factor like that operating on the Danes, who tend to learn the languages of surrounding countries because their own language is not widely spoken and therefore attracts few learners among their neighbors.

"Americans tend to think it's exotic to know several languages, Catford says. "The British and French tend to be pretty bad that way, too. But actually, nothing extraordinary is demanded in talent or intelligence. Any 'dumb' person can do it."

So let's say you are now convinced that you should master another language, whether one you studied just long enough to fill a school requirement, one of a country you plan to visit or one you know nothing about except that it or the country in which it is spoken fascinates you.

You couldn't have a better guide for this linguistic journey than Catford, who tackled Russian in 1949 because it was the language of most of the scholarly writings on Kabardian, a language spoken by 320,000 persons in the northcentral region of the Great Caucasus mountain range. (See accompanying story.)

Some scholars identify two kinds of motivation for learning a language — instrumental and integrative. Instrumental motivation is that of a learner who wants to learn a new language only as a tool (including meeting a school requirement); integrative motivation, which has been found to be the stronger of the two, is that of a person who is interested in the history and culture of the people who speak the language.

Catford says there is a third type of motivation and it's the most powerful: interest in language — both in the language being learned and in language in general.

"It's unfortunate," he says, "that unlike students of other subjects, students of *a* language are often not interested in the subject, which is *language*. Too often the process of language learning is presented even to the adult student as a kind of arbitrary and moronic drudgery. This limitation of the scope of interest is unnecessary. If students can see that language is a microcosm of the interplay of universal humanity and cultural diversity, that is something which can hardly fail to fascinate any mature adult who is sufficiently free of provincialism to be planning a trip abroad."

To learn a language while learning about language, itself, requires the learner to pay conscious attention to two aspects of the second language, Catford advises: those that are language universals and those that are unique to the new language.

"Current linguistic theory," Catford says, "stresses, among other things, that humans have a built-in propensity for learning languages, not of any particular language, but of the kinds of rules that constitute the grammar of any language."

This propensity, linguists theorize, is linked to a *deep structure* that underlies all languages and is expressed by their sentences. "Many aspects of deep structure, and many types of language rules that transform elements of the deep structure to the surface structure of a language, are held to be universal," Catford says.

A MOUNTAIN settlement in the Caucasian minirepublic of Dagestan, where stone dwellings scale cliffs. The Caucasian languages are characterized by a multitude of consonants (as many as 80) and very few, often only two, vowels. (Photo was a gift from Soviet linguist to Prof. Catford.)

One apparent deep-structure universal, he explains, is the relationship expressed by the grammatical categories Verb (V), Subject (S), Object (O). All languages link these categories in sentences, although the sequence of the three categories varies in the surface representation. English is a typical Subject-Verb-Object (SVO) language: *The dog ate the meat*.

"Hindi and Japanese are SOV languages," Catford says, where the typical sentence would be: *The dog the meat ate*. And Arabic and Celtic are VSO languages, where speakers would say the equivalent of: *Ate the dog the meat*."

Another apparent universal of deep structure is the question and the corresponding grammatical rule for converting the surface sentence — the one we speak — into a question. In English, Catford observes, this involves interchanging an auxiliary verb or the copula "is" with the subject: "He has gone" becomes "has he gone?" "he took (did take)" becomes "did he take?" and "the man is in the boat" becomes "is the man in the boat?"

In Finnish, however, questions are asked by adding a question-particle, *ko*, at the end of the verb, while Russian places a particle *li* after any key constitutent of the sentence.

"In Scots Gaelic," Catford continues, "the questioner must substitute a special interrogative verb-form. A student of Scots Gaelic would first note that it is a Celtic language and hence has a VSO sentence form. To say: *The man is in the boat*, one says *Tha an duine anns a' bhata*, with the verb 'is' going first. So a word-for-word translation of that statement would be: *Is the man in the boat*.

To ask the question, *Is the man in the boat?* in Scots Gaelic, one says: *Am bheil an duine anns a' bhata*? "Am bheil" is the question-verb-form for 'is.'"

Another example of representations of a deep universal, Catford says, is the means of representing simple spatial, temporal or logical relationships as English typically does with words like at, on, in, after, by, and to. These are relatively independent words placed before (thus *prepositions*) a noun-phrase that is, itself, the endpoint of a two-fold relation: looking at you, bank on it, fall by the wayside.

"In other languages," Catford notes, "say Hindi, these relationships may be represented by *postpositions* — relatively independent words placed after the noun-phrase: *He is in the house* in Hindi would be, in effect, *He house in is*. The Finns represent simple spatial languages by attaching a special *suffix* as an ending to the noun: *(Han) on talossa* would be *He is house-in* to us, with a case ending on *talo* or house defining the whereabouts of the subject.

"But in Kabardian or other northwest Caucasus languages, these relationships are represented by *prefixes* attached not to the noun-phrase but to the

Inspired By 'Enry 'Iggins

As a 14-year-old in Scotland, John Catford liked to figure out how mechanical things like steam engines worked. Then he say Shaw's *Pygmalion* and became fascinated by the way the phonetician Henry Higgins tackled the linguistic problem of the sounds of language — an expertise exemplified in the lines, "The rain in Spain falls mainly on the plain," from the musical *My Fair Lady*, derived from the Shaw play.

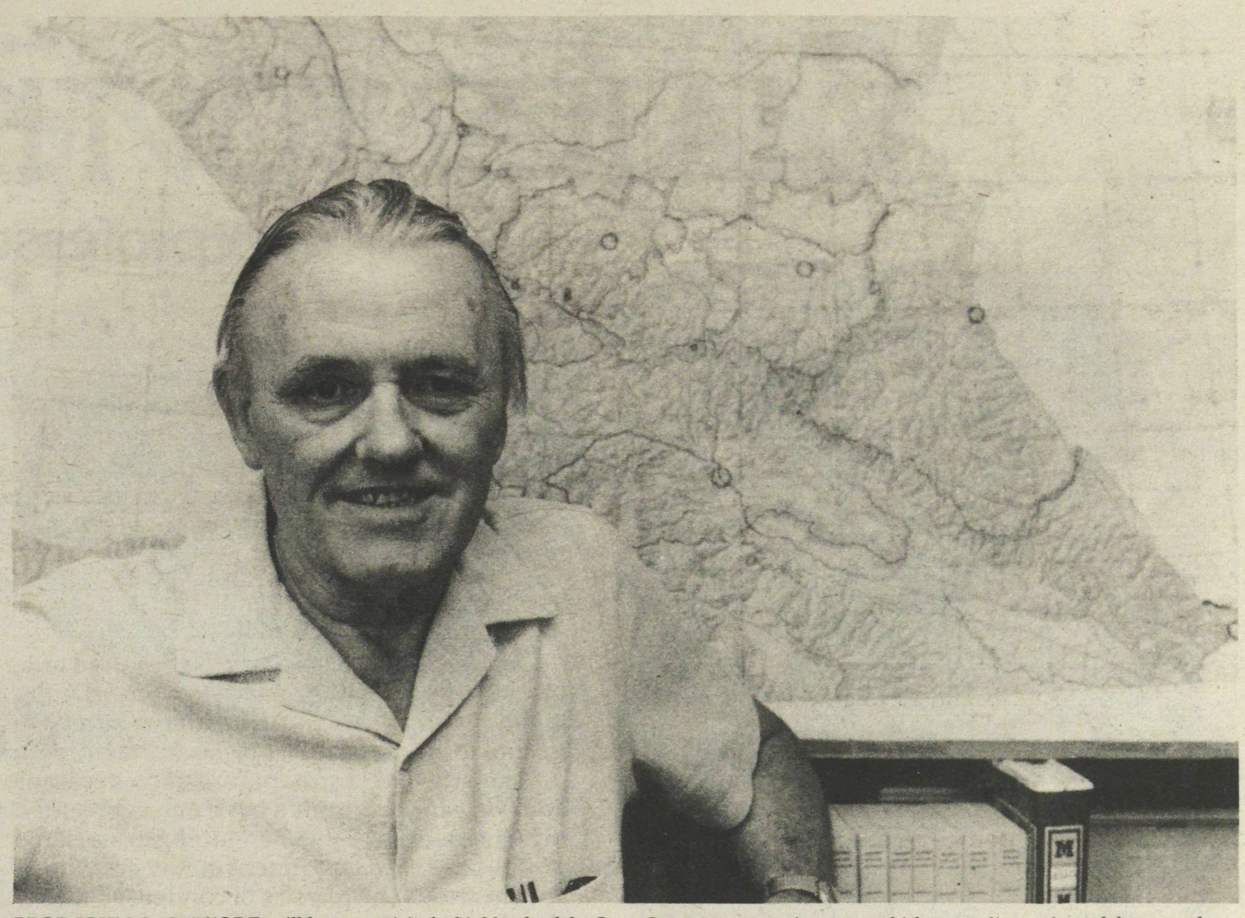
"I transferred my interest in how things tick from mechanics to language," Catford recalls, and he suggests that this interest into the workings of a language provides a far more effective and enjoyable learning experience than rote memorization.

Catford, who came to the U-M from the University of Edinburgh in 1964, is one of the few scholars in the West to have tackled the languages of the Caucasus, called the "mountain of tongues" by the ancients because the Colorado-sized Soviet region between the Black and Caspian Seas is the home of more than 50 languages.

His interest began in 1939 when he was in Greece teaching English during the outbreak of World War II. He went to a club for Russian emigres in Athens and saw a wild dance performed by a man with a knife in his mouth and clad in the dashing costume of Caucasian warriors.

Chatting with the dancer later, he learned the man spoke Kabardian, a language of the northern Caucasus. He asked the man to count to 10 for him, and the man did: *z, t'w, s', plh', tkhw, kh, bl, y, bghw, ps'*.

The sounds so fascinated Catford that he wanted to learn the language. That meant he'd have to learn Russian, too, because most of the scholarly work in the Caucasian languages is done by Soviet linguists. When he returned to Britain, Catford learned Russian and began his study of Kabardian and the many other Caucasian languages. He's been to Soviet Georgia, but is still hoping to be permitted to visit the boondocks of the Caucasus where most of the languages he's studied are spoken.



PROF. JOHN C. CATFORD still hopes to visit the highlands of the Great Caucasus mountain range, which cuts a diagonal swath between the Black Sea and the Caspian on the map behind his head. More than 50 languages are spoken in this Colorado-sized region in the Soviet Union — 37 of which are in the linguistics professor's special area of interest, Ibero-Caucasian.

following verb: Their *Ar wunem s'e-ss'* would be *He house in-sits* to us." (The marked "s" has a soft "sh" sound.)

These surface representations of deep structure can present a pesky problem to learners, Catford says, but an obvious one that can be rapidly mastered by repetition, "especially when the student has his attention directed to them by word-for-word English translations."

More profound and interesting characteristics of language, Catford says, involve the ways in which each language "interposes its own conceptual 'grid' between the speaker and his experience of the world, obliging the speaker to 'dissect' experience, for the purpose of talking about it, along lines laid down by the language. This is what is meant by *linguistic relativity*."

A simple example, Catford says, is the way Russian makes a speaker distinguish between kinds of *going*. If one is *to go* on foot, self-powered, the verb *xodit* is the "go" that must be used. But if one is going on an animal or in a vehicle, *to go* is *ezdit*.

A more complex example of the relationship of linguistic relativity to perception is offered by Kabardian. The English speaker has only a single category of interior relations in mind, as indicated by the following diagram.

	Static	Approach	Departure
English	in	into	out of

Kabardian distinguishes four modes of interior relations.

1. *de-* general internal relationship, particularly to a horizontally bounded space: in, into, out of a box, courtyard, street, etc.
2. *xe-* relationship to a filled space: in, into, out of a liquid, or gas, or metaphorically, a group, a party, etc.
3. *yi-* relationship to a space bounded on the bottom: in, into, out of a hole, pocket, cup vessel, etc.
4. *s'e-* relationship to a covered space: in, into, out of a house, tent, room, etc.

"A Kabardian learner of English or vice versa must not only learn a new notational conventional for these relationships," Catford says, "but a new way of selecting and grouping components of his experience of the world. I believe that to 'think in a second language' implies not simply knowing the correct term, notation or word, but the ability to categorize one's experience directly in the terms laid down by the new language."

Catford advises language learners to "surrender their own personalities" when working on or speaking the foreign language because internalizing a language can develop an empathy and a heightened awareness that opens opportunities for personal as well as intellectual growth. "This can be an exciting experience," he says, "and the only way, short of growing up in another country, of beginning to feel what it is like to 'think like a Frenchman or a Finn.'"

Finally, Catford suggests that the learner use initiative in creating opportunities to use the new language whenever possible, and "not be shy about it even if the occasion may sometimes be a little absurd."

He recalls studying Japanese briefly before a trip to Japan. He became interested in the construction *tumori desu* ("intention is" or, in English, "I intend") and also learned the words for "insect" and "spectacles."

When his guide was showing him around a temple, Catford stopped, took out his spectacles, pointed to a beetle on the floor and said in Japanese, "With my spectacles I intend to look at this insect."

"The guide was astonished," Catford says. "It was quite amusing. But most important, I still remember that Japanese sentence many years later when much else of the language learned during that three-week visit is forgotten."

If surrendering the self helps in learning a language, does this mean children can pick up a new tongue more easily than adults?

Despite a widepread notion to the contrary, it seems adults have a big advantage. "In general," Catford says, "it takes a child four years — the ages 1 to 5 — to acquire a pretty solid basis in the syntax and vocabulary of his language. This represents about seven hours a day of language practice for 1,461 days or about 10,000 hours.

"An adult under nearly ideal circumstances, say at the Defense Language Institute, spends about 50 hours a week for 40 to 50 weeks — a total of 2,000 hours — to gain fluency in a new language at least equal to that of the 5-year-old."

So as an adult you can be as much as five times as efficient as a child in learning a new language. That's an advantage worth testing against a 2-year-old Hungarian, isn't it?

CLUES TO THE MYSTERY OF THE SNOWFLAKE

A professor and 2 undergrads shed light on an old problem of beauty and order

COMPARE THIS PATTERN produced in a physics experiment conducted by senior Tom Mueller with the one on the front cover. The form above — made by pumping air into glycerine squeezed between two plastic plates — is an example of tip-splitting, the most elementary pattern formed at the interface of two systems thrown out of equilibrium. The tip evolves by broadening, flattening, forming a groove and eventually splitting into two new tips that continue to evolve in this fashion. The front cover shows an example of dendritic (tree-like) growth, which is characterized by stable tips that push out and branch. The snowflake-like symmetry is imposed by scoring the lower plate holding the glycerine. The scored lines are analogous to frame, or lattice, of the 2-hydrogen, 1-oxygen water molecule. This lattice imposes the six-sided pattern on the water crystal we call snow. U-M physicist Eshel Ben-Jacob theorized that the tip-splitting and snowflake forms were linked; Mueller and Rob Godbey ('86) joined Ben-Jacob in devising an experiment that supports the theory.

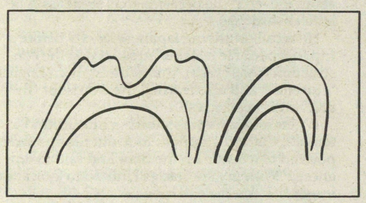
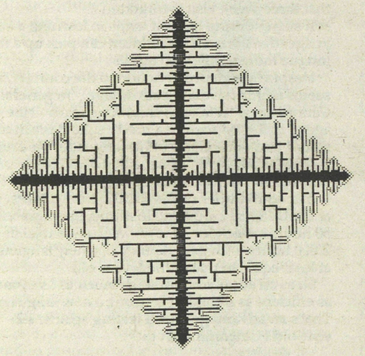


DIAGRAM on left shows evolution of tip-splitting; on right is evolution of dendritic growth, characterized by stable tip.



THIS COMPUTER-IMAGE 'snowflake' was 'grown' by U-M physicist Peter Garik and colleagues. It is a numerical solution to the problem of pattern formation in a lattice and confirms the theoretical model of Ben-Jacob and his colleagues.

By John Woodford

I may say with truth that whenever I consider in my thoughts the beautiful order — how one thing issues out of and is derived from another — then it is as though I had read a divine text, written into the world itself not with letters but rather with essential objects, saying: Man, stretch thy reason hither, so that thou mayest comprehend these things."

Johannes Kepler, 1604.

One way nature expresses the beautiful order that captivated the German astronomer Kepler is in the awesome shapes and patterns formed by the universe's "essential objects."

"The problem of pattern formation in organic and inorganic matter is a basic one in physics," says theoretician Eshel Ben-Jacob, an assistant professor in the Department of Physics whose special area is the physics of condensed matter. "Kepler, himself, tackled the problem in 1610 when he tried to discover the reasons for the six-pointed beauty of the snowflake."

But the mystery of the snowflake stumped Kepler. Not knowing about atoms and molecules, he couldn't tell that it is the shape of the water molecule that determines the snowflake's six-pointed symmetry. And even in this century, when the basic role of atoms was finally discovered, little was understood as to what made water solidify into snow versus ice.

Only in the last few years has progress in that area been made, and Ben-Jacob has contributed significantly to it. He has completed, together with two U-M undergraduates and other collaborators, a theoretical and experimental project that takes a giant step toward solving the mystery of the snowflake while also shedding more light on the formative processes of matter in general.

Ben-Jacob first tackled the problem with his colleagues (N. Goldenfeld, J.S. Langer and G. Schon) at the University of California at Santa Barbara's Institute for Theoretical Physics, where he did postdoctoral work before coming to U-M last year. The Santa Barbara team produced a mathematical model describing the general kind of pattern formation of which the snowflake is a type.

The general problem is: If two systems in equilibrium are driven out of equilibrium, patterns tend to form at the interface — the areas of contact — with the more stable system trying to "propagate" into the relatively unstable one. What determines the appearance of one pattern as opposed to another?

"When these dynamics take place as matter solidifies out of a vapor, as a snowflake does, or out of a melt, as in molten metal," Ben-Jacob says, "the most elementary pattern that occurs is called tip-splitting. In tip-splitting, a system pushes out a projection that is too unstable to hold its shape. The tip develops a groove that gradually deepens until it splits the form into two, and the two halves sort of fold in on themselves. Meanwhile, similar grooves have appeared in the two new tips, and the process continues."

At certain temperatures, ice solidifies from water in a tip-splitting pattern, Ben-Jacob notes, and one of the simplest kinds of creatures in which we can see pattern formation, the one-cell microsteria algae, grows by tip-splitting.

The snowflake, however, is an example of a higher-level kind of pattern formation called dendrites, from the Greek for tree. Dendritic forms are characterized by a main trunk or backbone from which stable parabolic tips, or "fingers," shoot out. The tips may have ornate branches feathering out from them.

Physicists long assumed that tip-splitting and dendritic growth were unrelated, even contradictory, processes requiring different mathematics and physics to explain them. But the Santa Barbara mathematical model — called a boundary-layer model — establishes a unity between the pattern-forming processes. It also provides a means of understanding and predicting the conditions under which water molecules will solidify into tip-splitting blobs of ice or symmetrical crystals of snow.

'SNOWFLAKE' in red glycerine. This pattern is created by grooving the lower plate, imposing a condition called anisotropy (see discussion of theoretical model in article) as the water molecule does to a snow crystal. Ben-Jacob and his colleagues predicted mathematically that this shape would occur under given conditions.

The Theory

The mathematical physics describing the phenomenon is extremely complex, dealing with such variables as surface tension, diffusion of latent heat, the kinetics of molecular attachment and crystalline anisotropy. The key role in the emergence of a dendritic pattern, however, is played by crystalline anisotropy.

To understand the concept of anisotropy, it helps first to consider its opposite, isotropy. An isotropic system is uniform in all directions for whatever property you are interested in. A hockey puck on ice is an example because it will travel in any direction on the plane of ice in the same way.

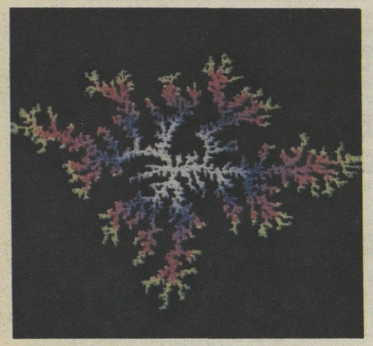
But in an anisotropic system, the properties are not the same in all directions. A compass needle, for instance, will prefer to point along the magnetic field. In crystalline anisotropy, the atoms depositing on a crystal surface (a crystal is a solidified body with a regularly repeated internal arrangement of atoms) prefer to attach on certain parts of the structure. The basic crystalline unit of ice is a hexagonal frame, or lattice, made up of three water molecules that prefer to attach onto the six axes of the crystal.

Ben-Jacob and his colleagues theorized that a local anisotropy — such as the structure of the water molecule — could account for symmetry on a macroscopic level, as in the snowflake's hexagonal branching.

The mathematical model positing the role of local anisotropy met with a good deal of skepticism, Ben-Jacob says. In lay terms, the critics said certain key "predictor" equations were more "fudge factors" than acceptable mathematical descriptions.

When he came to Michigan, Ben-Jacob was determined to test the theory in the laboratory, "to see if I could predict and then generate the two shapes from the same experimental system." None of his faculty colleagues in the instrumentalist/experimentalist area of physics had time to tackle the problem right away, however.

"But then," Ben-Jacob recalls, "two undergraduates, Tom Mueller and Rob Godbey, came to me and said they'd like to design the experiment with me for their major project." Godbey, from Charleston, W. Va., and Mueller, from Winnetka, Ill., did just that, building the lab with Ben-Jacob's prize money from a U-M Rackham research award. The team was later joined by Prof. Leonard R. Sander.



COMPUTER SIMULATION of a pattern related to dendrites, called a fractal. This fractal describes a diffusion pattern during electrochemical deposition. Fractals appear when there is no anisotropy; for example, when there is no surface tension and two miscible fluids are combined.

THREE-DIMENSIONAL tip-splitting during solidification produced this form in rocks.

The Experiment

The experiment is elegant in its simplicity. It is based on an experimental device called a Hele-Shaw cell, first designed in 1898 by a naval engineer of that name who was studying how water moves around a ship's hull. (A variant of a Hele-Shaw cell is the "executive pacifier," in which a plastic container is filled with two colored liquids that have an unstable interface and form various patterns as one rotates the container.)

The cell for this experiment involves tightly sandwiching a small amount of dyed glycerine between two plates of glass. A hole is drilled in the top plate, and air is pumped into the solution. "When this happens," Ben-Jacobs says, "we see tip-splitting patterns evolve in the glycerine. Then we repeat the experiment with a modification: We use a lower plate upon which we've grooved a lattice. The lattice is the agent of anisotropy.

"We again pump air in. When we do so slowly, we get tip-splitting patterns, but if we blow it in fast, we get many forms of 'snowflakes,' depending on how much pressure we use and how many grooves are in the lattice. We can make flakes with different numbers of points reflecting the symmetry of the lattice. The lattice corresponds to molecular structure. On Mars, snowflakes would be four-sided because they'd be made of carbon dioxide."

Ben-Jacob says that the variables in the experiment prove to be the air pressure and the spacing between the plates. The pattern can be predictably changed by altering these variables. "This happens with snow," he adds. "Snow at 32 degrees — wet snow — is disordered. But in mid-winter, we see highly ordered snowflakes with more elaborate side-branching because the colder temperature is a variable that drives the system further from equilibrium."

The experiment supports the assertion of the mathematical model that only anisotropy can allow for the stable parabolic structure of dendritic tips. The model is still controversial, however, and Ben-Jacob emphasizes that the experiment is a confirmation of it but not yet a proof.

BLUE-DYED glycerine in the U-M experiment shows parabolic tips with side-branching. This array of dendrites is similar to shapes seen in unsuccessful castings of metals.

The Implications

"The snowflake is a beautiful but relatively simple system of pattern formation," Ben-Jacob says, "but it is rich enough in phenomena to illuminate more complex problems."

When prodded to speculate on potential applications of dendritic solidification once the phenomenon is even better understood, he says, "In biology cells somehow carry within them, on a microscopic level, the information that leads to the shaping of tissues, organs and even whole creatures on the macroscopic level.

"If we understood pattern formation in biology, we could prevent birth defects from occurring, or determine the shapes of plants and other things to our benefit. But until we understand simpler, inorganic pattern formation, we can only dream of such things."

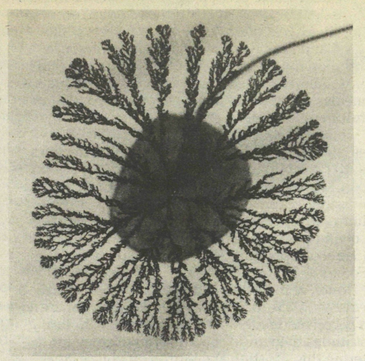
Ben-Jacob adds that the U-M work has already interested chemists and engineers. Finger-like patterns formed by solidifying multicomponent metals have long bothered metallurgists, and the electrical chemical industry has found that dendritic growths can ruin batches of semiconductors.

Microbiologists are finding the physicists' research applicable to human growth patterns. "In the embryonic stage of development," Ben-Jacob notes, "internal organs tend to be formed in the tip-splitting pattern, in a sort of inward growth pattern. At later stages of development, the dynamics change, and things shoot out dendritically, like the arms, legs and so forth."

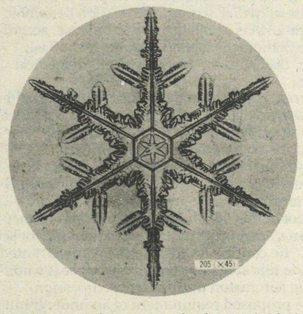
Tip-splitting is also a mechanism by which bacteria or certain human cells "swallow" impurities and hormones, carrying out a primitive sort of eating or defense — processes that could be used in the administration of pharmaceuticals.

"All of these different pattern-forming phenomena have traditionally been studied by different branches of science," Ben-Jacob continues. "It was hard for scientists to get an overall picture because they took different approaches to the phenomena and were unlikely to learn what researchers in other fields were doing. But now we can see these same shapes in different systems and operating at different scales. That is what physics is all about: universality."

ESHEL BEN-JACOB joined the U-M Department of Physics last year and resumed his inquiry into the 'snowflake-mystery' phenomenon of pattern formation in solidifying matter. He began his investigation as a postdoctoral scholar at the Institute of Theoretical Physics in Santa Barbara after receiving his doctorate from the University of Tel Aviv in Israel.



DENDRITIC FORMS like this one grown in the electrochemical deposition of zinc are unwanted occurrences in semiconductor manufacturing and other industrial processes. Greater understanding of the physics of pattern formation promises to help the industry.



MAGNIFIED crystal of snow — examples of symmetrical dendritic forms. Because he lived three centuries too early to know of atoms and molecules, the German scientist Kepler decided that snow's symmetry resulted from an inherent forming power in matter, which he dubbed the facultas formatrix.

ETHICS, SCIENCE AND MEDICINE

Revolutionary changes proposed in educating physicians

by Suzanne Tainter

Modern medicine is experiencing an explosion in scientific knowledge accompanied by increasingly complex ethical issues. Several professional and academic groups are trying to cope with this situation, but thanks to the efforts of a University-wide committee, Michigan may be the first with a blueprint for action.

The committee, the Task Force on Medical Education, has proposed "substantial and even revolutionary" changes in the required premedical and medical education of physicians. Its proposals, some of which are already being acted upon, are intended to produce doctors who better understand not only the latest advances in medical-related sciences, but also the ethical questions that surround their profession.

After two years of research, the six-member committee from the Medical School and the College of Literature, Science, and the Arts announced 23 recommendations for changing physician education at U-M from premedical training through the most advanced clinical phases.

Frederick Neidhardt, Ph.D., chairman of the Task Force and professor of microbiology and immunology, says the recommendations address the following major areas of concern cited in national discussions of medical education:

— extreme competitiveness and other symptoms of anxiety among premedical students (the so-called premedical syndrome);

— undue emphasis on memorization and acquisition of facts at the expense of developing critical thinking and problem-solving;

— inadequate preparation of physicians in such nonscientific areas as ethics and medical economics, the psychological and social aspects of disease, and the principles of statistical inference, decision theory and computer technology; and

— failure to select compassionate individuals as medical students and to develop compassion in future physicians.

In addressing these problems, the Task Force stressed the need for a solid grounding in ethics and thorough literacy in the new biology as part of undergraduate training and Medical School admissions criteria. The Medical School's curriculum, the report said, should emphasize problem-solving rather than memorization of minutiae. (See accompanying article for details on the Task Force's recommendations.)

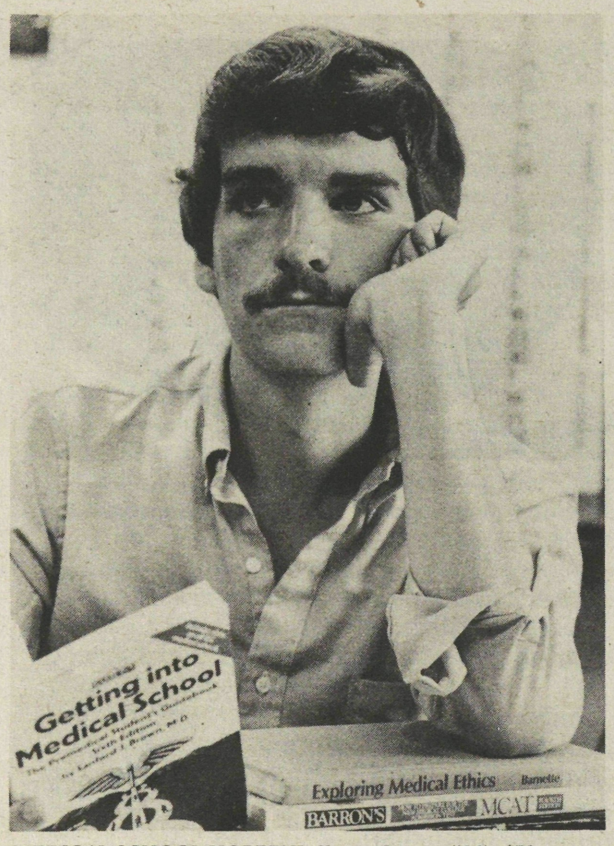
Much of the national discussion on physician education has focused on pre-med syndrome and a perceived failure to admit students with caring attitudes to medical school. Often blamed for fostering this situation are admission policies that look at success in science courses and rely strongly upon scores on the Medical College Admission Test (MCAT), which emphasizes scientific competence.

Johns Hopkins University has just abandoned the use of MCAT scores in admission decisions, but the U-M is unlikely to do so because, according to pathologist Gerald Abrams of the Task Force, "MCAT does predict success in medical school."

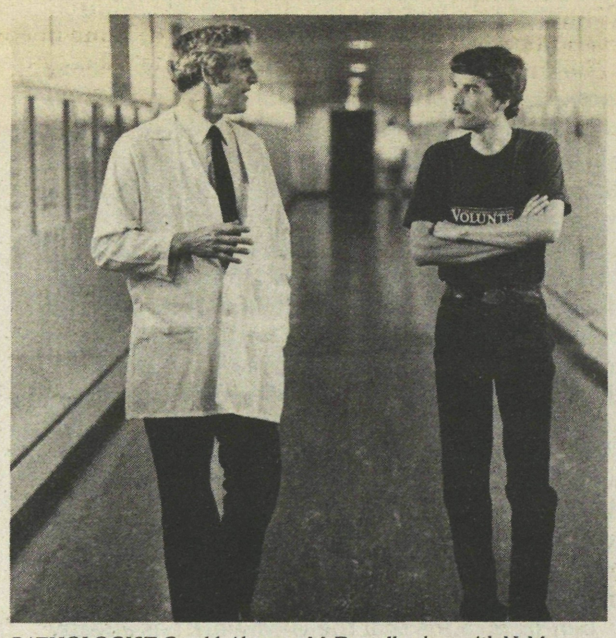
Abrams says there is no block of undergraduate courses in which good performance is a predictor that the student will be a good doctor. "If there were," he says, "we'd simply require those courses. Instead, we have to look for a background that reveals dedication to medicine and an interest in people and ideas.

"A lot of this talk linking scientific proficiency and an uncaring attitude is just a bum rap for science," he continues. "It reflects an unwarranted attitude that someone skilled in science is a nonfeeling automaton incapable of compassion."

The proposed requirement of an undergraduate ethics course has received much attention from LSA administrators. "We hope to expand the ethical offerings to all pre-professional students," says Task Force member James N. Cather, a biology professor and associate dean of LSA. "We want the kind of course that would have some theory, some history and some practical information. The course would look at ethics in day-to-day living, but not be a medical ethics course. We could all use that kind of ethical grounding."



MEDICAL SCHOOL HOPEFUL Shawn Cowper ('86) of Bloomfield Hills, Michigan, is majoring in English literature and molecular biology, gaining the broad liberal arts preparation that the U-M Task Force on Medical Education believes is necessary for the physicians of the 90s and beyond. (Photos by Peter Yates.)



PATHOLOGIST Gerald Abrams, M.D., talks shop with U-M Hospitals volunteer Shawn Cowper ('86) a pre-med student from Bloomfield Hills, Michigan. Abrams, a member of the Task Force on Medical Education, says, 'While we need doctors with broad ethical training, de-emphasizing the scientific aspects of medicine is the wrong way to go. Science and humanism are not mutually exclusive.' (Photo by Peter Yates.)

Cather adds that students in the humanities are not immune to the problem of training too narrowly. "Over-specialization is a problem in all fields," he notes. "We try to counsel students away from such narrow training."

Task Force chairman Neidhardt says, "In our interviews with the Michigan faculty and student community, we turned up no novel problems." Other, concurrent national studies like *Physicians for the 21st Century*, a report of the Association of American Medical Colleges (AAMC), reported similar issues face other schools and the profession as a whole, he points out.

Neidhardt feels the U-M report is superior to the widely publicized AAMC report, however, because it better addresses the revolution in biology and attendant ethical concerns, and is more readily implemented.

Although U-M is already implementing some of the recommendations, such as moving away from a reliance on lectures in teaching style, the ultimate impact of the report depends on the combined implementation of the recommendations, Neidhardt explains. "Everything depends on the vigor and quality of the leadership," he says. "This is not a report that a leaderless group can adopt."

Whatever changes U-M implements in the preparation of future medical students in the College of LSA will have far-reaching consequences, since more U-M graduates are admitted to medical schools than graduates of any other university in the country.

Summary of the Recommendations of the Task Force on Medical Education

Given the importance of ethical considerations in every phase of medicine, the Task Force recommends an ethics course be required that would provide a basic foundation for the ethical development of any educated person.

LSA should identify the college-level courses that truly meet the course area distribution requirements and emphasize the development of critical thinking. No special pre-medical curriculum should be established.

To get biochemisty and genetics into undergraduate education without tying up large numbers of class hours, the chemistry sequence should be streamlined so that two years of chemistry would include biochemistry. Statistics and computer literacy are suggested for all pre-medical students.

To underscore the importance of the recommended changes in pre-medical training in college, admission requirements should be rewritten to make more explicit the importance of broad liberal arts training. Required for admission would be course work in genetics, biochemistry and ethics.

Better ways to inform students about actual admission requirements should be explored, but no admitting changes are recommended.

In the first two years of Medical School, the basic science courses should be streamlined and excess clinical detail be removed. The courses should be taught with less reliance on lectures and fewer teachers per segment.

Ways should be explored to correct deficiencies in the courses on the non-science aspects of medicine such as ethics and humanism; social sciences, such as economics or law; and public health. Communication skills and personal mental health and stress management should also be included.

In the clinical phase, routine activities without educational benefit ("scut work") should be reduced and study time built into the training. A conscious emphasis on such essential clinical skills as interviewing patients, doing physical exams and logical approaches to problems should replace the "minutiae of clinical subspecialties."

The clinical phase should be expanded to include biomedical ethics, psychological aspects of disease and health care delivery concerns.

Task Force members were: Frederick C. Neidhardt, Ph.D., (chairman), professor of microbiology and immunology, Medical School; Gerald D. Abrams, M.D., professor of pathology, Medical School; James N. Cather, Ph.D., professor of biological sciences and associate dean, LSA; David G. Shappirio, Ph.D., professor of biological sciences and director, Honors Program, LSA; Nicholas Steneck, Ph.D., professor of history and director of the Collegiate Institute for Values and Science, LSA; and James A. Taren, M.D., professor of surgery and associate dean, Medical School.

Suzanne Tainter is a science writer for the U-M Medical Center's Office of Public and Market Relations and editor of Advance *magazine.*

Measles Shot Required for Incoming Students

In an effort to prevent measles outbreaks on campus, the University has implemented a mandatory immunization policy. Starting this fall, all incoming freshmen, transfer students and graduate students must present proof of immunity to German measles and regular measles before registration.

"Students should seek family health records and acquire immunization prior to their arrival on campus," says Judith Daniels, assistant director of the University Health Service and supervisor of the program. "Though voluntary immunization campaigns were launched to combat the increased incidence of measles, these voluntary programs failed to achieve a high level of immunity."

The mandatory policy was initiated with encouragement from local, state and federal agencies, including the Michigan Department of Public Health and the Immunization Practices Advisory Committee, as part of a national campaign to eliminate indigenous measles in the United States, Daniels says. Other academic institutions requiring immunization include Stanford University, the University of Iowa, Ferris State College, Kalamazoo College and Hope College.

"College-age populations are particularly susceptible to the disease," Daniels notes, "as witnessed in the recent outbreaks on the nation's campuses. Many young adults born in the late '50s and early '60s missed the vaccine that was licensed in 1963. Between 1963 and 1967 others were inoculated with an ineffective, killed virus. Still others were immunized before 12 months of age, too young for the vaccine to take effect. These factors combined with the high mobility of college students and the extreme contagiousness of the disease to increase the vulnerability of this population."

Preventing measles in college-age populations is especially important since side effects can be more serious in adults than in children, Daniels notes. The most common side effects are ear infections and pneumonia. More serious complications include swelling of the brain, brain damage and, in one of 3,000 reported cases, death.

"Persons over 20 years of age have had the highest death-to-case ratio in recent years, with an outbreak at Principia College in Illinois resulting in three deaths," Daniels reports.

Another goal of measles immunization is to protect unborn babies from intrauterine infection caused by rubella (German measles). Babies born to infected women can have congenital malformation and low birth weight, and the women risk premature labor and spontaneous abortion.

"In view of these facts, The University of Michigan feels a responsibility to its students and faculty", Daniels says. "It must take steps to provide a safe and healthy learning environment and to prevent further costly, disruptive outbreaks on campus."

Alumna in Residence: 'No Excuse for Hunger'

Unprecedented numbers of full-time American workers and their families are living in poverty, according to the U-M's 1985 Alumna in Residence Nancy Amidei, yet government response has been to cut back on programs that could ensure nutrition and other basic human needs.

"We are all more aware of hunger in Third World countries where there are few protein sources, terrible droughts, poor agriculture and a per capita income of only a few hundred dollars a year," Amidei said in an interview. "Even there, hunger is not acceptable. But it is at least more easily explained.

"But in our country," she continued, "we've been blessed with the best combination of soil and climate and productive agriculture. We may be the only country in the world that has a hunger problem but doesn't have a food supply problem. Here, there is no excuse for hunger."

Amidei, U-M adjunct professor of social work and a regular commentator on National Public Radio's "All Things Considered," has been analyzing government statistics related to the poverty count.

"The numbers are sobering: 35 million people — nearly 40 percent of them children — live below poverty," Amidei said. "While another 12 million have incomes just above the poverty threshold. That makes one in five Americans living in a low-income household and growing numbers who are at risk of hunger."

Since 1978, the federal statistics show that there are a third more full-time workers who are poor, she said. "More poor families were headed by a full-time, year-round worker in 1983 than at the end of the 1974-75 recession," she commented. "And despite their consistently strong effort, these families are farther from escaping poverty today than they were just five years ago."

Amidei, who has been executive director of the Food Research and Action Center in Washington, D.C., and deputy assistant secretary of Health, Education and Welfare, said, "I don't think we've become an uncaring country. I'm impressed by the number of people who run the soup kitchens and homeless shelters and provide other important services. But churches and volunteers can't do the job alone. Public-private partnerships mean that the government must fulfill its share of the responsibility. With adequate funding, we have programs in place that can make the difference."

WHEN HE was performing in professional diving shows in the mid-60s, U-M Diving Coach Dick Kimball was known as the world's most inventive and versatile tower diver. Kimball was the NCAA diving champ (1957) and a three-year All-American as a U-M undergrad.

Swimmers' Hall of Fame Inducts Coach Kimball

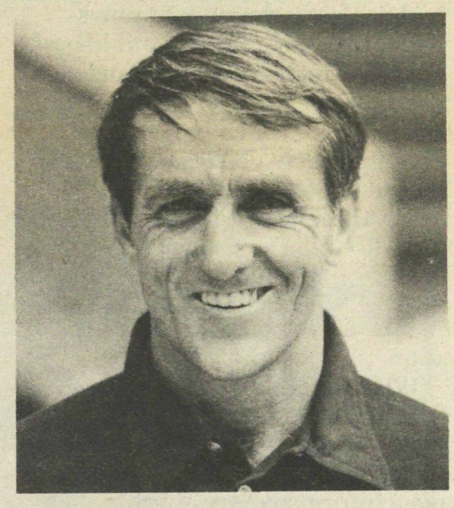
Dick Kimball, U-M diving coach for the last 25 years, has been inducted into the International Swimming Hall of Fame in Fort Lauderdale, Florida. Recognized for both his diving and coaching careers, Coach Kimball became one of only three coaches in the hall, where his achievements are commemorated in a permanent exhibit.

Kimball gratefully acknowledges the honor bestowed upon him by the 25-person selection committee of the world's diving experts, but he's not one to rest on his laurels. "In coaching, I never look back, I look forward," he says. "Nobody wants to know what you did last year. It's what you do this year that counts."

But when Kimball does take the time to look back, he'll see a string of medals and coaching successes, including Olympic champions Bob Webster (1960 and '64), Micki King (1972), and Phil Boggs (1976), the national collegiate championships of Matt Chelich, Ron Merriott, Kent Ferguson, Julie Bachman, and Christina Seufert, as well as seven Big 10 Champions. Perhaps Kimball's most remarkable success involves his son Bruce, who survived a near fatal accident to become a diving silver medalist at the '84 Olympics.

In addition to his role as U-M diving coach, Kimball spends his summers in Brandon, Florida, where he directs a diving camp. His camp plays an important role in the success of Michigan's diving team, providing the divers with eight weeks of intensive training and providing Kimball with the opportunity to scout talent.

What does the coach look for in a diver? "Good toe point," he says, "and good stretch — someone who rides the board well and is pleasant looking. You don't always get all these qualities, but in the U.S. diving system, which functions on a collegiate level rather than through a national program, we don't weed deficient divers out. We give them a chance to improve. This is the strength of our system. Many divers that proved successful after a time would never have made it through the more restrictive systems of China or Eastern Europe."



Dick Kimball

Kimball says that aside from the constant repetition of dives to perfect form and technique, a coach must constantly help his students break down fears. "For one diver," he explains, "it's the fear of going off backwards, for another of doing a triple flip. Then there are traits like competitive instinct that can't be taught, only cultivated."

LETTERS

'Oh, Nicaragua' debated

MUCH IMPRESSED by your humanistic article on Nicaragua. It suprised me when reading *Michigan Today* I expect a U-M Rah-Rah approach with a heavy slant on science, business, arts and literature for profit and esteem. I like hearing about normal people working for peace and understanding.

John Montrose '75
San Francisco

I WAS DELIGHTED to read the April 1985 edition of *Michigan Today*, and your "Oh, Nicaragua." And I was surprised to find that there was even the slightest interest on the U-M's part in Latin America. Both I (AB 1932, JD 1934) as publisher of *The Times of the Americas*, and my brother Carl (AB 1932, MA 1933) as the editor, have been unable to find any such interest. *The Times* is used in scores of colleges, and in many as a teaching tool with bulk subscriptions. Yet our only copy to Ann Arbor (aside from University Microfilms) goes to the Serials Division of the Library.

I would appreciate it if you would see to it that those who might be interested know that a U-M alumnus had the last independent newspaper in Cuba and now publishes the only English-language newspaper in the world entirely dedicated to news of Latin America. (Even our new young assistant editor is a U-M product!)

Clarence W. Moore, Publisher
The Times of the Americas
910 17th St., NW, Suite 933
Washington, D.C. 20006

WHEN I FINISHED reading Sondra Covington's excellent article, "Oh, Nicaragua!" I wondered why she had not included in her most informative piece some statement as to what the orientation of the Sandinista government is. That is, since much criticism has been raised about the Sandinista government's having a Marxist-Leninist political orientation, why wasn't this issue touched upon? Some discussion of such an issue would, in my opinion, round out the story and make it even more complete. It is good to know what the U-M family is doing in Nicaragua. Keep up the excellent reporting.

John B. Hawley '57
Carbondale, Ill.

"OH, NICARAGUA" has disturbing overtones. The general tone of the article is distinctly pro-Sandinista and the quotations could have been recorded by a *Pravda* reporter on the streets of Moscow. Obviously the Somoza regime was repressive, however it seems incredible that a group of faculty and students from U-M observed only good and humanitarian deeds by the Sandinistas. Perhaps they all wore special rose-colored glasses or had their heads stuck in sand (inista). Again perhaps their "facts" were derived from the free press in Nicaragua.

Donald L. Holley
Lansing, Michigan

A NICARAGUAN mother greets her daughter upon returning from a month at the front. (Photo by Gregory Fox.)

THIS IS in response to the article "Oh, Nicaragua." I have read the quoted remarks by the group who have recently been helping the farmers and university in Nicaragua. There are several aspects of the problem which have been sidestepped by the article.

Surely the group realizes that the farms and universities are now instruments of the state of Nicaragua. The revolution there was not like any other revolution of the past but is Cuban-type, which after a few years will own all the land and exercise as complete control over everything as is necessary to maintain power. The first few "elections" will have some mock opposition, because this goes over so big with our people.

The aforementioned portrayal does not square with our own government's portrayal of Nicaragua as a threat to its neighboring states and ultimately to our republic. Let's see if there are any other witnesses besides the thousands of Contras and refugees (those who escaped alive): Yes, there is. Bishop Rene Garcida of the Roman Catholic Church says, "The Sandinista regime is well on the way to becoming a repressive totalitarian regime on the left and that it is already much worse than the brutal dictatorship of A. Somoza" (*National Catholic Register*, May 5).

According to *The Wall Street Journal*, the typical wage for the workers in Nicaragua (not the insiders) is 18¢ per day and tooth paste costs too much for their budgets.

"Personal interest" and "interest in technical problems" do not explain why these individuals chose to take part in a program conducted by an enemy of our country. The spokesmen for Nicaragua would certainly not be reliable as a source of historical information, because they have no scruples against lying. Indeed, this is one of the outstanding traits of global Leninism.

None of these individuals mentioned whether they tested the spirits to see whether they are from God. One should not believe every spirit but should test them to see whether they are of the truth.

Norman Dittmar '63
Rochester, Minn.

I STRONGLY OBJECT to the one-sided view of Nicaragua you presented. You gave a typical one-sided half-truth overview of the leftist, with the United States blamed for the ills of the world. If you want to publish an article on Nicaragua present both views — and present the truth.

Donald M. Hosmer '43
Indianapolis, Ind.

MY THANKS for dealing with Nicaragua in your April issue. I am hopeful that the "bottom line goal" of the U.S., attributed to Professor McDonough, as the installation of a friendly government was not correct. Such reasoning would justify Soviet intervention in Afghanistan and South African intervention in Namibia, just as surely as it would justify U.S. efforts that have toppled popular democratic governments in Chile, in Guatemala and now in Nicaragua.

This game of power and influence among oppressive governments often backfires as it did with U.S. support for the Shah of Iran. More important, for those of us who still believe that the United States stands for something other than the acquisition of power, the respect for a popularly elected government, seeking friendly ties with the U.S. and with its neighbors, would seem obligatory.

Marc Pilisuk
Davis, Calif.

YOUR ARTICLE, "Oh, Nicaragua!" by Sondra J. Covington was most excellent. I hope it made your readers stop and think of what is going on in Central America. I am sure you will have received some negative replies, but here is one that takes a very positive approach. Keep up the good work and let's have more thoughtful articles like this one.

Dr. Carl A. Viehe '39
Buffalo, N.Y.

THIS IS JUST a quick note to express my appreciation for the excellent article on Nicaragua. I am very pleased as an alumnus that people from The University of Michigan have gone to Nicaragua to help the people there and to examine the situation first hand. Congratulations, U-M.

Bob Brister '78
St. Petersburg, Fl.

Interested in Koykkas

THANK YOU for the fine April issue. I was especially interested to read of the deaths of Mr. and Mrs. Thomas Koykka.

Margaret C. Hopkins
Ridgewood, N.J.

Recalls physics lecture

MICHIGAN TODAY does actually manage to hold my interest moderately. I was pleased by the Nicaragua coverage in the April issue. One of my major memories from an honors math-science sequence was Physics Professor Gerald Ford talking about how he had traced down Kepler's (I think) original geometric proof of the equal areas in equal time ellipse behavior (or was it Newton's association of this with inverse square gravitation?), re "The Copernican Projection."

The Dow article cravenly avoided issues of anti-recruitment vehemence, although the disclaimer of non-interference of Dow with U-M and vice-versa is well-placed, the idea that both deny any commitment to changing the other is characteristic of an attempt to avoid ethical considerations. H&R Block's autobiographical retellings reminded me of *Fortune* interviews.

John Pettengill
Blacksburg, VA

Joys of riflery

DOESN'T the University have a Rifle Team any more? I fired on the Rifle Team 1925-6-7. Group athletics and spectator sports do not appeal to me. I still fire competitive rifle matches. It is a sport that can be pursued by young and old — all one's active life. I will soon be 83 years old.

Howard J. Kerr, BS '25, MD '27
Muskegon, Mich.

The U-M has a Rifle Club open to students, faculty and staff. It occasionally competes with the clubs of other schools. Club representatives can be reached through the Michigan Union. — Ed.

Reducing U.S. debt

I AM a graduate of 1957 School of Public Health-MPH. (My name on graduation was Barbara J. Newell.) I started in March '85 a grassroots "Dollars For America" voluntary effort to inform and encourage all Americans to send what they can as often as they can to help reduce the Federal Debt. I've had great support regionally, much TV, radio and news coverage. A State Senate Resolution was passed April 9th supporting this effort. I'm asking donations to be mailed to "Dollars For America," Bureau of Public Debt., Dept. G, Washington, D.C. 20239-0601.

Currently 33¢ of every tax dollar we send to Washington goes just to pay the interest on the debt. The Congress or the President must cease deficit spending and all of us must work together to solve this economic mess. We can make a difference.

Jeannine Grubbs '57
Topeka, Kan.

The Wonderful Spin We're In

Placing a nice spin on a billiard ball is known as "using English" but is actually an example of using physics. Although physicists aren't known to be unusually adept with a cue stick, they are deeply interested in the phenomenon of spinning — especially the inherent movement of protons, those tiny, constantly spinning particles that are found in the nucleus of an atom, along with neutrons.

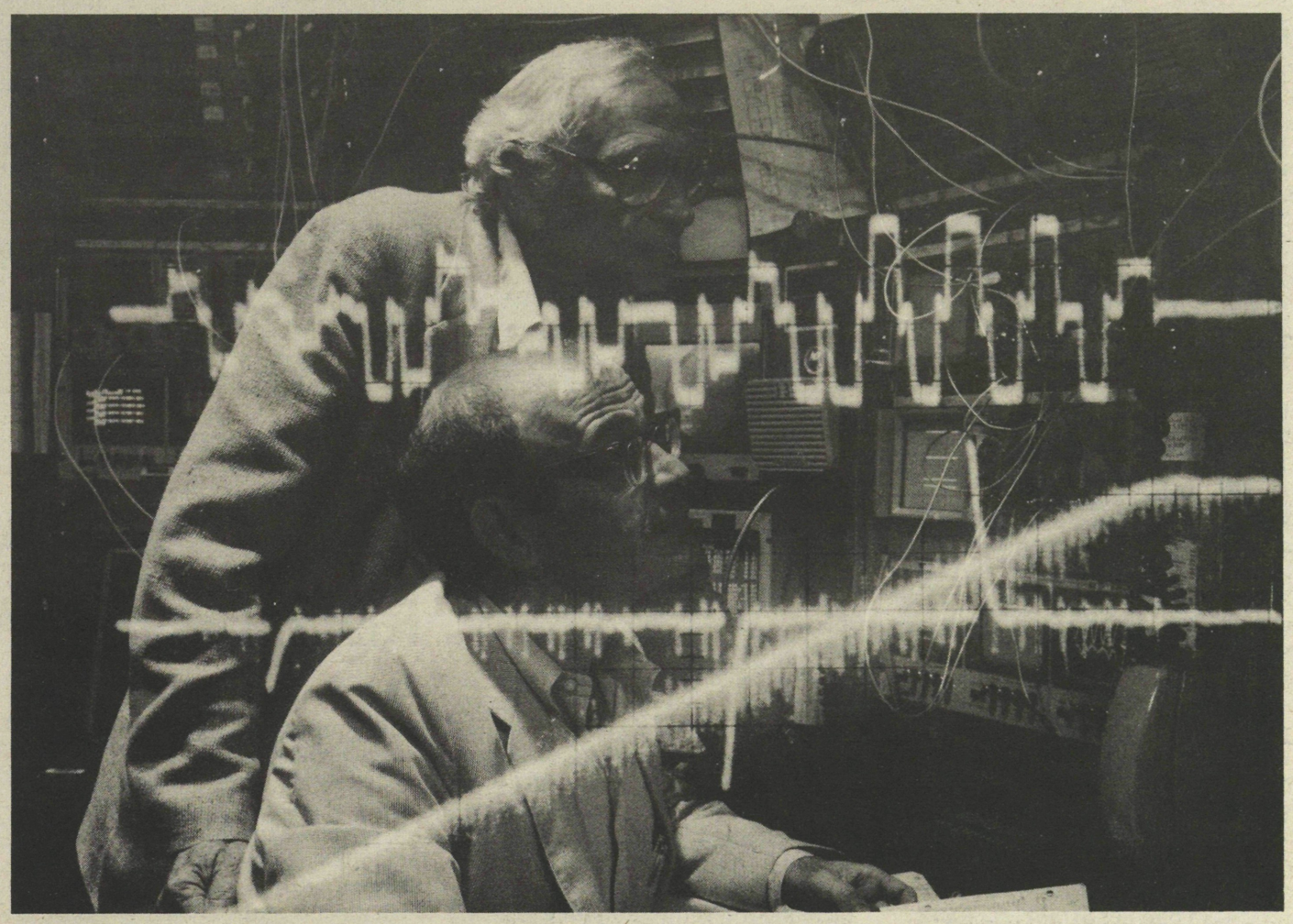
Earlier experiments with a huge accelerator showed that two protons experience the most violent collisions when they spin in the same direction, but tend to pass through each other when they spin in opposite directions. The latest experiments revealed that these violent collisions occur mostly when the protons are spinning clockwise.

"We were surprised, because no one expected any behavior of this type," says Alan D. Krisch, professor of physics, who presented a paper on the subject at a national meeting of physicists. "Science is the most fun when you are doing exploratory studies, and when you find something totally unexpected, that's exciting."

Krisch says that physicists don't understand why it's mainly the clockwise-spinning protons that have the violent collisions. "Many theorists had predicted that this would not happen, and now that it has happened, there are no satisfactory explanations," he says.

Scientists speculate that some day the study of these spinning proton forces may aid in the development of fusion-type nuclear power that uses water for fuel instead of uranium, which is used in current fission reactors.

Krisch and nine other U-M physicists were part of a nationwide team of 18 scientists who participated in a five-year, U.S. Department of Energy-sponsored study of spinning protons.



WATCHING PULSES of the highest energy polarized proton beam ever achieved are physicists Alan Krisch of U-M (seated) and Larry Ratner of the Brookhaven National Laboratory on Long Island. The image on the oscilloscope screen (superimposed on photo) helps Frisch and his team track the spin direction of protons accelerated to an energy of 16.5 billion electron volts by Brookhaven's Alternating Gradient Synchrotron. (Photo by Mort Rosen/ Brookhaven.)

Duderstadt on Science Unit

James J. Duderstadt, dean of the College of Engineering, has been nominated by President Reagan as a member of the National Science Foundation for a term expriring in May 1990.

Dean Duderstadt joined the University in 1969 as an assistant professor of nuclear engineering. He became an associate professor in 1972, a full professor in 1976 and dean in 1981.

Duderstadt has served as a consultant to the NASA Lewis Research Center, the U.S. Army Missile Command and the Argonne National Laboratory.

A 1964 graduate of Yale University, Dean Duderstadt received his M.S. and Ph.D. from the California Institute of Technology.

The Oldest Astronaut

A U-M graduate became the oldest astronaut ever to fly in space when the space shuttle "Challenger," with the Spacelab 2 mission aboard, was launched in July/August.

Karl G. Henize (pronounced HEN-eyes), 58, who earned a Ph.D. degree in astronomy in 1954, operated the most sophisticated array of astronomical instruments ever orbited on a manned spacecraft, studying the sun, the outer fringes of the earth's atmosphere, cosmic rays and distant galaxies.

"I've always had a fundamental interest in space travel," Henize said before the flight. "It's a corny story, but I got turned on to astronomy by Buck Rogers when I was 5 or 6, and I thought that if I couldn't go into space, at least I could look at it with telescopes."

Henize, a Cincinnati native and University of Texas adjunct professor of astronomy, was in charge of a U-M observatory project from 1948 to 1951, post that took him from California to South Africa, where he administered a program observing the southern sky.

Henize designed an ultraviolet camera used in the Gemini program and built a number of instruments for space flight since his appointment by NASA as a science-astronaut in August 1967. He was awarded the NASA Exceptional Scientific Achievement Medal in 1974. He was a member of the astronaut support crew for the Apollo 15 mission and for the Skylab 2, 3 and 4 missions.

Other U-M astronauts include James Irwin, Jim McDivitt, Jack Lousma, the late Edward White and Alfred Worden and David R. Scott.

STUDENT GENEROSITY

By Suzanne Ramljak

The image of the self-serving, ultra-competitive, venal preprofessional student has been modified, if not put to rest, by students at the Law School and the School of Business Administration.

Recognizing the need for new development sources, students at these two Schools have initiated pledge programs that show generosity toward their classmates, schools and society.

The older of the two programs is the Law School's Student Funded Fellowship Program. Launched in 1978 with the primary goal of supporting public interest law, it is run by a student board that conducts an annual fundraising campaign among all students, but aims most strongly at those who've landed relatively high-paying summer internships in corporations or large law firms.

The interns are urged to commit 1 percent of their income to a fund that subsidizes the summer salaries of classmates with internships in firms, agencies or organizations involved in public interest or public service law.

Because of the nation's legal system, says Bob Schiff '85L of Pittsburgh, co-chairman of the program, public interest organizations that are non-profit and committed to the disadvantaged, are poorly funded and greatly understaffed, leaving areas of the population underserved.

"Many students with a genuine interest in public service law find little money or opportunity there," Schiff explains, "so they take a place in a mainstream practice. But by providing a subsistence income to students interested in the public domain, they can still help extend legal services to a neglected portion of society."

Schiff says the program also has a larger goal. "Though the financial aspect is important," he explains, "we also wish to encourage future lawyers who will have the money and power to effect social change, to get in the habit of thinking of others."

Andy Roth, '86L, says he's contributing to the fund because he has "great respect for those who sacrifice their own well-being for the public good. Though I sought employment in a private firm, I regretted not being able to help in the public domain. This was my way of contributing."

Student contributions have increased from $3,000 in the first year to $25,000 in 1985. The number of recipients has surpassed 25 this year, in positions with groups ranging from the Legal Services for the Elderly Poor in New York City to the National Center for Youth Law in San Francisco.

One beneficiary of the fund, Richard Nagel '87L of Glenview, Illinois, says working with the National Wildlife Federation in Ann Arbor this summer has been an "amazing experience — it's given me a tremendous amount of responsibility that I couldn't have got without the program."

The record for the business school's Student Pledge Program is equally impressive, generating over $100,000 in student pledges in this, its sixth, year alone. Essentially an alumni program, students are asked to make an initial pledge that increases gradually in the five years following graduation.

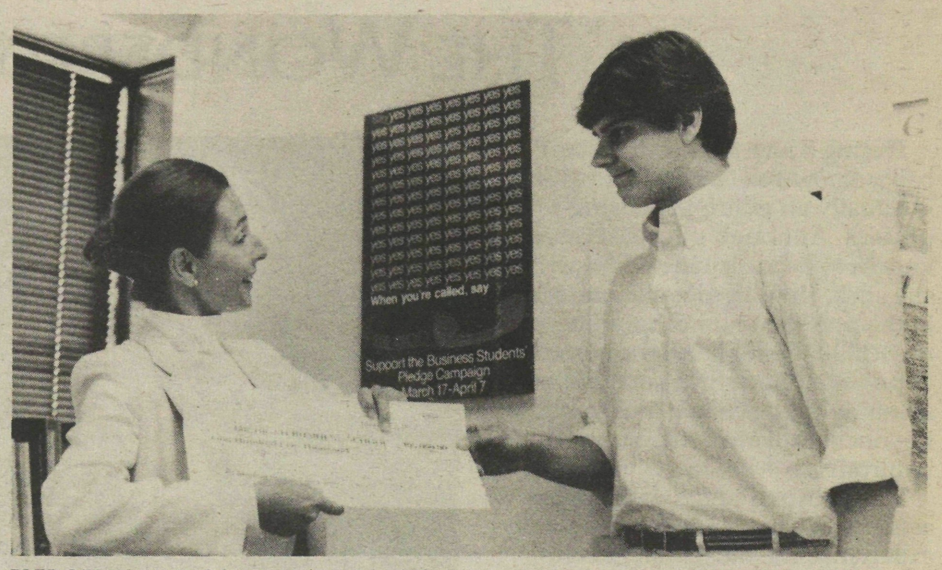
Each year, graduates of both the BBA and MBA programs pledge to the Business School Fund. The fund supports high-priority objectives such as scholarships, library acquisitions, faculty research and recruitment, and classroom renovation.

"As we like to say, Michigan is one of the ten business schools in the top five," reads the brochure from the Student Pledge Campaign Committee. "To break away from the others and meet the goal of being in the top three, Michigan must continue to attract the best students, keep an outstanding faculty and maintain the finest facilities."

Students recognize the value of contributing to the School's future. "The opportunities and experiences made available in the Michigan MBA program have benefited me academically, professionally and personally," says Ann Unterberger, MBA '85, of St. Louis. "My pledge is one way to give something back to the school, to ensure its growth and reputation." Classmate Diane Davis of Houston adds, "Without the support of its alumni, Michigan could never have achieved the top-notch facilities and reputation for excellence that it enjoys today."

Anneke Overseth, assistant dean for external relations at the business school, finds the program exciting in many respects. "The $100,000-plus pledged this year is a sign of the positive feelings that the School breeds in its students," she notes. "Students are proud of this School, and that pride is reflected in their support. We want to make this type of alumni support a tradition, ensuring the potential and quality of the School."

Suzanne Ramljak is a Work Study student in the Office of News and Information Services.



PLEDGES TOTALING $105,000 from School of Business students are accepted from Andrew John of Mount Clemens, Michigan, by Assistant Dean Anneke D. Overseth.

CHEMISTRY FACILITY RECEIVES DOW GIFT

The Herbert H. and Grace A. Dow Foundation of Midland (Mich.) has established a $3,500,000 challenge fund for the University's new chemical sciences facility to replace the present chemistry structure built in 1908, President Harold T. Shapiro announced.

In accepting the challenge grant, Shapiro noted: "The pre-eminence of U-M programs in many areas — medicine, engineering, and the natural sciences — is based, in part, on its Department of Chemistry, which provides the fundamental knowledge needed for advanced work in these fields. Modern chemistry needs extensive and sophisticated equipment and rigorous safety precautions which require state-of-the-art physical facilities."

The gift was made to the Campaign for Michigan, a five-year effort to raise funds for endowment and high-priority projects at the U- M.

The Herbert H. and Grace A. Dow Foundation was founded in 1936 by Mrs. Dow in memory of her late husband, Herbert H. Dow, who founded the Dow Chemical Company and was often called the father of "creative chemistry."

The foundation, whose grants are limited to within the state of Michigan by its charter, is widely known for assisting Michigan educational institutions with creative ideas and gifts intended to multiply the excellence of a school's established field of superiority.

Jon Cosovich, U-M vice president for development and communication, emphasized that the Dow Foundation "intends just such an effect in making the present grant." An additional $7 million in contributions from other foundations, corporations, alumni and friends of the University will be sought to meet this challenge.

Solicitation is also continuing to obtain a second $10 million to augment $30 million budgeted by the state to construct the $60 million chemical sciences facility, Cosovich added.

ALUMNI ASSOCIATION EVENTS

Events of the Alumnae Council of the Alumni Association of The University of Michigan and the U-M Alumnae Clubs

SEPTEMBER EVENTS

Sept. 11: Detroit Association of U-M Women
Monthly meeting, Rackham Building, 60 Farnsworth, Detroit, 5:30 pm. Contact: Leslie Lazzerin, President, (313) 341-6390

Sept. 24: Birmingham Alunae Club
Speaker: Sculptor Pamela Stump, 12:30 pm. Contact: Elinor Shuster, Program Chairman, (313) 642-7490

Sept. 24: Benton Harbor/St. Joseph Alumnae Club
"Go Blue Dinner," Berrien Hills Country Club. Speaker: Prof. Robert Howe, Aerospace Engineering, on "Our Space Program". Reception–6 pm, Dinner–7 pm. Contact: Judy Kinney, President, (616) 983-4057

Sept. 28: Toledo Alumnae Group II
Luncheon Meeting. Speaker: Prof. Edward Stasheff, Professor Emeritus of Speech Communication and Theatre, on "The Evolution of the American Musical". Contact: Mary Baker, Program Chairman, (419) 535-6022

OCTOBER EVENTS

Oct. 9: Detroit Association of U-M Women
Monthly meeting, Rackham Building, 60 Farnsworth, Detroit, 5:30 pm. Contact: Leslie Lazzerin (313) 341-6390

U-M Club activities

U-M Clubs offer a wide variety of activities to their membership. Although the events and activities listed below are centered on the fall football season, most U-M Clubs are deeply involved and committed to scholarship interviewing, student recruitment and providing educational programs. For the name of the president of the U-M Club nearest to you, please refer to the September/October issue of the Michigan Alumnus *magazine or telephone the Club Activities office of the Alumni Association, (313) 763-9750.*

Many U-M Clubs will sponsor football TV parties for which announcements had not been received by our deadline. Kindly check with your local U-M Club officers for details.

ATLANTA: Sept. 21/Trip to M vs South Carolina football game. Contact: Richard Boger, (404) 521-0160

BALTIMORE: Sept. 14/M vs Notre Dame football TV party. Contact: Linda Safran, (301) 955-2369

BRANCH CO.: Sept. 28/Trip to Ann Arbor, M vs Maryland football game. Contact: Bosco Chan, (517) 278-6177

CAROLINA LOW COUNTRY: Sept. 21/Trip to M vs South Carolina football game. Contact: Alice Stamps, (803) 871-5000 ext. 138

CAROLINA UPSTATE: Sept. 21/Trip to M vs South Carolina football game. Contact: JoAnn Fields, (803) 288-7685

CENTRAL GEORGIA: Sept. 21/Trip to M vs South Carolina football game. Contact: Ed Knapp, (912) 788-4774

CHARLOTTE: Sept. 21/Trip M vs South Carolina football game. Contact: Malinda Stiles, (704) 374-5075

CHICAGO: Sept. 16 - November 25/Monday noon weekly viewing of previous Saturday's football game. Contact: Richard Caldarazzo, (312) 346-3035

DELEWARE: Sept. 14/M vs Notre Dame football TV party. Contact: Suzanne Pfeiffer, (302) 655-6473

DETROIT: Sept. 19/"Kick Off" Dinner. Contact: Tom Stevens, (313) 674-4155

DETROIT: Sept. 21/Trip to M vs South Carolina football game. Contact: Tom Stevens, (313) 674-4155

HILTON HEAD: Sept. 21/Trip to M vs South Carolina football game. Contact: Art Field, (803) 681-5139

INDIANAPOLIS: Sept. 14/Football TV Party, M vs Notre Dame. contact: Steve Radcliffe, (317) 263-1685

INDIANAPOLIS: Oct. 5/Trip to Ann Arbor, M vs Wisconsin. Contact: Steve Radcliffe, (317) 263-1685

JACKSON: Oct. 5/M-MSU "Crying Towel". Contact: Terry Orban, (517) 788-2523

JACKSONVILLE: Sept. 21/Trip to M vs South Carolina football game. Contact: Ed Glowacki, (904) 384-2209

MIAMI: Sept. 14/M vs Notre Dame football TV party. Contact: Roy Gross, (305) 665-1655

NC TRIANGLE: Sept. 21/Trip to M vs South Carolina football game. Contact: David Blair, (919) 549-1111

NORTH ALABAMA: Sept. 21/Trip to M vs South Carolina football game. Contact: Thornton Zeigler, (205) 895-1831

TAMPA: Sept. 21/Trip to M vs South Carolina football game. Contact: John Vento, (813) 223-7474

TOLEDO: Sept. 19 - November 28/Thursday noon weekly viewings of previous Saturday's football game. Contact: James Czirr, (419) 885-5961

FIRST DISTRICT WORKSHOP: Saratoga Springs/Sept. 27-28. Contact: Thoburn Stiles, (518) 385-3086

FOURTH DISTRICT WORKSHOP: Columbia SC/Sept. 21. Contact: Alice Stamps, (803) 871-5000 ext 138

'Historic' New Cheerleading Squad

Wolverine fans aren't known for their decibels. The home crowds at Michigan Stadium and Crisler Arena aren't traditionally referred to as "the twelfth man" or the "sixth man" when things get tight during a football or basketball game, as they are at places like Notre Dame or Indiana University.

But all of that may change if Pam St. John has her way. St. John, a cheerleader from the late 70s, directs the U-M's new, unified coeducational cheering squad.

St. John calls the selection of the squad last March as "the most historic cheerleading even in the history of The University of Michigan."

No longer will the U-M Athletic Department be known in cheerleading circles as a fuddy-duddy institution that kept refused to let its women cheerleaders on the football field, as if they would desecrate it.

And no longer will the basketball squad be cheered by a coed squad hastily pulled together for that sport alone.

Instead, the U-M now has a six-woman, six-man squad that will train year round and perform at football and basketball contests. (Male gymnasts will continue to form a tumbling squad in football season.)

What differences will Wolverine fans see? "In football," St. John says, "the cheerleaders will work with a small portion of the band and go into the end zone with the band. The girls will do a lot of pom-pom and dance, but we'll also have a lot more partner stunting, with mounts and pyramids."

The result should be improved communication with the crowd and increased fan participation, St. John predicts, partly because there will be continuity of cheers and faces from football through basketball season and also because the cheerleaders' routines will be designed to lead the crowd in cheering and not simply to entertain "laid-back" spectators.

The hardest task in forming the new squad from among 60 aspirants was not in finding "good-looking, athletic and very clean-cut" men and women, St. John says, but in finding six strong enough men.

"If a guy doesn't have the strength to throw a girl over his head and catch her when she comes down, there's nothing I can do for him," St. John explains. "The girls must have absolute confidence in the males. Otherwise, the girl won't keep her form tight during a stunt, and the routine will look bad or someone will get hurt."

Only one of the men, Michael Johnson of Ann Arbor, has cheered before, but the others are strong, agile and hardworking, according to St. John. They are Mike Bohn of Maryland Heights, Missouri; Brad Frey, Grand Blanc, Michigan; Matt Hiller, Port Washington, New York, Martin Reckker, Port Huron, Michigan; and Ken Taylor, Saginaw, Michigan.

The women members are Heather Arsulowicz, Grand Rapids, Michigan; Connie Casenus, West Bloomfield, Michigan; Trissa Frever, Birmingham, Michigan; Michelle Henderson, Dayton, Ohio; Heidi Kraus, Farmington Hills, Michigan; and Juana Spears, Detroit.

St. John emphasizes that it is the U-M Athletic Department that gave the green light for the cheering changes and that "representing the Department and the University is the first goal of the squad."

"The next thing they ought to do," one of the cheerleaders suggests, "is form a solid student section in Crisler Arena. That would help us generate more crowd support for the basketball team."

'IF A GUY doesn't have the strength to throw a girl over his head, there's nothing I can do for him,' says Pam St. John (in jogging suit), director of the U-M's first coeducational football-basketball cheering squad. All six guys on her squad have what it takes.

'THEY CAN THROW, but can they catch?' wonders Heather Arsulowicz as she descends upon Ken Taylor (left) and Brad Frey. Trissa Frever stands ready as the stunt spotter, the cheerleader who prevents injuries should a maneuver go awry.

Fine Season for Softballers

The Wolverine women's fast-pitch softball team took second to Northwestern in the 1985 Big Ten conference with a 16–8 slate (28–20 overall).

"We were so close; we had a shot," says first-year Head Coach Carol Hutchins, whose colleagues voted her the top coach in the conference. But second place hasn't dampened any spirits for the upcoming year, she adds. "We have a lot of talent, and the incoming freshman look great." She's been watching and recruiting at softball games all over Michigan this summer (only one member of the team is an out-of-stater).

With the graduation of five key players, the '86 season will be challenging. A very tough spot to fill will be shortstop, where Lisa "Peanut" Panetta of St. Clair Shores earned first-team All-Big Ten honors with a .367 batting average while sprinting to an all-time U-M season mark of 11 triples. First basewoman Mena Reyman of Royal Oak, voted to the second team all-conference squad, and second basewoman Mary Bitkowski from Franklin, who won the M Women award for sportsmanship, leadership and scholarship, also graduated, along with outfielders Linda Allen of Flint and Marcie Smith of Riverview.

Top returning players include two juniors, pitcher Vicki Morrow of Pontiac (15-5 with 75 strikeouts, while giving up only 1.08 runs a game) and home run and runs-batted-in leader Alicia Seegert, the catcher and '84 Most Valuable Player from Manchester. Both were second-team all-Big Ten players in '85.

The Wolverines had strong fan support, drawing nearly 300 a game. "When people come to see a college game," says Hutchins, "they are amazed at the caliber of play."

HARD-PLAYING Alicia Seegert ('87) of Manchester, Michigan, beats the throw at third. Her team's home run and RBI leader, catcher Seegert was voted to the second team of the All-Big 10 squad.

Join the Dugout Club

The U-M Dugout Club is a group of student, faculty, alumni, former players and local residents who volunteer to support the University's baseball program.

As the Wolverines swing into action this year, the club is inviting all interested persons to join. The club's mission, says Keith Molin, its president, is "to increase public awareness and support for Michigan baseball, assist the program and provide recognition for players, coaches and fans who enrich the Michigan tradition."

Michigan Today

YOU MIGHT be looking straight up between two skyscrapers at this blimp—but you aren't. This trompe l'oeil of U-M photographer Bob Kalmbach is in an Art and Architecture Building classroom, where a student painted the aircraft on a panel.

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