

Inside . . .

... Trustees retreat, page 4
... Energy problem, page 5
... The arts, page 6

MSU News-Bulletin

Vol. 4, No. 17 18

Michigan State University

February 15, 1973

Wharton comments on budget proposal

President Clifton R. Wharton's reaction to the governor's budget recommendations for the University reflected a disappointment that the projected funds would not allow the University to move ahead with all the program improvements it planned for 1973-74.

"The governor's budget recommendations for 1973-74 include \$78.1 million for the University's campus programs, \$6.5 million for the Agricultural Experiment Station and

\$5.7 million for the Cooperative Extension Service," he noted. These figures reflect increases of about \$7.3 million for campus programs, \$400,000 for the Experiment Station and \$500,000 for the Extension Service over the current fiscal year levels.

"These increases are less than half of the improved support requested by the University. Therefore, if these recommendations are approved by the legislature, the University will be unable to fully implement needed improvements in programs during the 1973-74 fiscal year. For example, the governor's recommendation includes increases of about 4.9 per cent for compensation, despite the strong need for greater salary equity; and 2 per cent for supply, service and equipment budgets, despite heavy inflationary inroads. These figures are less than half of the increases requested. The University will have to realize internal economies if it is to attempt to meet known needs in such areas where proposed amounts are inadequate.

Wharton continued: "The overall outlook is brightened considerably, however, by continued support for our medical programs, which are earmarked for an additional \$1.6 million in the governor's proposals. And we also are pleased with his proposal for an initial appropriation of \$500,000 to permit the University to establish a new College of Law, plus an additional \$188,000 to house it. If the appropriation is approved by the legislature, we anticipate the new college would enroll its first students in January, 1974.

"In the capital outlay area, the governor's budget proposals include funds for continuing work on our second Clinical Sciences Building and expansion of the University Power Plant II, plus funds for a decentralized Medical Education Center, and air conditioning Erickson Hall, which accommodates a substantial proportion of the classroom activities for some 18,000 summer school students. All of these projects are vital to the university's long-range plans.

"MSU has a long history of providing its students and the citizens of Michigan the maximum instructional, research and service programs possible within the funds available. The University will maintain that commitment in 1973-74, concentrating on those activities which promise the greatest returns to the state."

Cantlon seeks early action

Early action by the legislature on Governor Milliken's \$688,000 budget request for an MSU College of Law will be necessary if a full class of 75 students is to be recruited for the projected starting date of January, 1974, according to Provost John Cantlon.

Ideally, the University would like a firm reading on the legislature's intentions with regard to the law school by the end of March, he said, but he could not speculate on whether or not that date was realistic.

If the approval of the legislature was delayed through the spring, Cantlon said

(continued on page 2)

Solons get MSU budget

When Michigan lawmakers returned to Lansing this week they found the Governor's budget request, the size of a New York City telephone directory, waiting for them. The budget recommendations to the legislature by Gov. William G. Milliken is the first major step of the sometimes lengthy appropriations journey for MSU.

While important, the governor's recommendations must still stand the test of political battles within the legislature. A house of representatives strongly controlled by the Democrats must be convinced that the governor can in fact make his promised tax-cuts and still provide for the needs of the citizens. In recommending over \$511 million for Michigan public higher education, the Governor observed that enrollments continue to stabilize, with state four-year colleges and universities currently enrolling about 280,000 fiscal year equated students. He called for increased financing of colleges and universities due to the rising costs of doing business.

Under the governor's recommendations, if followed by the legislature, MSU would receive \$78,132,000, an increase of \$7.3 million dollars over last year's appropriation.

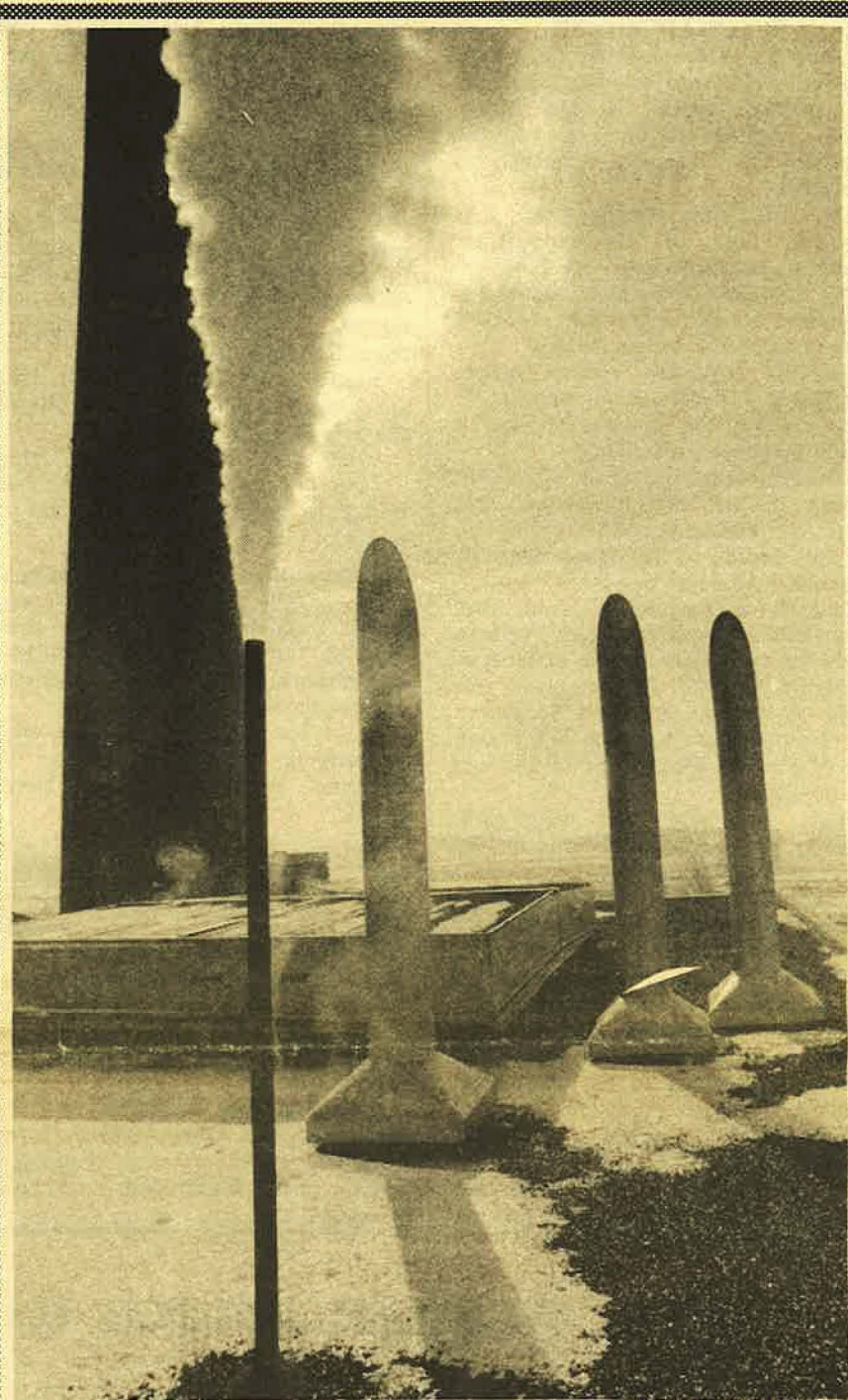
The next step in the appropriations process will be careful study of the governor's budget request by the appropriations committees of the house and senate through their higher education sub-committees.

The future of MSU's proposed College of Law will have to stand the same political test of the appropriations process as the total University's budget request. The governor's request calls for \$688,000 for the creation of a law school at MSU opening January, 1974, with an enrollment of 75 students.

The governor's recommendations in the area of capital outlay includes several important University projects. The continued construction of Power Plant 3 and the installation of air conditioning in Erickson Hall are two of the continuing projects recommended.

New construction projects recommended are a Clinical Sciences Center and a decentralized medical clinic off-campus.

The total request for MSU capital outlay projects is \$11 million. Planning money for a new Plant and Soil Sciences Building is also recommended. Like the general fund requests, the capital outlay projects must also be approved by the legislature.



—Photo by Dick Wesley

Things to come in the future? The world's energy problems and how they affect campus are reviewed. See page 5.

College will offer more evening courses for credit

In support of the University's drive to make its educational resources available for lifelong education, University College will extend its evening classes for credit, beginning in spring.

The widening of access to higher education is aimed at those adults and young people who have not been able to arrange daytime classes because of working hours, and others who would like to begin university studies for professional advancement or personal enrichment.

Two twice-a-week class schedules, from 6 to 8 p.m., and from 8 to 10 p.m., will be provided in a limited number of courses to begin with, in place of the regular 7 to 9 p.m. schedule. Evening students thus will be able to take two courses per term instead of the usual one, and be able to complete studies toward a degree in a shorter number of terms.

In addition, plans are underway to provide the Great Issues series in evening sessions in addition to the regular daytime offerings.

A nationwide study conducted eight years ago by the Carnegie Commission showed 17 million adults enrolled part-time in courses, and the figure is known to have grown since then.

Part-time student enrollment at MSU in the summer of 1971 totaled 5,177, in fall 1971 the total was 3,282, and in winter and spring of 1972, the figures were 3,122 and 3,829 for a total 15,410. In the same time span, total undergraduate readmissions were 3,265.

"With increasing financial stress experienced by students," University College Dean Edward A. Carlin said, "work combined with part-time study is becoming a common life style, creating enormous need for flexibility of scheduling especially during nonworking hours.

"We have had a steady interest in our evening classes from commuters who come regularly to East Lansing from Flint, Grand Rapids and Jackson and places in between," Carlin continued.

(Continued on page 2)

Science notes



70's ominous for the hungry

BY PHILLIP MILLER

Georg Borgstrom returned this winter from a lecture tour of India where he was keynote speaker at the Indian Ocean Region Conference of the International Planned Parenthood Federation.

He stood in Bombay on that dynamite keg of the population explosion, the Indian sub-continent.

An additional 250 million people will be added to this starvation-pocked region, within the decade, he said.

Already migrating hungry masses were being settled in camps outside the city, because the government feared riots if they reached Bombay.

Throughout the rest of the world 750 million people will be added, said Borgstrom, and he warned:

"This decade of the 70's is the most ominous in all world history."

Last March, Borgstrom was reported in England's "Observer Review" to have predicted mass starvation in pockets of the world by 1974. The news story was based on an interview with Borgstrom and Norman Borlaug. The latter won the 1970 Nobel Peace Prize for his high-yield wheat.

Both men said that water and fertilizer are the major limiting factors for world food production.

In the face of currency devaluation and lack of frontier lands the grab is for water and fertilizer.

Those American centers where water and fertilizer are lost, the sewage plants, will have to become the recycling centers where waste becomes food products, according to the MSU food scientist.

Alert to being called a pessimist, Borgstrom said:

"I could review with you our magnificent accomplishments in the just

bygone decades. Agriculture and fisheries have excelled as never before..."

One reason western man has excelled, he said, is the great energy swindle.

"He did not hesitate to carry food halfway across the globe to secure his feeding," Borgstrom said.

Consider also the energy dynamics involving an acre of modern farmland, he said. Energy input — such as tractor fuel and coal burned for energy to make fertilizer — exceeds the energy output in terms of foodstuffs from crops.

Human work hours and crop yields are misleading when the energy put into the field is ignored, he said.

From where does the energy come?

Poor countries have supplied much energy, as well as much protein, for rich nations.

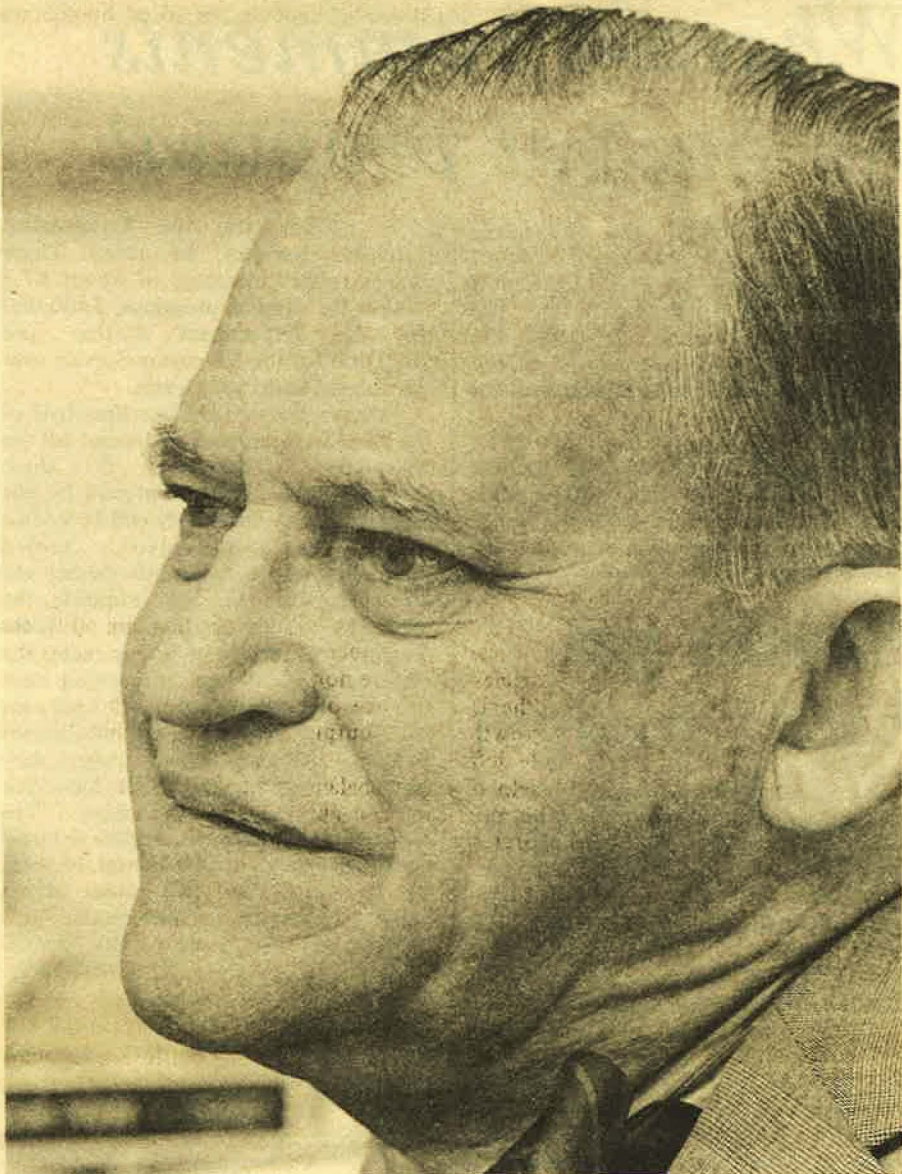
"One-fifth of mankind is using up four-fifths of all fuel and many metals," said Borgstrom. "Two-thirds of all products from forestry, agriculture and fisheries is used by one-third of the world's people."

"... The satisfied world is in effect intensifying its raiding of the yet untapped resources of the hungry world."

Perhaps speaking for the so-called well-developed nations, Borgstrom said, "We need to rip away the embellishing veils obscuring our vision, and see the world as it really is."

Grain deliveries, ocean inputs, green revolutions and protein jugglings cannot in themselves master southern Asia's population crisis, he said. He called for a world together:

"It is high time we implement one of the key statutes of the Atlantic Charter, by now forgotten by most, assuring all peoples of the world equal access to its resources."



GEORG BORGSTROM

First woman intern to be named

A woman faculty member will be selected this spring as the first administrative intern in a new program for women at MSU.

She will work side-by-side with Lois A. Lund, dean of the College of Human Ecology, during the 1973-74 academic year. The University will pay both her salary and the salary of a temporary faculty replacement.

The academic administrative internships is part of the University's affirmative action program for women. It is one of 21 actions and recommendations made by the administration in July, 1972, to improve the status of women on campus.

The College of Human Ecology was chosen for the first internship because 84.2 per cent of its faculty in the tenure stream are women. This is higher than in any other college.

Two similar internships to be funded by grants from outside the University have been approved. One will be in the Provost's Office, and the second department will be selected jointly by the intern and the appropriate dean or director. The Provost's Office is hopeful that funds for these two internships can be secured in time for the coming academic year.

According to Dorothy A. Arata, assistant provost and designer of the proposal, this may be the only program of its kind in the country for women, and could be a model for other colleges and universities.

She explains that the primary purpose of the program is not to train administrators.

"The intent is to provide a situation

where a woman can identify with top level administrative posts and have the opportunity to demonstrate to herself that she can carry this type of responsibility," she says.

The program, she continues, will make it possible for women to take an honest look at top level administration and say, "Yes, this is for me," or "No, this isn't for me."

She blames the scarcity of women in top administrative positions on a society which has discouraged women from seeking jobs above the middle management level.

"This is more an issue of social conditioning than conscious discrimination on the part of the university," she says. "Women have been socially encouraged to aspire to supportive, rather than leadership roles. Any constructive solution to the fundamental problem would need to be focused on altering that self-concept."

There will be no pressure on the intern to become an administrator, nor is there any promise that she will be offered an administrative job at MSU.

In discussing the choice of the College of Human Ecology, Prof. Arata said that although there may be many women in the field, the same social conditioning has discouraged them from seeking top level positions. "It's very difficult trying to find a women intern," she said.

The program is based in part on the internships offered by the American Council on Education. Prof. Arata participated in that program in 1968-69 at the University of Iowa.

A selection committee will choose the first intern by June 1. That

committee will be composed of a representative of the Provost's Office, Dean Lund and two additional deans appointed by the provost, who are interested in participating.

Candidates must be associate or full professors (or hold the equivalent of these ranks) and not younger than 25 or older than 48. Although applications are not ready yet, interested women may add their names to a list in Prof. Arata's office to receive application forms.

Additional interns will be named as soon as funds are acquired, Prof. Arata said.

... More credit courses planned

(Concluded from page 1)

"In addition, evening enrollments include Lansing area people who work days — the percentage of students in the 18 to 22 years bracket rises from 80 per cent professional people on campus who want to extend their studies beyond the five credit hours they now may take in working hours."

"We are discussing with the administration the possibility of similar jobtime studies for clerical-technical personnel and, in the meantime, they too can take our basic courses in the evening sessions."

There are no university level prerequisites for taking the University College courses for credit, so that persons who otherwise close qualify and who have not been to college in the past can make a start with these MSU basic courses.

University College Student Affairs Office records show that more than

... Cantlon

(concluded from page 1)

it might be necessary to begin recruiting potential students contingent upon final action by the legislature.

Immediately upon receiving funding from the legislature, Cantlon said, the University would seek to identify and hire a dean or acting dean, a law librarian, and admissions officer who would, himself, be an attorney.

The University would also move swiftly to settle on a location for the law school. Several options are being explored, but a final determination on facilities has not yet been made.

MSU News-Bulletin

Editor: Mike Morrison

Associate editor: Sandra Dalka

Calendar editor: Patricia Grauer

Editorial assistant: Janice Hayes

Editorial offices: Rooms 323 and 324, Linton Hall, Michigan State University, East Lansing 48823. Phone: 355-2285.

Published weekly during the academic year by the Department of Information Services. Second-class postage paid at East Lansing, Mich. 48823.

Around the campus: A summary

Kreinin says dollar devaluation welcome

The U.S. decision to devalue the dollar on world money markets is a "highly welcome response to market forces," says MSU economist Mordechai Kreinin, a specialist in world monetary systems. He said that the 10 per cent dollar devaluation should help the U.S. balance of payments position by encouraging both the flow of American goods to other nations and the return of American dollars back to the U.S.

An immediate effect, he noted, is that "American tourists will find their foreign vacations more costly since the dollar now buys less in foreign currencies, while foreigners can see America cheaper in terms of their own currencies."

Kreinin said that the new 10 per cent dollar devaluation — following by just about one year an 8 per cent devaluation — is not necessarily evidence that the earlier devaluation was a failure.

Part of the effect of the earlier devaluation was negated by other factors including the upswing of the American economy, he said, and not enough time has elapsed for the first devaluing of the dollar to have full impact.

It may take two to three years for the current devaluation to work, Kreinin added.

He said that an "almost imperceptible change" seems to be occurring now: "It is becoming increasingly possible to devalue the dollar."

"For almost 30 years," he added, "the exchange system was built on the dollar as the standard of value, with all currencies pegged to it."

While Kreinin expects this system to continue, he said it is "significant and welcome" that "foreign countries appear now more willing to permit the dollar to come down in value without their currencies following suit."

Kreinin says that the renewed lack of confidence in the dollar may stem from a recent report that the U.S. showed a balance of trade deficit (imports exceeding exports) during 1972. This could suggest to speculators, Kreinin adds, that the international agreements reached in December of 1971, including revaluations of the yen and European currencies, either are not working or have been inadequate.

Kreinin also notes that the U.S. balance of trade deficit can be attributed at least in part to the high growth rate in output in America, which encourages imports and widens the trade deficit.

What could eventually help offset the balance of trade deficit, he says, is the fact that the U.S. inflation rate has been about half that in Europe, and the possibility of higher interest rates in the U.S.

Kreinin adds: "The current international financial negotiations designed to reform the international currency system should be intensified. The United States should press for a system in which the exchange value of the dollar can be changed just as the values of other currencies can be changed."

He notes that under present conditions the dollar serves as a standard of value "to which all currencies are pegged." This limits the fluctuation range of the dollar and relegates the U.S. to a "passive role on the exchange markets."

But Kreinin sees a bright side to the current currency confusion: It may press policy makers "to move faster" toward achieving a truly international currency standard.

Air pollution damages plants

When air pollution is mentioned, the emphasis is usually on how dirty it makes buildings and statues and what it does to people's respiratory systems, but continuing research shows that it damages plants as well.

Axel Andersen, professor of botany and plant pathology, said recently that Michigan is lucky when it comes to pollution, since its air is fairly pure.

Andersen spoke at the 47th Michigan Forestry and Park Annual Conference in the Kellogg Center.

He said that most of Michigan's problems come from atmospheric inversions which concentrate the pollutants: When the inversions are broken up by winds, the concentrated pollutants sweep down and adversely affect plants and trees, burning their leaves and stunting their growth.

These acute problems are easier to measure than the chronic harm done by low-level pollution, Andersen noted. He showed slides of pines stunted by smoke from a Pennsylvania power plant, even though the plant was from three to seven miles from the trees.

The main air pollutants — sulphur dioxide, fluorides and photo-chemical compounds (produced by the reaction of sunlight with exhaust fumes) — are also a problem in agricultural areas, he said. Some varieties of beans and potatoes can be defoliated by pollution.

Andersen also described his work with 14 gardens set up around the state to observe the effects of air pollution on plants. One of them, he said, had good press coverage. It was in the backyard of a newspaper's garden editor!

New course for union members

A new course that offers Michigan labor union officers and members a chance to learn first-hand how the State Legislature works has been developed by the Labor Program Service of the School of Labor and Industrial Relations.

"The Michigan Legislature in Action" runs six weeks and covers a range of topics including: facts on Michigan government, structure and operation of the State House and Senate, how an idea becomes law, services and information available from the State Legislature, and the role of pressure groups.

Operation Update sessions set

Three major figures in the field of management motivation — Frederick Herzberg, George S. Odiorne and Eugene E. Jennings — will address Detroit-area businessmen March 13 and 29 as part of "Operation Update" sponsored by the Graduate School of Business Administration and the Advanced Management Program Club of Detroit.

The two sessions, marking the third and fourth in a series of executive seminars held at Detroit's Mercy College, are open to the Detroit business community.

Herzberg, cited by the National Industrial Conference Board as one of the five top behavioral scientists who have most influenced the thinking of management, will be the featured speaker March 13. The title of his talk is also that of one of three books he has written: "The Motivation to Work."

Odiorne, dean of the College of Business at the University of Utah and one-

time consultant to Ford Motor Company, General Motors, Honeywell, and other major American corporations, will discuss "Management by Objectives" at the March 29 seminar.

Jennings, nationally known consultant, lecturer, behavioral scientist and professor of management at MSU, will moderate both sessions.

The Advanced Management Program Club which cosponsors the seminars is comprised of MBA graduates of MSU's Detroit-based Advanced Management Program. The vast majority of these men and women either operate their own businesses or are top-level management people with firms in the Detroit area.

Program chairman for the two motivation seminars is Andre Blay, president, Magnetic Video Corp., Farmington.

Tickets for both sessions are \$35, or \$20 for either seminar. Dinner and cocktails beginning at 6 p.m. are included. Reservations may be made with the MSU Advanced Management Program Club, 404 Eppley Center.

IDC courses explore India, Bangladesh

A new course that involves an intensive and up-to-date look at India and Bangladesh will be offered this spring.

"Recent Developments in South Asia: India and Bangladesh" (IDC 400V) will be taught daily April 9 through April 20 for two credits.

Instructor for the course will be Marcus Franda, a visiting specialist of the American Universities Field Staff who is currently based in New Delhi. His academic interests are comparative politics and international relations, and his specialties are India and Bengal.

Franda is an assistant professor of political science at Colgate University and has been assigned to the American Universities Field Staff since December 1971. He served from 1968 to 1970 as director of the American Institute of Indian Studies in Calcutta and New Delhi.

The two-week course is administered by the Department of Political Science in cooperation with the Asian Studies Center. Students completing the course will earn two credits in anthropology, geography or political science.

Glass display in Museum

A sparkling display of more than 50 glass pitchers featuring both pressed and blown glass is currently on display at the Museum.

The exhibit is part of a collection of more than 300 pitchers which belonged to the late Mrs. Gladys Ferden of Chesaning, Mich., and was donated to the museum by her husband, Lee Ferden.

Many of the pitchers date back to the late 1800s and are excellent examples of glassware designs popular then.

Each design has its own descriptive example to aid museum visitors. For instance, the "peacock design" has real peacock feathers next to it and the "washboard pattern" is accented by a miniature washboard.

Val Berryman, curator of historical artifacts at the Museum, explained the different processes involved in making glassware.

"Blown glass is actually blown and molded by a skilled glassblower, while pressed glass is poured into a mold and pressed into shape with a plunger," said Berryman. "Pressed glass evolved as an inexpensive imitation of cut glass," he added.

According to Berryman, fine cut glass is blown into a patterned mold, and the quality of glass is much higher than that used in pressed glass pieces. "When sunlight shines through cut glass, the colors of the rainbow are visible. This is one way of distinguishing pressed glass from cut glass," he explained.

"Pressed glass pieces usually have visible seams, places where the glass was pressed together in the mold and the glass may not be clear," he said. Other tips on glassware are also included in the exhibit.

Marketing course set in London

Marketing students are being offered a chance to learn British retailing from the best possible vantage point — a summer's stay in London.

MSU's second comparative retail distribution course will be conducted July 9-Aug. 25 through the University's Office of Overseas Study. It is designed for students who have completed the sophomore year and who have had at least one marketing course.

The course instructor, Stanley C. Hollander, professor of marketing, lists a number of distinctly British business characteristics that students will learn about first-hand.

*Each outlet in one chain of stores employs a "manageress" to help meet the employment needs of the firm's predominantly female sales force. Salaries at the stores are not great, Hollander says, but "fringe benefits are lavish" and include such features as low-cost, for employees-only cafeterias and beauty salons at each store.

*One major department store conducts itself as a participatory democracy, with management consulting with employees before implementing new policies, and responding to their questions and concerns through a twice-weekly house organ.

*Unlike the U.S., British policy favors development of downtown shopping rather than suburban shopping centers. The result, says Hollander, is city shopping districts that have not deteriorated and are more logical than their U.S. counterparts, but which are experiencing growth, crowding and congestion.

Hollander accompanied 19 students to London for the first MSU retailing program last summer. Encouraged by the success of the program and the reception the students received from British businesses, he is now organizing this summer's program.

"London has one of the most fascinating collection of stores and retail outlets in the world," he says. Its retail scene ranges from department stores and specialty shops to boutiques and "mod shops."

When they're not in the stores, the students will hold classes on the Bedford College campus of the University of London, which is within walking distance of the dormitory in which the students will be housed.

Key issues reviewed at board retreat

The following report, made available through the President's Office outlines the major areas discussed by the Board of Trustees and University officials during their annual "retreat" last month.

A firmer understanding of the current position of Michigan State University and its future role as a leading institution of higher education in Michigan and the nation were the underlying goals of a two-day "retreat" held recently with the MSU Board of Trustees.

Continuing a practice initiated by President Clifton R. Wharton, Jr., the trustees met with top University officers and administrators in the annual session Jan. 9-10, at Kellogg Center.

As described by President Wharton:

"The primary purpose of the retreat is to provide an opportunity for greater indepth presentation and discussion of the basic issues and problems which confront the University than is possible in regular meetings. The occasion is not intended to be one where decisions are made but rather a time when activities and issues may be explored away from the pressures of immediacy and action."

While following an agenda and supported by prepared briefing papers, the retreat discussions were informal and wide-ranging. In addition to obtaining the views and objectives of the trustees on a wide variety of issues, the retreat also served as a means to introduce two newly-elected trustees to the operations, problems and goals of the University.

No decisions were made; indeed, the many variables and unknowns inherent in the academic world, the economy, technological advances, professional demands, population dynamics, etc., make it extremely difficult to come to many tangible conclusions for very far into the future.

Wharton asked the trustees to keep two central issues in mind as they began the two days of discussions:

"First, the central purpose and function of Michigan State is academic — we are an educational institution from which the taxpayers expect a contribution in teaching, research, and public service. Therefore, the issue of our academic excellence, or the assessment of how well we are meeting this obligation is paramount. How well are we equipped to undertake these functions and how well are we carrying them out?"

Second, the University must be seen as a total system whose parts are interdependent. Decisions on programs and on the allocation of resources are interlocked. One cannot view a particular department or college in isolation from the rest of the University community. A budgetary increase is the policy role of the Board of Trustees more critical and necessary than in achieving the necessary, delicate balance among these parts and their individual academic goals."

This report does not attempt to relate in detail all the areas discussed, nor does it seek to provide a definitive presentation of the views of the individual trustees. Rather, it is an effort to describe some of the highlights of the agenda, be illustrative of the types of considerations which the Trustees and administrators must keep in mind in planning for the future, and to reflect the views of the trustees on a number of the issues.

ADMISSIONS AND ENROLLMENTS

The crucial element of population and enrollment projections in charting the future of MSU was presented and discussed in some detail. Factors requiring consideration in planning included the following:

- * The population of 18-24-year-olds will begin to decline significantly by the late 1970s.

- * The college-going rate of Michigan young people is dropping for the first time in many years.

- * MSU's on-campus enrollment has represented a slightly declining percentage of the total Michigan college enrollments. This percentage has been 10 per cent of all public and private enrollments in the state and about 19 per cent of the 4-year public university enrollments for the past two years. The growth of two-year community colleges is a significant factor in the slight decline.

- * The class mix which has been undergoing substantial change during the 1960s may be stabilizing. Freshmen-sophomores have dropped from 50 per cent to 38 per cent, juniors-seniors have increased from 33 per cent to 43 per cent and graduate enrollments have increased from 18 per cent to 19 per cent.

- * Since 1960, freshmen increased from 4,583 to a maximum of 7,853 in 1965 and have dropped to 6,530 in 1972; transfers have climbed from 1,469 in 1960 to a maximum of 2,938 in 1971; returning students increased from 10,297 in 1960 to a maximum of 23,169 in 1970 and were 22,153 in 1972.

Taking these and other factors into consideration, it was the general feeling of the trustees that the period of rapid enrollment growth at MSU is essentially over. While the advent of a new College of Law and the continued strengthening of the medical colleges will account for some specialized increases, total enrollment probably will decline somewhat in accordance with state and national population trends.

Trustees indicated that an end to big enrollment expansion would provide the opportunity for the University to stabilize its educational programs, plan better for future shifts in education emphasis and concentrate more on the provision of quality instruction, research and service.

ACADEMIC ISSUES

A review of past and present academic developments reflected MSU's growing strength in many undergraduate and graduate programs. Indicators of these strengths included:

- * Recognition of MSU faculty through holding of office in professional organizations, receipt of awards, scholarly works published and research achievements.

- * Cognizance of the University's academic excellence (ACE ratings of graduate programs, Centers of Excellence Awards, second ranking nationally in total production of science graduates, etc.)

- * Achievements of MSU students (National Science Foundation Awards, Woodrow Wilson Awards, Fulbright Scholarships, excellent job placement results, awards in disciplinary contests, National Merit Finalists enrolled, etc.)

The Trustees were particularly proud of MSU's academic standing and urged that it continue to be protected and strengthened. The strength of the University's undergraduate programs and the need for emphasis on quality teaching were specially mentioned.

In the graduate area, the University's traditional areas of strength were cited; on the immediate horizon, particular mention was made of the work of the Center for Environmental Quality, the Detroit MSA program of the College of Business and the innovativeness of the medical colleges.

Concern was voiced that in building new areas of emphasis, the University's long-recognized areas of strength not be weakened or neglected.

Trustees cautioned the administration to be specially alert and responsive to the area of faculty morale and to the continuing need for competitive salaries.

AREAS OF GROWTH

While total enrollments were not expected to increase, the University will continue to grow in significant areas. Trustees were given a general picture of

growth points in the established colleges, as well as progress reports on the new College of Urban Development, and the proposed College of Law.

Also discussed were the University's capital outlay requests to the governor and legislature, which include a Communication Arts Building, a Performing Arts Center and a Plant and Soil Sciences Building, among others. The legislature already has approved construction of a Clinical Sciences Building which will become an integral part of the new complex on campus.

President Wharton also called attention to the important need to improve facilities for the provision of student health care, now centered in outgrown quarters at Olin Health Center. He also discussed the work of the Task Force on Lifelong Education.

A number of trustees pointed to the University's traditional service role and commitment to the Land-Grant philosophy, which can be strengthened by the new College of Urban Development. Application of expertise gained in the Cooperative Extension Service to problems of urban-metropolitan areas was suggested, and strong support for the concept of lifelong education was expressed.

ACADEMIC GOVERNANCE

The proliferation of academic governance machinery and the need for greater efficiency were reviewed with the trustees.

In the last few years three main trends have emerged that introduce substantial stress into the academic governance processes. First is the past growth in the number of colleges and departments, making for a very large governance structure.

The recent opening up of academic governance to substantial student participation has produced a substantial increase in the size of the governance bodies and standing committees, in the frequency and duration of the meetings, the difficulty of assembling the group, and has slowed the movement of issues through the system.

Thirdly, a series of precedent setting judicial decisions against various university practices affecting personnel and students, followed by the adoption of grievance procedures, equal opportunity procedures, together with the impacts of recent student unrest and attempts to introduce collective bargaining into the academic system, all converge to seriously strain the academic governance system itself. Of additional potential consequence, they place the system in jeopardy of external criticism because of the growing cost of the process in faculty and student time.

Provost John Cantlon said the administration planned to scrutinize the present machinery and ultimately offer suggestions for making it more effective and efficient.

FINANCIAL CONSIDERATIONS

Trends in University finances over the past few years were discussed extensively with the Trustees. It was pointed out that while there had been significant increases in total dollars, this did not necessarily reflect a corresponding increase in the University's ability to allocate its funds. Inflation, increased compensation and major growth in student financial aid accounted for the bulk of the increased dollars.

Examples of the financial factors considered included the following:

- * There has been little change in the proportion of the total budget devoted to instructional units since 1962-63. Currently, 53.1 per cent is so allocated vs. 53.6 per cent in 1962-63.

- * The two medical schools are the most predominant single new item in the entire budget, now representing 6 per cent of the total. This does not mean that other colleges or other functions are necessarily more impoverished than they would be in the absence of the medical schools because there is no question that the state appropriation and, hence, the total budget, would be reduced proportionately if the medical schools did not exist.

- * The most significant rise in priorities among the functions which have existed continuously since 1962-63 is in student aid. This is directly reflective of the trustees basic policy decision to implement the Student Aid Grant Program. The University's student aid budget has increased approximately twice as fast as its student fee revenue since 1962-63, (43.7 per cent increase in student aid vs. 22.8 per cent increase for fee revenue).

- * Despite the absolute increase in student fee revenues attributable to larger enrollments and higher fee rates, there has been little relative change since 1962-63 in the portion of the budget supported from fees. Presently 28.4 per cent of the budget is supplied by fee revenues vs. 26.6 per cent in 1962-63.

- * Compensation has increased 206 per cent in the 10-year period, while supplies and services have gone up 205 per cent (mainly attributable to inflation).

Trustees recognized the tight financial constraints within which the University must operate, with no major improvements in funding anticipated in the picture in the foreseeable future.

They also acknowledged the internal struggle with priorities, such as the need to strengthen educational activities while continuing to improve faculty and staff compensation. The administration was urged to continue efforts to analyze internal needs so that emphases and funds can be shifted to maximize effectiveness.

TEN YEARS HENCE

At the conclusion of the retreat, President Wharton invited the trustees to give their views on how they perceived the University at the end of the next decade. Following are examples of their comments:

- * The next decade will be essentially a period of stabilization and consolidation; but this in no way suggests a static situation.

- * Michigan State University should continue and strengthen its tradition of service and commitment to the Land-Grant philosophy.

- * Graduate professional programs should be able to expand the provision of trained man and woman power to meet society's needs.

- * Significant impact should be made in contributing to the resolution of urban problems through the emerging College of Urban Development, and through a growing urban focus of other MSU colleges.

- * The University must research, develop and exploit instructional technology systems in order to achieve productivity improvements and thus make more effective use of its limited resources.

- * The University should develop a strong life long education component, correspondingly making more effective use of University facilities and manpower to this end.

- * The University must focus its energies to prevent dehumanization in its relationships with faculty, staff, students and the general public who support the institution.

CONCLUSION

Following the two-day session, President Wharton said he was very pleased by the dedicated interest of the trustees in the welfare of the University and the people who make up the MSU community. He promised continued equal dedication by the faculty, administrators and staff in strengthening MSU's position as one of the nation's leading universities.

There's steam heat now, but the future is cloudy

"We've got S T E A M heat. . . We've got S T E A M heat. . ." So the song goes, and so it goes around MSU, at least for now.

Paul A. Nilsson, associate director, physical plant, said that the University is not currently in danger of a fuel shortage. "But," he said, "there's no guarantee for the future."

Nilsson said that the current world-wide fears of a natural fuel shortage have reached the University.

The campus currently has two power plants to meet its heating (including water) and electrical needs.



BY
SANDRA
DALKA

The Shaw Lane Power Plant was built in 1947 and uses coal as its source of fuel. This plant is capable of producing 335,000 pounds of steam per hour.

The University is considering converting this facility for gas.

The largest plant on campus is Power Plant 65, named after the year it was constructed. Originally a coal-burning facility, it was converted to firing gas in 1970. However, it retains its coal-burning capabilities in the event of a natural gas shortage.

Nilsson said that this power plant produces 500,000 pounds of steam per hour.

Looking towards the future, the University is constructing an additional \$12 million generating facility at Power Plant 65, which is scheduled for completion in the fall of 1974. The new facility will produce 350,000 pounds of steam per hour.

Nilsson said that the University has and will have the facilities to keep the buildings warm and the lights going for many years to come. "But the problem is getting the fuel," he said.

Not only is there a shortage of natural gas and oil, but the current air pollution restrictions set by the Environmental Protection Agency (EPA) limit types of usable fuel.

"Natural gas is becoming scarce as is low sulfur coal," he said.

Nilsson explained that natural gas is the best fuel and is much in demand because of its efficiency and, unlike most coal, there is very little sulfur dioxide produced.

The EPA has placed allowable sulfur dioxide limits on all new power plant facilities. This makes the natural gas and oil fuels more desirable and in more demand on the market, according to Nilsson.

The University's power facilities are equipped with electrostatic precipitators which retrieve dust particles to reduce air pollution to the allowable levels.

The shortage of natural gas has hit the University, although it was not felt by the MSU community.

Nilsson explained that the first interruption of service came in 1971 when Consumers Powers cut off the supply of gas as a precaution. "This was done to insure that the company didn't run short of gas," he said.

The latest interruption lasted from last Oct. 2 to Dec. 30.

"Consumers Power ran out of gas and it had legal problems transporting its gas from reserves in Louisiana," he said. Coal was burned on campus during these periods.

He added that, in addition to the sulfur dioxide problem, coal can be a real problem because of the uncertainty of this fuel.

"In Power Plant 65 the coal must be pulverized to the consistency of face powder and if the coal is wet or frozen this can be difficult," he said.

Nilsson explained that coal is piled near the two power plants on campus.

Currently the University has approximately 35,000 tons of coal. "This is normal and sufficient for this time of year," he said.

Like everybody else, Nilsson is looking towards the future - with hope and apprehension.

"Nuclear energy is a big hope, but that's still far down the road," he said.

He added that nuclear power plants are currently using uranium, "but if they continue to use uranium as it is presently being used, the fuel reserves will be depleted in 25 years."

The breeder reactor is another hope in the realm of possibility. Nilsson said that although in the experimental stage, the breeder could more efficiently convert nuclear fuels to electrical energy.

"The ultimate is a fusion process. This would solve the world's energy problem," he said.

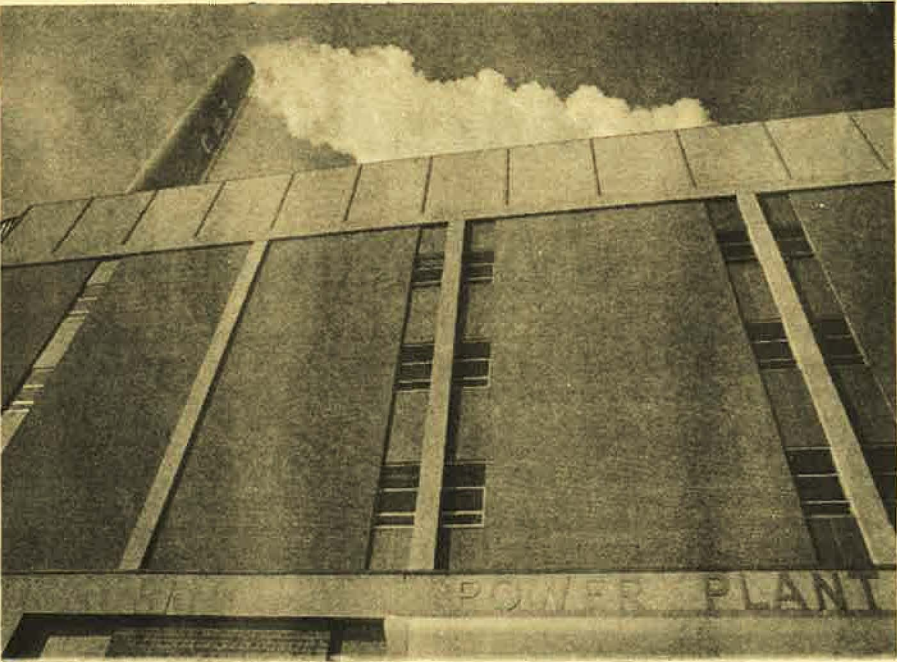
Nilsson said, however, this fusion process involves the use of temperatures of 100 million degrees or hotter than the sun. "It's not something that is going to be developed overnight."

Other possibilities that engineers and scientists are investigating include solar conversion devices and methods similar to windmills.

In addition to looking to solutions to the world's energy problem, according to Nilsson, searches are being made for new sources of natural resources.

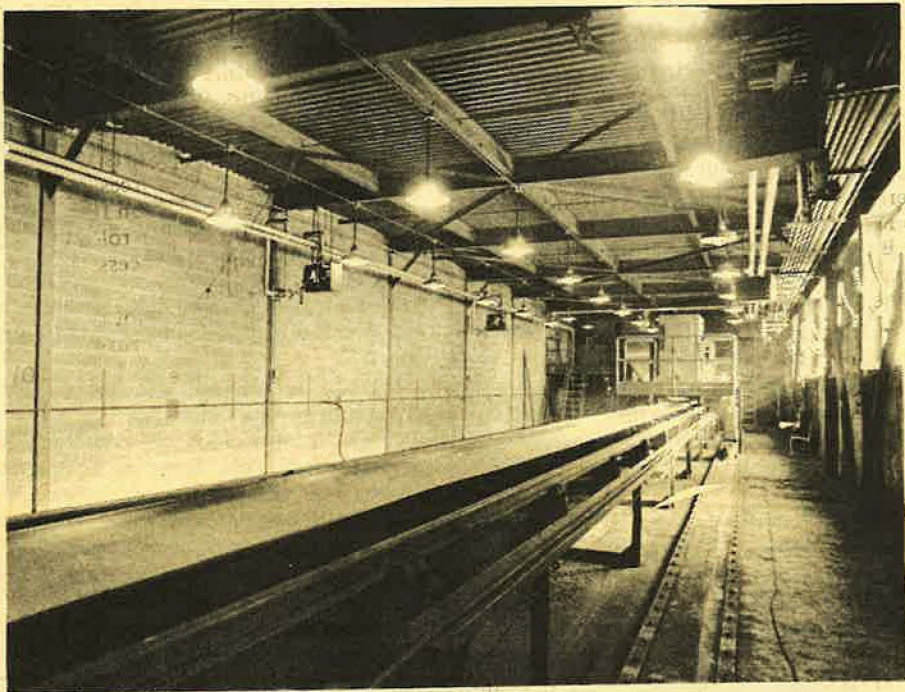
The states of Utah and Wyoming have provided new sources of natural fuel "but the cost in transporting it is high."

Another new source has been oil shale. "This is oil that has been entrapped in rock and it can't be readily extracted," he said. Present methods of extracting the oil yields approximately 40 gallons of oil per ton of shale. "This is a very expensive operation," Nilsson said, "and the consumer is the one who will ultimately pick up the bill."

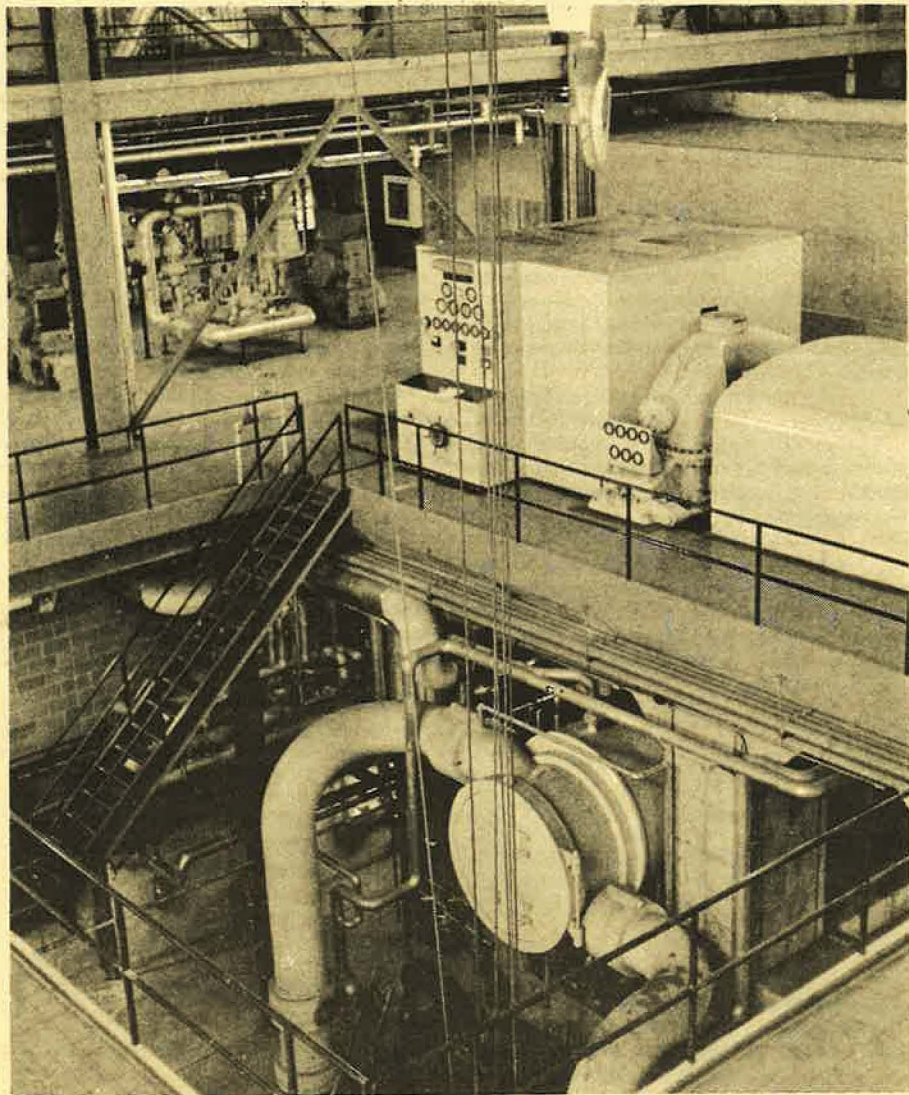


—Photos by Dick Wesley

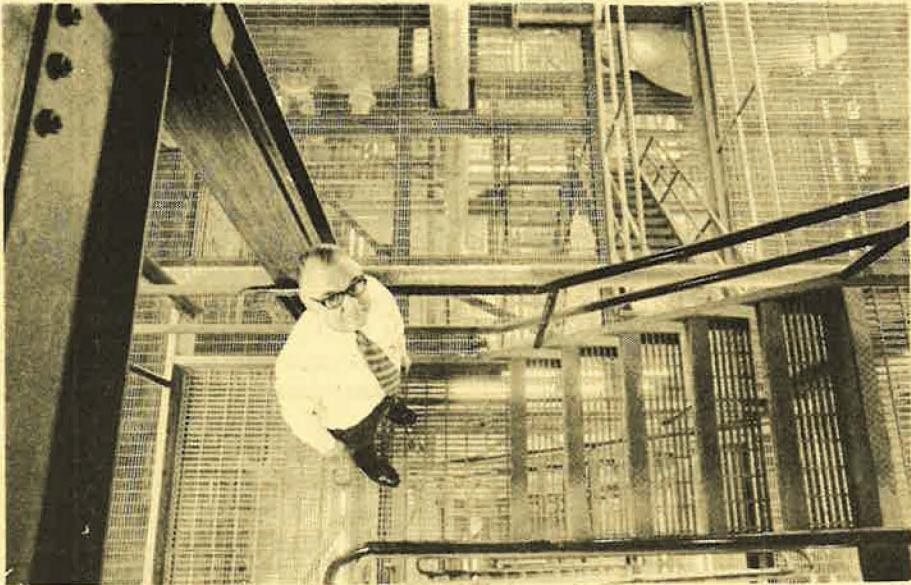
Power Plant 65 is above. The photo on page 1 is the roof of the power plant with chimney and boiler steam being released.



The coal conveyor belt for transporting the fuel.



Boilers, generators, transmitters and other machinery fills the power plant.



Paul Nilsson pauses on the grated steps that connect the five floors and basement.



Faculty art exhibit continues; eight musical works to be premiered

BY FRED BRUFLODT

Recent work by MSU faculty artists can be seen at the Kresge Art Center Gallery.

Although abstraction dominates the exhibit, the variety of media and the differences between artists and their styles makes a tour through the gallery worthwhile.

In addition to several massive canvases, the exhibit includes smaller scale paintings, sculpture, photographs, jewelry, lithographs, prints, ceramics and etchings.

The 20 artists represented include John deMartelly, Roger Funk, Nan Stackhouse, Margaret Yuill, James McConnell, Jens Plum, Owen Brainard, Allen Leepa, Robert Alexander, James Adley, William Gamble, Irving Taran, Karl Wolter, Louis Raynor, Mel Leiserowitz, James Fagan, James Lawton, Stacy Proffitt, Ralf Henriksen, and Clifton McChesney.

WEEKEND CONCERTS

Friday evening, the Premieres of New Music Concert will present the works of eight MSU composers. Sunday afternoon, the Singing Statesmen, MSU's 39-voice men's glee club, will present its first campus performance of the season.

The eight composers whose works will be premiered Friday are composition students of H. Owen Reed, professor of music and also a composer. Performing the works will be the News Musical Arts Ensemble and the MSU Jazz Ensemble.

Charles Ruggiero, a graduate of the New England Conservatory of Music, will be represented with two works: "Le Prima Donne," which combines the sounds of drums and other percussion instruments with the "nearly human"

sounds of the whale and the wolf, and "New Bleu," a tonal work based on the blues and using the simultaneous sounding of different meters at the same time.

Michael Lorenz, conductor of the MSU Jazz Ensemble will present his "Sequel to an Effortless Machine" for jazz band plus an electronic piano and bassoon. He holds the bachelor of music education degree from Central Michigan University.

Alexis Turkalo, a native of France who grew up near New York and graduated from Syracuse University, will be represented by "Chamber Piece for 10." Turkalo describes it as "an evocation of the Baroque concerto ideal of contrasting groups of related instruments and timbres." It calls for flute, oboes, clarinet, bassoon, violins, violas and cello.

Michael Zinn, a Ph.D. candidate in music at MSU, will premiere a work for chamber ensemble and synthesized tape entitled "Spring Storm." Zinn created the tape in MSU's electronic music studio.

Greg A. Steinke, also a Ph.D. candidate in music composition, will premiere "Ein Japanisches Liederbuch," a mixed media piece for soprano, chamber ensemble and slides based on a series of Haiku poems translated into German.

Steinke is musical director of the New Musical Arts Ensemble.

"Here Lies Love," a madrigal for chamber choir and tenor and soprano soloists is the work of Bruce V. Williams. A native of Ottawa, Canada, Williams is now from Wilmington, Del., and holds the B.M. degree in piano from the University of Delaware.

"Mystichord" for chamber ensemble and voices deviates from Daniel W. Hill's



Irving Taran, who teaches painting, in front of "PEMAQUID," an acrylic polymer on canvas.

usual specialization in instrumental music. The work uses flute, violin, soprano saxophone, clarinet, piano and three voices. Hill holds the B.M. degree from Jackson State College and the M.M. degree from MSU.

The Singing Statesmen (not to be confused with the State Singers), under the direction of J. Harris Strohl, will perform sacred and secular music including folk songs from the U.S. and other countries.

Although this is the group's first on-campus performance this season, the glee club performed in Flint, Owosso and Battle Creek during the Christmas season by invitation of the J. W. Knapp Company.

INDIANS

An imaginative, retrospective look at the past (and present) persecution of the American Indian is the subject of "Indians," by Arthur Kopit, the Performing Arts Company's newest attraction which will open Tuesday.

The tale of Indian grievances is told within the framework of Buffalo Bill's Wild West Show - the first such show to travel the country.

Frank Rutledge, theatre department chairman and director of the play, says he is taking an expressionistic approach in his production.

False faces and "bizarre lighting effects" will be employed.

He regards "Indians" as a highly moralistic play and one which has implications about contemporary racial conflicts.

Because of the language Kopit uses and the juxtaposition of scenes, Rutledge regards "Indians" as one of the best plays in two decades.

CLARK FILM SERIES

Those familiar with Lord Kenneth Clark's "Civilization" film series will no doubt be interested in "Pioneers of Modern Painting," written and narrated as only Clark can.

The pioneers examined in the six-part series are Edouard Manet, Paul Cezanne, Claude Monet, Georges Seurat, Henri Rousseau and Edvard Munch. Two films will be presented at each of three free showings sponsored by the MSU Friends of the Library.

Detroit Free Press Film Critic Susan Stark said: "To judge by the first program on Manet and Cezanne, the series is every bit as engaging, not to mention instructive, as its predecessor ("Civilization")."

(See Calendar of Events for details.)

MSU Positions Available

IMPORTANT: Administrative Professional and Clerical - Technical applicants should contact the Employment Office at 353-4334 by February 20, 1973 and refer to the vacancy by the position number. Instructional staff applicants should contact departments noted.

FACULTY

Head of Order Section, Acquisitions Department, Library. (M.A.)

Contact: Richard E. Chapin, Director of Libraries

Head of Monograph Section, Acquisitions Dept., Library. (M.A.) Working knowledge of two foreign languages, preferably German and French.

Contact: Richard E. Chapin, Director of Libraries

Science Librarian, Library (M.A.) Science academic background or experience in science library, with working knowledge of at least one foreign language.

Contact: Richard E. Chapin, Director of Libraries

Asst. Prof. of Music (Conservatory artist diploma or grad. degree preferred) Applied Voice - tenor, baritone or bass. Studio teaching, opera workshop experience, and solo performances.

Contact: James Niblock, Chmn., Dept. of Music

Specialist in Computer Laboratory of the College of Engineering (B.S. in Computer Science required) Experience in programming on CDC 6500; knowledge of peripheral processor programming; systems programming experience. Able to work well within a group.

Contact: Richard R. Moore

or

Donald F. Spyke, Computer Laboratory

ADMINISTRATIVE - PROFESSIONAL

149. Writer / Director (Film) III - (B.A. in film, theatre, or related arts) Three years experience in motion picture film writing and directing. Ability to write film treatments and shooting scripts and direct documentary instructional films. Able to supervise and willingness to work on a shift basis when required. \$10,370 - 13,630

CERICAL - TECHNICAL

150. Projectionist Supervisor "N" - Supervise 65-100 student projectionists, schedule assignments, maintain employee records and payroll for student personnel. Position requires driving a panel truck and applicants must have good driving records. Evening, weekend, and holiday availability is necessary. \$4.04/hour

151. Program Coordinator "N" - Experience in coordinating public service projects. Strong organizational talent and supervisory ability required. Will assist in the conception and development of programs and projects related to environmental action for students at MSU. \$3.87/hour

152. Research Assistant "J" (B.A. in biology, biochemistry or related science) To work in biomedical research using standard biochemical assay tools. Should be familiar with principles of ultracentrifuge spectrophotometer, fraction collector and related equipment. Standard numerical skills for a research technician. \$3.38/hour

153. Secretary "H" - Must be good typist. Able to work independently with minimal supervision. Able to organize work and make decisions and assume responsibility. \$3.16/hour

154. Principal Clerk VI - Shorthand and typing; knowledge of chemical terminology very desirable. Should have MSU secretarial experience. \$6,436 - 8,048

Date Preparation Operator V (2 vacancies) \$6,367 - 7,389

Departmental Secretary V (3 vacancies) \$6,367 - 7,389

Senior Clerk IV (3 vacancies) \$5,735 - 6,926

Clerk Stenographer III (1 vacancy) \$5,511 - 6,562

Clerk - Typist II (1 vacancy) \$5,440 - 6,422

Laboratory Research Aide (1 vacancy) \$2.93/hour

MICHIGAN STATE UNIVERSITY IS AN EQUAL OPPORTUNITY EMPLOYER

Achievements

DAVID D. ANDERSON, professor of American Thought and Language, recently conducted a seminar in New York at the Modern Languages Association convention. Anderson, president of the Society for the Study of Midwestern Literature, is the author of "Robert Ingersoll," the latest in the series of United States authors, published by Twayne Publishers, Inc., New York. He also contributed an article, "Sherwood Anderson and the Coming of the New Deal," to "Criticism and Culture: The Papers of the Midwest Modern Language Association," edited by Sherman Paul and published by the association at the University of Iowa, Iowa City. He was also recently honored by Governor John. J. Gilligan of Ohio when his book, "The Literary Works of Abraham Lincoln," was chosen along with 29 others to be presented to the Honorable Anastasia D. Samsarelou, Director of the National Library of Greece.

ELSA VERDEHR, associate professor of music, and DOUGLAS CAMPBELL, professor of music, will appear as soloists on a TV tape recording with Benita Valente, Soprano, which was recently released nationally through N.E.T.

CLARENCE L. WINDER, dean of the College of Social Science and professor of psychology, has been named chairman of the Board of Professional Affairs of the American Psychological Association for 1973.

CHARLES A. GLIOZZO, associate professor of humanities, contributed his assessment of the organized activity through state and national conventions of blacks from 1848 to 1856 to the "Journal of Black Studies," December, 1972. The research was supported by a grant from the American Philosophical Society and the MSU Research Fund.

ROBERT C. TROJANOWICZ, associate professor of criminal justice, is the author of "Juvenile Delinquency Concepts and Controls." The book was recently published by Prentice - Hall Inc., Englewood Cliffs, N.Y.

ROBERT W. MCINTOSH, extension tourism and recreation management specialist, has been invited to serve on the first Board of Trustees of the United States Travel Data Center. His term will be for one year, beginning Feb. 1, 1973. He was also recently elected to membership in the International Association of Scientific Experts in Tourism, which has its headquarters in Berne, Switzerland.

ARTHUR WELLS, a research entomologist, was recently awarded the Associate Master of Muck Crops Award from the Michigan Muck Farmers Association and E-Z Flo Chemical Company. It was noted that Wells' research on vegetable insect control, particularly on soil and onion maggots, has saved growers hundreds of thousands of dollars. And his research on potato insects has kept Michigan growers in a competitive position with growers in other states.

BULLETINS

GRAD ASS'T. FORMS

Graduate assistant appointment recommendation forms for spring term are due in the Budget Office, 432 Administration Bldg., by noon Friday, Feb. 23. All forms received before the deadline will be processed for the March 15 payroll.

SLAVIC ENSEMBLE

The Slavic Folk Ensemble of Oakland University will stage a free dance and song festival at 8:15 p.m. Thursday, Feb. 15 in the Music Auditorium. The troupe, which performed to a full house here last year, is under the direction of Russian-born Helen Kovach, and will do Bulgarian, Macedonian, Polish, Russian, Serbian and Ukrainian songs and dances in authentic costumes.

COMM. ARTS LECTURE

"Bilingualism in Canadian Mass Media" is the subject of a lecture to be given by Lyle R. Cruickshank, executive assistant to the director of distribution, National Film Board of Canada, at 3:30 p.m., Thursday, Feb. 22 in 105 S. Kedzie. This is the third lecture in the series "Human Communication: International and Crosscultural Implications."

OBSERVATORY

The MSU Observatory will be open to the public from 8 to 10 p.m. Saturday, Feb. 17. Weather permitting, the 24-inch reflecting telescope will be used for observing celestial objects of current interest. Children under 13 should be accompanied by at least one adult for each three children.

RESTLESS EARTH

A recently completed documentary on the theories that are revolutionizing the geological sciences, "The Restless Earth" will be shown at 7 p.m. on Wednesday, Feb. 21 in 116 Bessey. The film is sponsored by the Dept. of Geology.

REVISED CLASS LISTS

Revised class lists, including all the names of students enrolled in each course and section as of Feb. 14, will be delivered to departmental offices on Friday, Feb. 16. The lists should be checked immediately and questions directed to the Office of the Registrar, 3-0731 or 5-3300, ext. 67. Final grade cards corresponding to the students listed on these class lists will be distributed and all discrepancies must be cleared prior to Feb. 23.

CONFERENCES

Feb. 16 Audiology & Speech Science

Feb. 16-17 Jackson-Hillsdale Area Commission on Economic Opportunity

Feb. 18-23 Industrial Ventilation Conference

Feb. 19-23 Managing Today's Law Enforcement Agencies I

SEMINARS

THURSDAY, FEBRUARY 15, 1973

Computer systems with natural language inputs. Gilbert K. Krulee, ACM National Lecturer, Northwestern U., 7 p.m., 402 Computer Center. **Computer Science, Student Chapter ACM.**

The family as a system: issues and assumptions — First event in the Human Ecology Professional Development Seminar Series. K. Dean Black, assistant professor, sociology and research associate, Gerontology Center, The U. of Southern California. 4 p.m., 138 Chemistry. **Human Ecology.**

Electron-phonon interaction in superconductors. Moises Levy, U. of Wisconsin-Milwaukee, 4:10 p.m., 120 Physics-Astronomy. **Physics.**

Some aspects of vision in *Peromyscus*. Jack King, 4:15 p.m., 126 Psychology Research. **Psychology.**

FRIDAY, FEBRUARY 16, 1973

Threshold photo-neutron studies for ²⁰⁷Pb. L. Medsker, Argonne National Laboratory, 4:10 p.m., Cyclotron Laboratory Seminar Room. **Cyclotron.**

Open meeting for seminar interaction. Beatrice Paolucci, 8:30 a.m., Gold Room, Union. **Human Ecology.**

Effects of anesthetic agents on cardiovascular function. Donald Sawyer, 12 p.m., 449B Life Sciences. **Pharmacology.**

MONDAY, FEBRUARY 19, 1973

Properties of axoplasmic transport. Harvey Knull, 4 p.m., 136 Chemistry. **Biophysics.**

The use of computer graphics in data snooping. Scott Guthery, Bell Laboratories, Holmdel, New Jersey. 4 p.m., 100 Engineering. **Computer Science.**

Nuclear structure with heavy-ion transfer reactions. G. Morrison, Argonne National Laboratory. 4:10 p.m., Cyclotron Laboratory Seminar Room. **Cyclotron.**

Prospects for graduate employment. Edwin Fitzpatrick, 12:30 p.m., 126 Anthony. **Dairy Science.**

Comparative aspects of glomerular disease in animals and man. James B. Henson, chairman, Dept. of Veterinary Pathology, Washington State U. 4:10 p.m., 109 S. Kedzie. **Pathology.**

Electric field gradients in insulators. Ram Sharma, U. of Illinois, Chicago Circle, 4 p.m., 223 Physics-Astronomy. **Physics.**

Vascular responses in skin and skeletal muscle to hemorrhage. John E. Hall, 4 p.m., 216 Giltner. **Physiology.**

TUESDAY, FEBRUARY 20, 1973

Mycotoxins: biosynthesis and biological activity of some sex hormones produced by fusaria. C.J. Mirocha, U. of Minnesota, 4 p.m., 168 Plant Biology. **Botany and Plant Pathology.**

Batch vs. continuous fermentation—a chemical engineer's viewpoint. Kirk Cobb, 4 p.m., 284 Engineering. **Chemical Engineering.**

Structural determination in solution using NMR lanthanide shift reagents. Raymond E. Davis, U. of Texas at Austin, 4 p.m., 136 Chemistry. **Chemistry.**

Toxins of the Type E *Clostridium botulinum*. Merlin D. Breen, 4:10 p.m., 103 Food Science. **Food Science and Human Nutrition.**

An analysis of the Dutch bulb industry. A.A. DeHertogh, 4 p.m., 209 Horticulture. **Horticulture.**

Biosynthesis of things (cell wall, cell membrane, plasmids, DNA) during the division cycle of bacteria. S. Cooper, Dept. of Microbiology, U. of Michigan. 4:10 p.m., 146 Giltner. **Microbiology and Public Health.**

Animal models of human disease. James B. Henson, chairman, Dept. of Veterinary Pathology, Washington State U., 4:10 p.m., 109 S. Kedzie. **Pathology.**

Glucagon in chronic heart failure. Benedict Lucchesi, associate professor, Dept. of Pharmacology, U. of Michigan. 4 p.m., 449B Life Sciences. **Pharmacology.**

Cyclic-AMP in plants: a special discussion period. Joseph Mascarenhas, SUNY, Albany and Robert Weintraub, Smithsonian Institute. 12 p.m., 106 Plant Biology. **Plant Research Laboratory.**

Exploratory data analysis and graphics. Scott Guthery, Bell Laboratories, Holmdel, New Jersey. 4:10 p.m., 106B Wells. **Statistics and Probability.**

WEDNESDAY, FEBRUARY 21, 1973

Breeding for disease resistance *et al.* in Michigan wheat. E.H. Everson, 4:10 p.m., 168 Plant Biology. **Botany and Plant Pathology.**

Developing molecular genetics of physarum. William Done, McCordle Institute, Madison, Wisc. 4 p.m., 103 Anthony. **Genetics.**

Zinc deficiency and ability to learn. Harold H. Sandstead, director, Human Nutrition Laboratory, Human Nutrition Research Division, USDA, Grand Forks, N.D. **Institute of Nutrition.**

Who fails in respiratory failure? Tom M. Johnson, associate professor and director, undergraduate medical education for Grand Rapids; Edward A. Jones assistant clinical professor and director, cardio-pulmonary unit, St. Mary's Hospital, Grand Rapids; Judith McNally, respiratory care nurse clinician, St. Mary's Hospital, Grand Rapids. 12:30 p.m., 214 Life Sciences I. **Medicine.**

Plant breeding for nitrate reductase. Richard Hageman, U. of Illinois. 4:10 p.m., 101 Biochemistry. **Plant Research Laboratory.**

THURSDAY, FEBRUARY 22, 1973

A multilevel programming model for the rural sector of the Ivory Coast. Rene Vaurs, Development Research Center, World Bank, Washington, D.C. 3:30 p.m., 312 Agriculture. **Agricultural Economics.**

Multiple functions of carnitine. Loran L. Bieber, 4:10 p.m., 101 Biochemistry. **Biochemistry.**

Soil conservation in Argentina. R.L. Cook, 4 p.m., 310 Agriculture. **Crop and Soil Sciences.**

Indonesian fish culture. Peter I. Tack, 1:30 p.m., 223 Natural Resources. **Fisheries and Wildlife.**

Effect of oral contraceptive pills on lactation. Aysel Ozelci, 12:30 p.m., 206 Food Science. **Food Science and Human Nutrition.**

Neutrino physics: in retrospect and prospect. E.A. Paschos, National Accelerator Laboratory, Batavia, Ill. 4:10 p.m., 120 Physics-Astronomy. **Physics.**

FRIDAY, FEBRUARY 23, 1973

Daily torpor in *Peromyscus leucopus*. Richard W. Hill, 3 p.m., 145 Natural Science. **Zoology.**

FRIDAY, FEBRUARY 16, 1973

- 10 a.m. Board of Trustees meeting.
- 7:30 p.m. Hockey—MSU vs. Notre Dame. Ice Arena.
- 8 p.m. "Little Green Men"—The theory of extraterrestrial intelligent life in the universe is the topic of this continuing presentation in the sky theatre. Following the 8 p.m. shows, there will be a special session on the current sky with outdoor observation if weather permits. Abrams Planetarium.
- 8:15 p.m. Concert—Works by eight MSU composers will be heard in the Premieres of New Music Concert, which features the MSU Jazz Ensemble and the New Musical Arts Ensemble. The compositions range in scope from madrigal to material using the sounds of wolf and whale. There is no charge for admission. Erickson Kiva.
- 10 p.m. "Little Green Men" (see above). Abrams Planetarium.

SATURDAY, FEBRUARY 17, 1973

- 1:30 p.m. Basketball—MSU vs. Purdue. Jenison Fieldhouse.
- 2 p.m. Women's intercollegiate gymnastics—MSU vs. Central Michigan, U. of Wisconsin, and Ontario, Canada. There is no charge for admission. Jenison Gym.
- 2:30 p.m. "Little Green Men" (see Feb. 16). Abrams Planetarium.
- 7:30 p.m. Hockey—MSU vs. Notre Dame. Ice Arena.
- 8 p.m. World Travel Series—Dr. Charles Forbes Taylor will present "Hawaii in the '70s." The color film and lecture presentation will include a tour completely around the island of Oahu, a visit to the University of Hawaii, and Children's Parade, old handicrafts, Mount Pali and the Mormon Temple at Laie. Auditorium.
- 8 p.m. "Little Green Men" will be followed by a skywatching session (see Feb. 16). Abrams Planetarium.
- 10 p.m. "Little Green Men" (see Feb. 16). Abrams Planetarium.

SUNDAY, FEBRUARY 18, 1973

- 3 p.m. Singing Statesmen—Under the direction of J. Harris Strohl, the 39-voice men's glee club will perform sacred and secular music including folk songs from the United States and other countries. There is no charge for admission. Music Auditorium.
- 4 p.m. "Little Green Men" (see Feb. 16). Abrams Planetarium.

MONDAY, FEBRUARY 19, 1973

- 8:15 p.m. Recital—Jon Nichols and his students from the Greater Lansing Percussion Ensemble will present several marimba selections. There is no charge for admission. Music Auditorium.

TUESDAY, FEBRUARY 20, 1973

- 12 p.m. University Club luncheon—Robert Perrin, vice president for university relations, will speak on MSU's Equal Opportunity Programs.
- 6:30 p.m. Women's intercollegiate basketball—MSU vs. Western Michigan U. There is no charge for admission. Women's IM Bldg.
- 8 p.m. International folkdancing—Instruction will be followed by free dancing at 9 p.m. 327 M.A.C.

- 8 p.m. "Pioneers of Modern Painting"—Parts I and II of Sir Kenneth Clark's new film series is sponsored by the Friends of the Library. 100 Engineering Bldg.
- 8:15 p.m. "Indians"—This new Performing Arts Company presentation, written by Arthur Kopit, shows white men and red men in the 1880s alternately living in uneasy peace and fighting in deadly wars. The plot revolves around the character of Buffalo Bill Cody, who tried to both befriend and exploit the Indians. Tickets are available from the Dept. of Theatre, 149 Auditorium. Fairchild Theatre.
- 8:15 p.m. Graduate recital—Linda Bartley, clarinetist. Music Auditorium.

WEDNESDAY, FEBRUARY 21, 1973

- 8 p.m. "Pioneers of Modern Painting" (see Feb. 20). 100 Engineering.
- 8:15 p.m. "Indians" (see Feb. 20). Fairchild Theatre.

THURSDAY, FEBRUARY 22, 1973

- 6:30 p.m. Environmental films—"For Your Pleasure," "Tragedy of the Commons," and "Multiplied and Subdue the Earth"—three films on population, growth, and the urban environment—will be shown with no charge for admission. East McDonel Lounge.
- 8:15 p.m. "Indians" (see Feb. 20). Fairchild Theatre.
- 8:15 p.m. Concert—Czechoslovakian conductor Bystrík Rezucha will lead the MSU Chamber Orchestra in Witold Lutoslawski's "Jeu Vanities (1961)," Johann Melchior Molter's "Concerto for Clarinet in D and Strings" and Haydn's "Symphony No. 100 in G Major (Military)." Elsa Ludewig-Verdehr, clarinet, will be the featured soloist. Music Auditorium.

FRIDAY, FEBRUARY 23, 1973

- 7 p.m. Women's intercollegiate gymnastics—MSU vs. Eastern Michigan U. and Indiana State U.
- 8 p.m. "Little Green Men" will be followed by a skywatching session (see Feb. 16). Abrams Planetarium.
- 8:15 p.m. "Indians" (see Feb. 20). Fairchild Theatre.
- 10 p.m. "Little Green Men" (see Feb. 16). Abrams Planetarium.

SATURDAY, FEBRUARY 24, 1973

- 9 a.m. Women's intercollegiate swimming—Big Ten championships.
- 10 a.m. Fencing—MSU vs. Detroit, U. of Illinois Chicago Circle, and Wayne State. IM Sports Arena.
- 1:30 p.m. Gymnastics—MSU vs. U. of Illinois. Jenison Fieldhouse.
- 2:30 p.m. "Little Green Men" (see Feb. 16). Abrams Planetarium.
- 8 p.m. "Little Green Men" will be followed by a skywatching session (see Feb. 16). Abrams Planetarium.
- 8:15 p.m. "Indians" (see Feb. 20). Fairchild Theatre.
- 8:15 p.m. Graduate recital—Gertrude Huisman, mezzo-soprano. Music Auditorium.
- 10 p.m. "Little Green Men" (see Feb. 16). Abrams Planetarium.

EXHIBITIONS

Kresge Art Gallery

Faculty Exhibit: Works of 21 art department faculty members, including oil and acrylic paintings, watercolors, prints, drawings, sculptures, jewelry and photographs. Gallery hours: weekdays, 9 a.m. to 5 p.m.; Saturdays and Sundays, 1 to 4 p.m.; Tuesdays, from 7 to 9 p.m.

Museum

"Sound of the Ax"—This exhibit traces the development of both the felling and broad ax from early European times to the 19th century. The American ax became probably the most important tool in the opening of our frontiers. Artisan's Hall, second floor.

BULLETINS

BOARD MATERIAL

Material for consideration at the March 16 meeting of the Board of Trustees is due in the office of the executive vice president or the provost by Thursday, Feb. 22.

DEMETER

Donald White of the U. of Michigan will speak on "Excavations on the Sanctuary of Demeter, Cyrene" at the monthly meeting of the Central Michigan Archeology Society at 8 p.m. Wednesday, Feb. 21, in Kresge Art Center's Main Gallery.

SOVIET FILM

The Russian and East European Studies Program will show "Mother," a silent Soviet film with English titles, at 7:30 p.m. Tuesday, Feb. 20 in 146 Giltner. There is no charge for admission.

BRIDAL SHOW

Tickets are now on sale for the Floriculture Forum's ninth annual wedding and flower show, "Weddings: Then, There, Now" to be held at 7 p.m. Monday, Feb. 26. Tickets may be purchased at 109 Horticulture. Donation is \$1.25.

Information on MSU events may be submitted for possible inclusion in the bulletins to Patricia Grauer, Dept. of Information Services, 109 Agriculture Hall, (517) 353-8819. Deadline for submitting information is noon Tuesday preceding the Thursday publication.