

# MIT Launches \$225M Drive

## Budget Outlook Is Strong

NEW YORK CITY, April 23—MIT begins its \$225 million MIT Leadership Campaign with a strong budget outlook, but that prospect has been achieved only through a program of increased austerity throughout the university over the last five years.

MIT Chancellor Paul E. Gray said that like most colleges and universities in the US, MIT has found its costs—including the costs of salaries and wages, services, and supplies, including fuel and energy—going up at a much faster rate than its income from regular sources. The result has been shortfalls in current income in meeting recurring expenses both last year and this year. In 1973-74 the shortfall amounted to approximately \$2.5 million, whereas this year it will be about \$4.0 million. During the previous two years,

(Continued on page 2)

*The New York Times*

April 24, 1975

## Wiesner Says U.S. Has Outrun Technology in Problem-Solving

By VICTOR K. McELHENY

Americans have "outrun our technological base and certainly our intellectual base" in trying to solve "age-old problems in 30 to 40 years," Dr. Jerome B. Wiesner, president of the Massachusetts Institute of Technology, said here yesterday.

The former Presidential science adviser said that the United States was suffering "the consequences of becoming too cavalier about what we do and trying to do too many things."

At a news conference to announce a five-year, \$225-million fund drive for M.I.T., Dr. Wiesner said that, despite such problems, university scientists and engineers were "hopeful about the future."

"We see many opportunities to deal with a vast number of problems," he observed. "We're optimistic because we are working on the problems."

Disenchantment with science and technology, mirrored in declining enrollments in university classes in those subjects, "has moderated," Dr. Wiesner said. "Now people understand that there are benefits and there are costs. Societies are imperfect, and always have been. The problem is to learn how to manage it better."

According to Howard W. Johnson, former M.I.T. president who is now chairman of its corporation, or board of trustees, the drive seeks \$100-million for endowment, \$62-million for buildings, \$43-million for several large technological programs and \$20-million in unrestricted funds.

Noting the competition from more than 100 other major fund drives by colleges and universities, totaling more than \$5-billion, of which about half has been raised, Mr. Johnson said that retail store chains frequently sought out "shop-

ping centers with the stiffest competition because that attracts the customers."

The M.I.T. drive is the fifth largest among these being mounted by educational institutions. The larger campaigns are those of Yale University (\$370-million), Stanford and New York University (\$300-million each), and the University of Chicago (\$280-million).

Among the technological projects to be funded through the \$225-million M.I.T. drive is an energy laboratory formed in 1972, which is already performing about \$3.5-million worth of studies annually. The drive seeks \$7.5-million to support the laboratory.

Dr. Wiesner said about 60 of the 900 members of M.I.T.'s faculty were collaborating in the laboratory's work, while 40 other faculty members work on energy issues individually.

He said he hoped that the laboratory could become "a neutral forum for debate" among many interests affected by proposed energy moves. Some of the "bitter fights" over nuclear energy, he said, "come from very little information."

NEW YORK CITY, April 23—The Massachusetts Institute of Technology Wednesday announced the start of a two-phase MIT Leadership Campaign to raise \$225 million in private support—\$125 million in an initial phase over the next three years and another \$100 million in a second phase during the following two years.

The campaign, MIT officials said, will seek principally to increase the Institute's endowment and, secondly, to provide funds for new teaching and research programs as well as for badly-needed new facilities.

Officials of the 114-year-old institute of science and engineering at Cambridge, Mass., said the campaign has been two years in the planning and that a nucleus fund of \$43 million already has been committed toward the campaign goal. All gifts, grants and bequests received during the five-year campaign period, they said, will be applied to the campaign objectives.

The start of the campaign was announced at a press conference here by Howard W. Johnson, chairman of the MIT Corporation; MIT President Jerome B. Wiesner; Chancellor Paul E. Gray; and Paul F. Hellmuth, managing partner in the Boston law firm of Hale

(Continued on page 2)

## MIT As a Symbol of Science and Service

(The following essay was prepared by Howard W. Johnson, chairman of the MIT Corporation, MIT President Jerome B. Wiesner, and MIT Chancellor Paul E. Gray for a book to be issued in support of the \$225 million MIT Leadership Campaign.)

In the US and around the world, MIT stands as a symbol of science in the service of mankind and the strengthening of our society. People everywhere look to MIT to contribute basic knowledge and to demonstrate its usefulness—and to provide education, wisdom and inspiration for a future that depends upon the development and wise use of new technology.

Men have always dreamed of a just world, free of fear, disease, and hunger in which all could reach for their highest aspirations. The emergence of modern technology first gave us the power to achieve that vision and the hope of realizing it. As a result we have turned to our use a remarkable range of materials from the environment in which we live; we have a high standard of living; we have developed an economic system to spur technical and social development; we have begun to insure protection of the environment; and we have made major commitments to social justice and welfare. But we live today in a world of increasing scarcity, complexity, and change. Some of our aspirations are yet to be re-

alized and many of their implications remain inadequately understood. Furthermore, we are aware of serious new problems created in our efforts to solve old ones, and some of these appear to be more complex and harder to understand than those they displace. So it is that many people feel adrift, caught up in a system which emphasizes material goods beyond humanism yet fearing that even today's standards of life cannot be brought more equitably to all people, perhaps even sustained for us as we now know them. Everything seems related to everything else in a web of such complexity as to defy our understanding and management. We are puzzled about next steps, and while we ponder them we seem to find ourselves surrounded by constraints and complications that sap much of our momentum and self-confidence and personal freedom of action.

But the fact remains that today's problems are the consequences of our earlier successes and accomplishments. A visit to a less developed country quickly convinces one that solutions must be found not through abandoning a technological society, but through improving it and learning better to manage it.

There remain to us vast natural resources, boundless human energies, and endless prospects of new technologies with which to approach the future hopefully. There can still be a quantum increase in our under-

standing of the world in which we live and in the wisdom and effectiveness with which we manage our affairs and use our many resources. There are before us enormous opportunities to make each person's life a more rewarding experience, spiritually and culturally as well as materially.

We need wisdom, leadership, and understanding marshalled purposefully for the issues before us. Modern universities—leadership institutions with inspiring teachers of superlative, broad, and timely understanding—are among our invaluable resources, and on any list of these MIT must have a very special place.

Through the creative genius of such outstanding leaders and scholars as William Barton Rogers, Francis Amasa Walker, Arthur Amos Noyes, Richard Cockburn MacLaurin, Karl Taylor Compton, Samuel Cate Prescott, Norbert Wiener, Vannevar Bush, Warren K. Lewis, Julius Adams Stratton, and James Rhyne Killian, Jr., the foundations were laid in MIT's first one hundred years for the broad understanding of the sciences and their applications to the full range of human interests and concerns which now characterize the institution. Interdisciplinary cooperation has been a notable characteristic of MIT's strength in this first century of service.

Today the Institute's teaching and research programs reach out to people, industries, and in-

stitutions in more than 120 countries. They comprehend with unique power many important areas of greatest concern—energy supplies, health, industrial productivity, housing, economics, materials, communications, food and nutrition, political science, resources, environmental protection, and planning. These are complemented with great strength in the sciences, the arts, and the humanities. Together these offer unique leverage on some special contemporary issues: assessing the impact of technology, providing career opportunities for minority group members and women in MIT's fields of competence, improving the skill with which social and industrial organizations are managed, enhancing international security and understanding, bringing the arts and humanities into a more productive relationship with science and engineering, insuring freedom and privacy—enhancing in all ways the roles and lives of all people in technological societies.

Taken as a whole, these strengths uniquely qualify MIT to address the socio-technical dilemmas now confronting the nation and the world. From its students and faculty will come new living environments, new resources, new technologies and techniques, new organizations, new systems, new industries, new freedoms—the fulfillment of immensely important new expectations.

But to appropriately scale

MIT's contributions to the needs and opportunities of today and tomorrow requires new and unprecedented resources—major new funds to assure excellent faculty and outstanding students, funds to restructure our work in crucial fields and to provide a limited number of critically-needed core facilities. The MIT Leadership Campaign has been carefully planned to underwrite and extend the quality and strength of vital programs. It is based on the belief that our present problems—serious, complex, and even discouraging as they sometimes seem—are in fact unprecedented opportunities for innovative individuals and institutions. It is our conviction that there can be major advances in the human condition, and that the best ingredients for the future remain those that have brought us so far in the past—free human beings and innovative private institutions, both industrial and academic, functioning in democratic societies with responsive governments.

At its Bicentennial, America properly looks to MIT to lead in the future as it has in the past. We can do far more than we have done to improve people's lives. We can make major advances in health, education, well-being, and happiness here and now, in our own time. This is our goal as the Institute looks to its Leadership Campaign for major new private resources. We are determined that MIT shall succeed.

# MIT Launches \$225 Million Capital Campaign

(Continued from page 1)

and Dorr and a member of the MIT Corporation who will serve as co-chairman of the campaign with Mr. Johnson.

Mr. Johnson, President Wiesner and Chancellor Gray, in an essay from a book to be issued in support of the campaign, said MIT urgently needs new resources if its people are to fulfill their traditional obligation of providing leadership in the application of science and technology to the solution of problems that beset the nation and mankind everywhere.

"It is our conviction," they said, "that there can be major advances in the human condition, and that the best ingredients for the future remain those that have brought us so far in the past—free human beings and innovative private institutions, both industrial and academic, functioning in democratic societies with responsive governments.

"At its Bicentennial, America properly looks to MIT to lead in the future as it has in the past. We can do far more than we have done to improve people's lives. We can make major advances in health, education, well-being and happiness here and now, in our own time. This is our goal as the Institute looks to its Leadership Campaign for major new private resources. We are determined that MIT shall succeed."

Mr. Johnson, an economist, is a former president of MIT (1966-71) and before that was dean of the MIT Sloan School of Management. Dr. Wiesner, noted for his work in the science and engineering of electronics as well as his service as White House science advisor from 1960 to 1964, is a former dean of the MIT School of Science and a former provost, and became president of the Institute in 1971. Chancellor Gray, formerly professor of electrical engineering, dean

of the School of Engineering and associate provost, became chancellor in 1971 to share responsibility for administration of the university with President Weisner.

The campaign will be MIT's first since the Second Century Fund in 1961-63 under the leadership of Dr. James R. Killian, Jr., retired MIT president and Corporation chairman who continues to serve as a Life Member Emeritus of the Corporation and honorary chairman of the Corporation Development Committee, a group of nearly 150 prominent alumni.

Dr. Killian, in preparation for the new campaign, noted that MIT presently has \$55,000 of endowment funds per student—well below the range of \$79,000 to \$98,000 of endowment per student that prevails at most of America's leading colleges and universities.

Of the total \$225 million being sought in the MIT Leadership Campaign, Mr. Johnson said, \$100 million will be sought for endowment to increase MIT's total of invested funds by nearly one-third to \$450 million. MIT presently has an enrollment of 4,000 undergraduate students, 4,000 graduate students, a teaching staff of 2,500, and a total of \$344 million in invested funds at book value.

Mr. Johnson said that of the additional new endowment, \$50 million is earmarked to support endowed professorships for distinguished faculty members and to support career development among younger promising faculty. Another \$10 million in new endowment will support student aid, the interest going into loan and scholarship funds. Interest from \$20 million will help support otherwise unsponsored research with promise for the future and the remaining \$20 million will be applied to general endowment.

Another \$43.2 million, Mr. Johnson said, from the campaign goal

will provide urgently needed support for specific teaching, research and service programs. These include broad programs in energy research and development, in research and teaching in the health sciences, in transportation, in new programs to encourage the creative and performing arts, and in the development of the MIT library system. In addition, the campaign will provide new funds to pursue new programs of continuing education for professionals already at work in government, industry and education.

The campaign total, Mr. Johnson said, also includes \$61.8 million for new facilities,—funds for new dormitories to relieve current crowding and permit a modest increase in the student body; modernizations in classrooms and laboratories serving such MIT academic departments as management, architecture, planning, mathematics and psychology; a loan fund to help fraternities replace antiquated structures which now accommodate one-third of all MIT undergraduates; and an athletics and special events center.

The campaign goal provides for a final \$20 million in unrestricted funds which can be used to allow flexibility in budgetary allocations, in permitting MIT to respond without delay to immediate or short-term capital needs, and to permit the application of resources to purposes of maximum future benefit.

Mr. Johnson said MIT recognizes that it is launching its campaign during difficult economic times for America.

"Our decision to move now to seek this new support," Mr. Johnson said, "is based both on our belief in the fundamental strength of the American economy and on the realization that now is the time that the kind of technological leadership MIT can offer is most

urgently needed."

President Wiesner said the overriding world problem is the understanding and management of vast and complex social and technological systems characterized both by their monumental scale and their interrelatedness.

With inexorable growth in virtually all the affairs of humankind over the past half century, he said, has come "increased suspicion between different groups—and a sense of alienation and loneliness of the individual."

No modern state has yet learned to do this, he said. "But there is hope, not for final solutions, but for sufficient progress in all vital areas to revive a sense of pride and purpose in our nation and its goals and within this environment re-establish a sense of personal challenge and happiness for our people," he said.

The fact that world and national problems—hunger, housing, poverty in the presence of idle industrial capacity, pollution, energy—seem to have reached crisis proportions does not signal society's imminent collapse, he said. It does, however, offer evidence of "their inherent connectedness and, above all, of the need for integrated approaches to their resolution."

Universities such as MIT—through research, through their students, through involvement of faculty in public affairs—can help achieve understanding of complex systems, he said. At MIT, for example, there is a long history of interdisciplinary approaches to large-scale systems problems and experienced pools of talent already at work in a variety of groups, centers and laboratories that require new and expanded resources to push their efforts even further.

Mr. Hellmuth, a member of the Class of 1947 at MIT, said that society is engaged in a kind of war

and "the trouble is that we do not have a single enemy on which we can focus." A paucity of leadership, he said, is just one problem, and he accepted the job of helping lead the MIT campaign out of conviction that institutions of excellence such as MIT must provide leadership now and for the future.

"We have so many enemies—famine, war, disease, inflation, to cite a few—that no one knows how to coalesce the resources of the country to fight them," he said. "This is precisely where the talents that have been assembled at MIT over a long period of time—and where further talents can be assembled as MIT's resources for leadership are expanded through this campaign—can and should make a major impact."

Luis A. Ferre, former governor of Puerto Rico who is serving this year as president of the 60,000-member Alumni Association, in a message to the MIT Alumni Advisory Council, said it has become increasingly apparent to MIT officials that a new and major infusion of funds would be required if the university is to keep pace with its traditions and with popular expectations worldwide.

Mr. Ferre, a 1924 graduate of MIT and a leading industrialist in Puerto Rico, said the campaign will be directed to alumni, friends, foundations and industrial organizations.

"Ours is an institution that has developed world preeminence in scientific capability and technological know-how to solve specific physical problems," he said. "It is now breaking ground into the areas of social improvement and human understanding with its scientific approach to help bring about a world free of prejudice and able to find peace and happiness."

Mr. Johnson and Mr. Hellmuth head a 17-member steering committee drawn from the MIT Corporation and the Corporation Development Committee whose members will take leading roles in carrying out the campaign. Mr. Ferre also serves on the steering committee. Other members are:

Paul M. Cook, '47, president Raychem Corp., Menlo Park, Calif.; Marshall B. Dalton, '15, honorary chairman, Arkwright-Boston Manufacturers Mutual Insurance Co., and Mutual Boiler and Machinery Insurance Co., Peterborough, N.H.; Cecil H. Green, '23, director, Texas Instruments, Inc., Dallas, Tex.; Robert C. Gunness, '34, retired vice chairman of the board, Standard Oil Co., (Indiana), Chicago, Ill.; J. Kenneth Jamieson, '31, chairman of the board and chief executive officer, Exxon Corp., New York, N.Y.; Breene M. Kerr, '51, senior partner, Resource Analysis and Management Group, Oklahoma City, Okla.; Paul V. Keyser, '29, former executive vice president and director, Mobil Oil Corp., New York, N.Y.; Dr. Ralph Landau, '41, president, Halcon International, Inc., New York, N.Y.; Carl M. Mueller, '41, managing partner Loeb, Rhoades & Co., New York, N.Y.; Clint W. Murchison, Jr., '44, partner, Murchison Brothers, Dallas, Tex.; William B. Murphy, director, Campbell Soup Co., Camden, N.J.; Dr. Reid Weedon, Jr., '41, senior vice president, Arthur D. Little, Inc., Cambridge, Mass.; Uncas A. Whitaker, '23, chairman of the board, AMP, Inc., Harrisburg, Penn.; John J. Wilson, '29, secretary of the corporation, MIT, Cambridge, Mass.

The campaign director is Lt. Gen. James B. Lampert (USA, Ret.), MIT vice president for resource development, a member of the MIT Class of 1939, who joined the MIT staff in 1972 following retirement from military service.

## Campaign Begins with Strong Budget Outlook

(Continued from page 1)

current revenues exceeded current expenses by about \$4 million.

Unlike many colleges and universities, however, Dr. Gray said MIT has been able to cover these shortfalls with contingency reserve funds set aside for just such a purpose during the decade of the 1960s.

"We have not to the present had to retire any of the university's invested endowment in order to balance the annual budget," Dr. Gray said. "At the same time, however, the total endowment from which the university derives annual income has not been growing at a rate which equals the rate of growth of expenses."

"One important objective of the MIT Leadership Campaign is to be able to add significantly to the total endowment and thus increase the income from the endowment that will be available for annual operating costs."

Dr. Gray said that budgetary controls and reductions, including reductions in administrative staff, coupled with a modest increase in graduate and undergraduate student enrollments beginning with the fall of this year, and a slowdown in the national rate of inflation have begun to ease the budgetary problem.

With gifts already received toward the campaign goal and with increased momentum as the campaign gets underway formally, he said the university expects to eliminate the demand on contingency reserve funds for the 1976-77

budget year. In subsequent years the Institute expects to reduce its reliance on unrestricted gifts, grants and bequests for operating purposes, and to use these flexible resources for capital and endowment purposes, and for new programs.

MIT has current annual expenditures of some \$219 million, Chancellor Gray said, with \$144 million spent on the campus and \$75 million representing the annual budget of the Air Force-sponsored Lincoln Laboratory.

Of the \$144 million campus expenditures, \$61 million are the direct expenses incurred at the university in the carrying out of sponsored research programs. These expenses, Chancellor Gray said, are paid on the basis of direct cost reimbursements and are thus self-liquidating. As expenses climb due to inflation, so do direct cost reimbursements. (Beyond the direct costs, sponsors of campus research contribute about \$20 million per year to payments for indirect costs.)

All told, MIT faculty members hold grants and contracts for more than 1,000 sponsored research projects spanning virtually the entire range of human experience from physics, chemistry and health science and technology to engineering and applied science, linguistics, economics, art, music, history and philosophy.

The largest single sponsor of research on the MIT campus is the National Science Foundation. Expenditures, direct and indirect, on behalf of projects sponsored by NSF at MIT during the current academic year are expected to amount to about \$18 million.

Another \$15 million will come

from the National Institutes of Health, the US Public Health Service and other agencies in the Department of Health, Education and Welfare; \$12 million from the various agencies of the Department of Defense; \$11 million from the Atomic Energy Commission (now divided into the Nuclear Regulatory Commission and the Energy Research and Development Administration); \$7 million from the National Aeronautics and Space Administration; \$6 million from other federal agencies and from state, local and foreign governments; \$7 million from private foundations; and \$5 million from industry.

"Sponsored research funds, of course, are dedicated solely to the research for which they are directed," Chancellor Gray said. "Recipients of such funds may not divert them to other purposes."

The remaining \$83 million in MIT's annual budget, Chancellor Gray said, goes for the costs of instruction for the Institute's 8,000 students, for such student services as housing and dining, for unsponsored research carried out in the Institute's 24 academic departments, and for the total costs of university administration and physical plant operations, including utilities.

Administration and plant costs, Chancellor Gray said, are incurred by the university on behalf of both the instructional program and the sponsored research program. Thus these administrative and physical plant costs are shared proportionately by the instructional activities and by research programs, and research sponsors contribute toward operating expenses through the pay-

ment of indirect costs.

Revenues available to the university to defray the \$83 million come from tuition (\$29 million a year based on MIT's present \$3,350-per-year tuition charged both for undergraduate and graduate students alike); from indirect cost reimbursements from research sponsors (\$20 million per year); from portions of the income from invested funds (now about \$13 million a year for operations, with another \$7 million going for specific nonoperating purposes); from designated gifts and receipts (about \$12 million a year at present); and \$9 million from room and board charges and other auxiliary services.

Revenues—such as room, board and tuition—are fixed by contract as much as a year or more in advance and have not been increasing at the same rate as costs in recent years, Chancellor Gray said. Additionally, gift income and investment income have not grown at the same rate as expenses have grown. As revenue growth has fallen behind expense growth this year and last year, some use of reserve funds in support of operations has been required.

Cost control measures, and efforts to increase recurring operating revenues by increasing enrollments slightly, can ameliorate this budgetary problem, Chancellor Gray said. However, he emphasized that the opportunities to develop necessary new programs, to strengthen educational activities, and to capitalize on the enormous intellectual capabilities of the Institute depend upon successful completion of the MIT Leadership Campaign.

## NAS Elects 3 from MIT

Three MIT professors are among 84 newly-elected members of the National Academy of Sciences and a fourth has been voted onto the Academy's governing body, the Council of the Academy.

The new members, chosen "in recognition of their distinguished and continuing achievements in original research," are:

Dr. Peter Elias, professor of electrical engineering.

Dr. Richard H. Holm, professor of chemistry.

Dr. Clifford G. Shull, professor of physics.

Elected to the Council was Dr. Frank E. Press, Robert R. Shrock Professor of Geophysics and head of the Department of Earth and Planetary Sciences.

Dr. Press, who became a member of the Academy in 1958, was elected to the Council for a three-year term beginning July 1 in mail balloting by Academy members.

The 84 new members were elected during the Academy's 112th annual meeting last week. This brings the number of Academy members to 1,134.

Election to membership in NAS is considered to be one of the highest honors that can be accorded to an American scientist or engineer. The Academy, established in 1863 by a Congressional Act of Incorporation, is a private organization of scientists and engineers dedicated to the furtherance of science and its use for the general welfare.

## 2-Sided Copying Now Available

A new duplicating system, capable of reproducing material simultaneously on both sides of a sheet of paper, will begin operation Thursday, May 1, in the Graphic Arts Copy Center, Rm. 3-003.

The system should be helpful in offsetting increased costs—and shortages—of paper, as well as anticipated postal increases, according to James W. Coleman, director of Graphic Arts.

Two-sided copying will be available to Copy Center customers on work from 10 to 200 copies. The existing price structure will remain in effect.

## Volunteers Sought

MIT Urban Action, a student-run volunteer clearing house, is seeking people—students or employees—to work with Cambridge retarded children.

Volunteers need to have two or more hours per week to spend working either in a one-to-one relationship or a group, with children aged six years or older. Specific activities include recreation, sports, community experience and self-help skills.

Volunteers may begin either this summer or when school resumes in the fall. For further information, call Urban Action, x3-2894 or Jack Barry, assistant athletic director, x3-4497.

# Snyder Named to Succeed Martin As Education Division Director

Dr. Benson R. Snyder, professor of psychiatry, who holds a joint appointment in the Division for Study and Research in Education (DSRE) and the School of Architecture and Planning at MIT, has been appointed director of DSRE.

According to an announcement by MIT Provost Walter A. Rosenblith, Dr. Snyder will succeed Dr. William Ted Martin, director of DSRE since its inception in 1973, who is relinquishing his duties as director to devote more time to teaching and research.

The appointment becomes effective July 1.

Professor Rosenblith said that Professor Martin, a member of the MIT faculty for more than 35 years, would continue to participate fully in research projects and graduate theses related to the Division.

The Division for Study and Research in Education began under Professor Martin as an environment in which faculty, MIT students and children could learn about objective phenomena, themselves, and about the process of learning.

Course offerings designed to achieve new perspectives on learning range from "Problem Solving Paradigms" and "Experimental Studies in Musical Perception and Learning" to "Case Studies in Institutional Learning." Opportunities for faculty and



Professor Snyder



Professor Martin

students from MIT's various schools and academic departments to join in DSRE's research provide a continuing examination of pedagogic techniques within the Institute itself.

In Dr. Snyder's words, "insight

into how people learn, how institutions educate both themselves and others, must be grounded in precise, up-close detailed examination of the teachers and the taught."

(Continued on page 12)

## All-MIT Communications Workshop to Begin in May

By ADAM and MAUREEN YAGODKA  
Co-Directors of Personnel Development

The second community-wide workshop in communication skills will be offered at MIT this spring.

Last spring thirty MIT employees and supervisors participated in a pilot workshop on "human processes in organizations." In their evaluation of the workshop all thirty indicated that they would recommend the workshop to colleagues and co-workers.

As a result of interest generated by pilot workshop participants, the Co-Directors, Drs. Adam and Maureen Yagodka, have responded to a number of departmental and work-group requests to design similar workshops addressing concerns of particular relevance at the departmental or work-group level. Workshops have been presented in the Electrical Engineering and Computer Science, Libraries, and Medical Departments, as well as with two intact work groups within Information Processing Services, where managers have requested such workshops.

Participants have included faculty members; administrative, academic, and sponsored research staff; and biweekly and hourly employees. Evaluations have strongly supported that the composition of the workshop include persons in both supervisory and non-supervisory positions. Workshop participants and facilitators

have found that the workshop format and focus of human processes is useful and equally relevant to people in the community whether they are faculty members, employees, or staff members.

The second community-wide workshop now being offered will thus be open to a widely diverse group of those who supervise and those who do not. It will be designed to improve skills in communicating, listening, leadership, and to enhance understanding of human factors that facilitate and block problem-solving and decision-making in the work setting.

Enrollment in this spring's workshop will again be limited to thirty persons. The goal in selection will be to achieve maximum variety in job function and location, length of MIT experience, and magnitude of responsibility.

The workshop will consist of seven meetings of three hours each, from 2pm to 5pm on the following dates: May 13, 15, 21, 28, and June 4, 11, 17.

Applications forms will be available from your department or laboratory headquarters or from the Office of Personnel Development, x3-4076. Please submit your application not later than May 5 to: Communications Workshop, Office of Personnel Development, E18-320.



Walter L. Milne (second from right) speaks with George Romney, Chairman of the Board of Directors of the National Center for Voluntary Action, Mrs. Mary Nicoloro and James Bentubo, officers of the Wellington-Harrington Citizens' Committee of Cambridge at a national awards ceremony in Washington to honor the Wellington-Harrington Citizens' Committee and its Development Corporation, one of only three organizations in the US so

honored, for success in planning and revitalizing the multi-ethnic Wellington-Harrington neighborhood. Milne, Assistant to MIT Chairman, Howard W. Johnson, serves as a Director of the Just-A-Start Corporation, a component of the Citizens' Committee with which many MIT students and employees have been involved. The MIT Community Service Fund, in particular, has provided financial support to Just-A-Start each year since 1971.

# Cambridge Humanities Seminar to Hold Open Meeting

An open meeting of the Cambridge Humanities Seminar will be held on Thursday, May 1, to show the sort of work the seminar does and to give non-members a chance to participate in one of its general sessions.

The open colloquium—in which two members of the seminar will give talks on the general topic of "The Value Fix"—will be from 3 to 5pm in Rm. 9-150. There will be

## AIP Elects Morse

Dr. Philip M. Morse, professor emeritus of physics, former director of the Computation Center and director emeritus of the Operations Research Center, has been elected chairman of the governing board of the American Institute of Physics.

refreshments.

The talks will be by Eugene Goodheart, chairman of the Department of English at Boston University, on "The Failure of Criticism," and by Philip Fisher, assistant professor of literature at Brandeis University, entitled "Notes on the History of Objects."

Goodheart is author of *The Utopian Vision of D.H. Lawrence*, *The Cult of the Ego and Culture and the Radical Conscience*. Fisher is author of articles in various literary journals, such as *New Literary History*, *Novel* and *Harvard English Studies*.

The seminar is a multi-institutional, interdisciplinary group that has organized a program in history, literature, philosophy and the fine arts. MIT, Brandeis, BU

and Wellesley are the present participants.

The seminar, formed in 1973, develops courses that are offered on a cross-registration basis. It also runs general sessions—of the kind to be held May 1—for faculty members involved in the seminar and for students enrolled in its courses.

The general focus of the

## Sue Ellen Litvin Wins Scholarship

Sue Ellen Litvin, a junior in civil engineering from Newton, will enter her senior year with \$2,500 in scholarships from the Consulting Engineers Council.

In March Ms. Litvin was selected to receive a \$1,500 scholarship from the Consulting Engineers Council of New Eng-

land, on the basis of her high academic standing, summer engineering work and non-engineering extracurricular activities.

The New England group entered Ms. Litvin in the national competition, where she was one of four to win an additional \$1,000 scholarship.

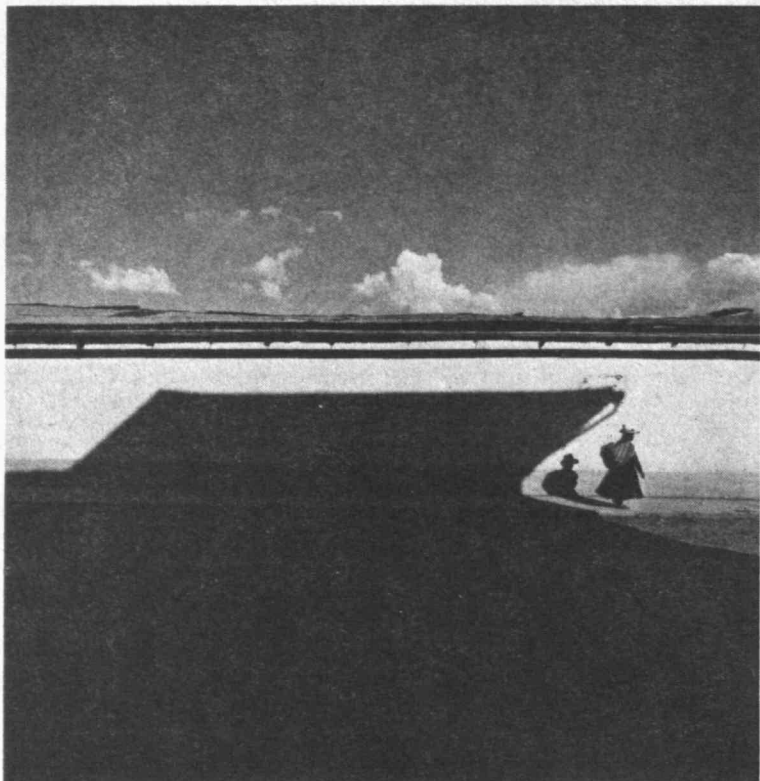
seminar's activity is on the subject of modernism and secularization.

"The Value Fix" presentation takes its title from the term technological fix, in which countries unable to generate solutions to existing problems try to import solutions, or fixes, from cultures with a more advanced technology.

"By analogy," explained Dr. Alvin C. Kibel, MIT professor of

literature and one of the organizers of the seminar, "a value fix is what people at MIT think that science and technology require—and so they turn to the humanities to ask for solutions to problems of value. But the premise behind this demand is false. The values have to be found by the enterprises that have generated the problems, and it is wrong to think that you can turn to the humanities for values that science and technology are searching for. Both talks to be presented, by Goodheart and Fisher, are, in their way, comments on the nature of this situation."

## Harry Callahan Prints At Photography Gallery



The Creative Photography Gallery is presenting an important exhibition of recent photographs by Harry Callahan, through May 16.

The exhibition of 41 prints marks the first major Boston exhibition by the photographer in more than six years. All of the photographs selected for the show were taken in Peru and Ecuador while Callahan was living in South America in 1973-74.

Callahan, one of the foremost photographers in the US, has been described as "the kind of artist who hunts his own shadow...in the intimacy of his own family, in the

streets, sidewalks, underbrush and fields...in the most common and uncommon jungles with equal intensity."

His work, widely published and exhibited here and abroad, is part of permanent collections at the George Eastman House, Rochester, N.Y., New York's Museum of Modern Art and the National Gallery of Canada in Ottawa. A Callahan retrospective is being planned by the Museum of Modern Art in New York for 1976.

Callahan has taught at the Rhode Island School of Design since 1961 and is now head of the photography department there.

### Gospel Tickets Still Available

Tickets are still available for the second annual gospel music extravaganza, Friday, May 2 at 7:30pm in Kresge Auditorium.

Four outside gospel groups—both student and church affiliated choirs—along with the MIT Gospel Choir, will sing in the benefit concert to raise funds for the Cape Verde Islands Relief Project.

Tickets for the concert are \$2.50 in advance, \$3 at the door and \$1 for children under twelve years. MIT students will receive a \$.50 discount. Tickets can be purchased at TCA, Bldg. W20-450. For reservations, call 494-8770.

### Felix Works At Faculty Club

An exhibition of paintings and drawings by Esther L. Felix, of Chestnut Hill, Mass., will be on view in the MIT Faculty Club from May 6 through the end of the month.

The exhibition of Boston landscapes and portraits will be the third show by the artist at the Faculty Club.

Esther Felix holds BFA and MFA degrees from Boston University and pursued additional studies at California State University at Long Beach and at the University of Hartford, Conn. Her work has appeared in group exhibitions in California, at Boston University and Wellesley College and at the Contemporary Artists Gallery, Brookline.

## Boston Ballet to Perform In Concert Band Premiere

Boston Ballet members will appear with the MIT Concert Band in the premiere of composer John A. Bavicchi's *A Summer Incident*, Opus 34 at a concert, 8:30pm, Saturday, May 3 in Kresge Auditorium.

The concert, sponsored by the MIT Music Section, will be open to the public free of charge.

The program of contemporary band music will include *Overture for Our Time* by Steve Chmielewski, a young New York composer, Vincent Persichetti's *Symphony No. 6*, Opus 86, and Kavel Husa's *Music for Prague 1968*.

The dancers will appear through the courtesy of the Boston Ballet under the direction of Edward Androse, a Boston choreographer.

Composer Bavicchi is a frequent contributor to Concert Band programs and a list of his works includes several pieces commissioned by the Concert Band. *A Summer Incident*, written in 1959, was performed 15 years ago as a piano work. The MIT performance will mark its first performance in original form.

The Concert Band is a 70-member symphonic wind ensemble, directed since it was organized in 1948 by John Corley, who also conducts the Wind Ensemble at the Boston Conservatory of Music.

## Poet Harper to Read Works Here

Michael S. Harper, who is among the first rank of contemporary black poets, will read from his poems, Thursday, May 1, at 8pm in the Mezzanine Lounge of the Student Center.

The program, sponsored by the Department of Humanities Visiting Writers Program, will be open to the public, free of charge.

Author of seven books of poetry since 1970, Mr. Harper will be reading from his most recently published collection, *Nightmare Begins Responsibility*, released by the University of Illinois Press last fall.

Hailed as a poet who writes "from within and without the black experience," Harper has received wide recognition as a significant contemporary American poet and a distinctive black poet of the seventies.

His other books in the order of their publication are: *Dear John*, *Dear Coltrane*; *History Is Your Own Heartbeat*; *Photographs: Negatives*; *History As Apple Tree*; *Song: I Want A Witness and Debridement*.

*History Is Your Own Heartbeat*,



Michael S. Harper

his second Book, received the 1971 poetry award from the Black Academy of Arts and Letters.

In 1972, the American Academy of Arts and Letters and the National Institute of Arts and Letters awarded Harper the following

citation: "To Michael S. Harper... whose grave, blunt poems deal with human and black experience simultaneously, welcoming white Americans into their music as far as our imaginations and hearts permit and our history entitles us to go."

Mr. Harper has served as poet-in-residence at Lewis and Clark College and visiting lecturer in literature at Reed College, associate professor of English at California State College at Hayward and was fellow at the Center for Advanced Study of the University of Illinois. He is presently professor of English and director of the graduate writing program at Brown University.

### Women Writers To Give Seminar

A seminar on experimental contemporary women writers will be held at MIT next week on the evenings of Wednesday and Thursday, May 7 and 8 in the Bush Room, Bldg. 10-150, at 8pm.

Novelists, short story writers and poets are scheduled program speakers. Fanny Howe, a novelist and poet from Jamaica Plain will be one of the participants on Wednesday. Thursday evening, June Arnold, a novelist and founder of Daughters, Inc., from Plainfield, Vermont and Hilma Wolitzer, author of *Endings*, from New York will speak. Other participants will be announced.

The special two-day seminar, part of the Department of Humanities Visiting Writers Series, will be open to the public without charge.

### Glee Club Plans Sunday Concert

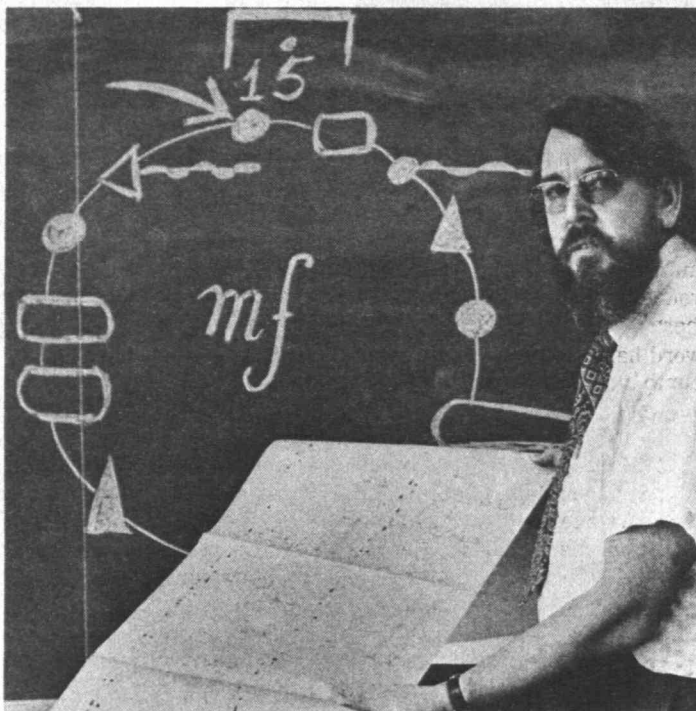
The Wellesley College Choir and the MIT Glee Club, directed by John Oliver, will present a concert of works by Haydn and Purcell, 3pm, Sunday, May 4 in Kresge Auditorium. The two groups will perform Haydn's *St. Therese Mass* and *Salve Regina* and Purcell's *Te Deum Laudamus*. The concert, sponsored by the MIT Music Section, will be open to the public free of charge.

### Ann Porto Prints In Rotch Show

Ann Porto, a student at the MIT Center for Advanced Visual Study, is exhibiting a selection of her prints and drawings at Rotch Library, Bldg. 7-238, through Tuesday, May 6.

Many of the exhibited works are of organic forms and patterns which Ms. Porto has derived from studies of crystallography and micro-organisms through photomicrography.

## Composer Farren Devises Percussion Notation System



Composer Farren with an illustration from the score of *Musica Tridentia*, demonstrates an example of a series of symbols used in the acoustic notation system.

No two percussion orchestras are the same. Each has a varied and frequently unconventional collection of bought and handmade instruments. This fact presents certain obstacles to the growing number of contemporary composers writing for percussionists.

Composer Martin Farren, an assistant professor of music here, has devised one solution for this problem.

He is one of several composers around the country who, in 1968, while teaching music at the University of Iowa, developed an acoustical notation system for a percussion composition he wrote.

Professor Farren describes his system as relatively simple to learn.

"It is a descriptive system rather than prescriptive," he said. "The symbols I use define the acoustical properties of desired sound rather than a specific instrument necessary for the production of the sound."

"Each symbol gives information on timbre, attack, relative dynamic level and general duration. So, as an easy example, instead of indicating that a work calls for a five-inch

button gong, which might be impossible for a musician to obtain, the symbols would require a high ringing metallic sound."

*Proportions*, his first unpublished work using the system, was discovered last year by the Black Earth Percussion Group, a resident ensemble at Northern Illinois University at De Kalb and the only full time performing group of its kind in the US. The work was found in their library, cryptically signed M. Farren, Iowa City, Ia."

The ensemble traced Professor Farren to MIT and subsequently commissioned another work, *Musica Tridentina*, which they premiered earlier this month in Illinois.

The group will also perform the work again at Yale University in early June.

Last week Yale University's Pierson College was the scene of a concert that featured performances of two works by Professor Farren, *Music for Clarinet and Piano* and *Da* for piano eight-hands was played by the Group for Contemporary Music from the University of Ottawa.

#### TECH TALK

Volume 19, Number 42  
April 30, 1975

*Tech Talk* is published 50 times a year by the News Office, Massachusetts Institute of Technology. Director: Robert M. Byers; Assistant Directors: Charles H. Ball, Barbara Burke, Robert C. Di Iorio, Patricia M. Maroni, Joanne Miller, William T. Struble, and Calvin D. Campbell, photojournalist; Reporters: Sally M. Hamilton, Ellen N. Hoffman; Institute Calendar, Institute Notices, Classified Ads: Susan E. Walker.

Address news and editorial comment to MIT News Office, Room 5-111, MIT, Cambridge, MA 02139. Telephone 253-2701.

Mail subscriptions are \$6 per year. Checks should be made payable to MIT and mailed to the Business Manager, Room 5-111, MIT, Cambridge, MA 02139.

# En Garde! Fencing Leads to Razor Design

By ROBERT C. DIORIO  
Staff Writer

"For a headline I would suggest 'Independent Inventor Invents Unique Hand Razor Handle Design Which in all Probability Could be World's Most Effective,'" Ralph Krupski said as he began emptying a small cardboard box.

Out of the box came a small square of wood pierced by a nail. Onto the nail went the unique hand razor handle design for which Mr. Krupski, 58, an independent inventor who also is a watch engineer at the MIT power plant, has been issued Design Patent No. 334205.

"It's very well balanced, as you can see," Mr. Krupski said, giving the razor handle a flick that sent it spinning on the point of the nail like a weather vane in a cyclone.

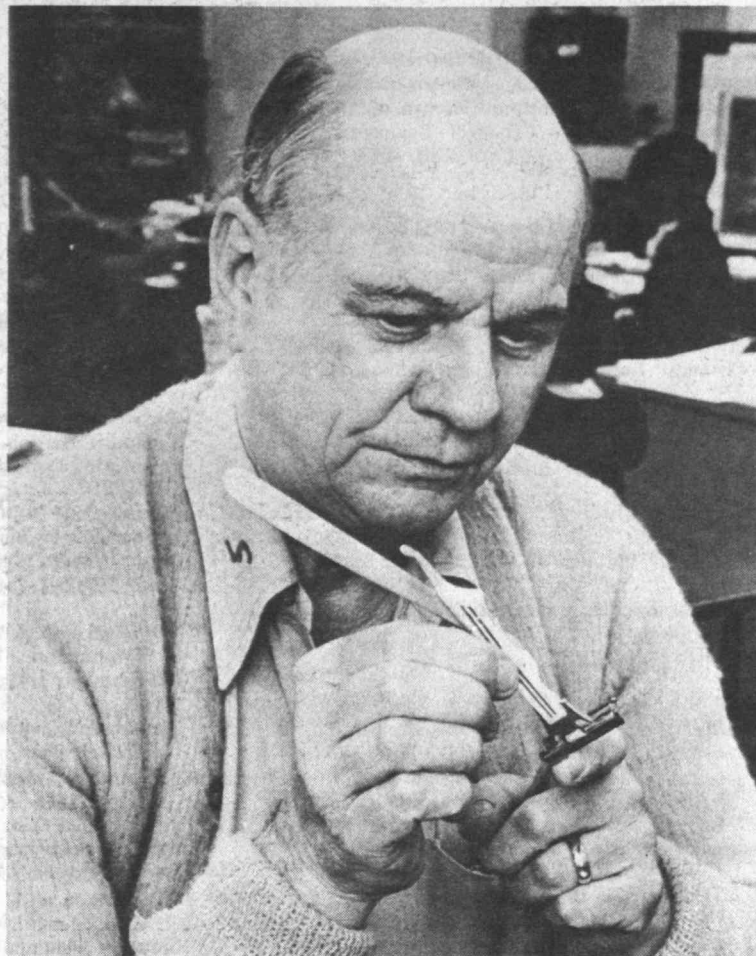
"I call it the Trigger Squirrel Tail. The trademark No. 984923 is registered on the Principal Register and is good for 20 years and renewable."

At first glance the Trigger Squirrel Tail looks like your basic safety razor handle out of which a squirrel has taken two small bites. Closer examination reveals that the Trigger Squirrel Tail is your basic safety razor handle into which Mr. Krupski has carved two notches—he calls them triggers—and onto which he has attached a slender, curved squirrel tail-shaped piece of aluminum.

"The fingers are faster than the hand," said Mr. Krupski, demonstrating with the Trigger Squirrel Tail, his thumb in the first trigger, his fingers spread out along the razor handle and the squirrel tail. "You see, with a regular handle only the hand can do the work, but with my invention the fingers do the work."

"This design is more effective because it enables the user to use a diagonal stroke instead of the conventional horizontal stroke. The excellent balance should bring back to hand shaving most of the class which was lost when the conventional hand safety razor replaced the old straight razor which required the use of the fingers."

Mr. Krupski got the idea for the Trigger Squirrel Tail several years ago while fencing with shipmates aboard a freighter bound for South Africa.



Ralph Krupski, watch engineer at MIT's power plant, holds the safety razor handle he designed and patented. Called the Trigger Squirrel Tail, the razor handle, Mr. Krupski says, allows the shaver's fingers to control the razor, resulting in a faster, closer, more comfortable shave.

"I joined the Merchant Marine during World War II and worked for the Farrel Lines of New York City, running to West and South Africa and Australia. Our pastime was sword play, but we didn't go in for fencing the way they do it for a sport in which a toe touch can score a point. Our idea was to take the sword out of the other fellow's hand by twisting your blade around his. I was pretty good at it. There is a little button on the sword handle where you put your thumb and it's the fingers that do the work. That's how I got the idea."

Mr. Krupski, who lives at 375 Main St., Lynnfield, came to MIT five years ago after several years in the Merchant Marine. He perfected the Trigger Squirrel Tail in his basement workshop and esti-

mates he has spent \$1,500 to get the patents. His hope is to sell the design to a razor manufacturer.

His inventive spirit also has given birth to some other ideas on which he intends to apply for patents. These include a hinged wooden seat—the Atlas Traction Seat—which, when placed on the bench seat of a car, prevents back fatigue and enables the driver to exercise his back when stopped in traffic by pushing down on the seat; a can puncher called The Cross Bow which incorporates a spring-action lid tapper and bottle cap opener, and a triple-bladed scraper designed to be used in scraping caked grass clippings from the bottom of a lawn mower. Mr. Krupski said a Southbridge tool company is interested in the scraper.

# Killian Receives First Marconi Fellowship

The first Marconi International Fellowship, whose purpose is to commission creative work that links science and engineering to the betterment of human life, has been awarded to Dr. James R. Killian Jr. of MIT.

Dr. Killian, honorary chairman of the MIT Corporation and former president of the Institute, received the award Wednesday evening, April 23, at the banquet of the National Academy of Engineering in Washington.

Vice President Nelson A. Rockefeller addressed members and guests of the National Academy of Engineering and presented the new Fellowship that commemorates the Centennial of the birth of the radio pioneer Guglielmo Marconi.

Gioia Marconi Braga, daughter of Guglielmo Marconi, created the Fellowship program, which is an integral part of the Program in Science, Technology and Humanism directed by Walter Orr Roberts of the Aspen Institute for Humanistic Studies.

Fifteen corporations from the US and abroad have underwritten the Fellowship, which will be given annually for the remaining years of the 20th century and which this year provides \$25,000 for the commission.

To carry out the commission under the award, Dr. Killian has chosen Professor Asa Briggs, eminent historian of radio broadcasting and vice chancellor of the University of Sussex, England, to do a study on the human and social implications of radio at different stages in the development of the science and art of broadcasting.

Vice President Rockefeller presented to Dr. Killian an original sculpture, designed for the Marconi International Fellowship by the noted artist Otello Guarducci. It bears the transcription "Ingenium Pro Bono Humanitatis," which loosely translated means "Intellectual Effort for the Benefit of Humanity."

A silver medallion, designed and made by Andrea Spadini of Italy,

was accepted by Dr. Killian on behalf of Professor Briggs, who was unable to attend.

Dr. Killian was chairman of the Carnegie Commission on Educational Television, which in 1967 made recommendations for the extensive development of "public television," and he recently completed service as Chairman of the Corporation for Public Broadcasting.

## New Bonds To Be Issued

New Bicentennial Savings Bonds will be available on May 1, 1975.

These Savings Bonds will be in the Bicentennial colors of red, white and blue. The \$25 Bond will have a picture of Independence Hall, Philadelphia, the \$50 Bond will have a picture of the Liberty Bell and the \$100 Bond will have Valley Forge.

These Bicentennial Savings Bonds will be available only until December 1976. They will make excellent commemorative gifts for yourself, family and friends.

Some other benefits of Savings Bonds are that they can supplement retirement plans and enable employees to meet short term cash needs. The Harvard Trust Company has assured the Institute that there will be sufficient supplies to meet our needs.

Information on the payroll purchasing of Savings Bonds plus an authorization card will be inserted in MIT pay envelopes this month.

The interest rate of 6% makes this an advantageous time to begin using the Institute's longstanding payroll plan for purchase of US Savings Bonds.

The MIT Payroll Office accepts authorization for payroll deductions for bonds at any time.

Campus contact is Edward Matheson, x3-3346; at Lincoln Laboratory, Thomas Saxon, x665.

## Black Students to Host Fourth Annual Conference

The fourth annual Black Students' Conference on Science and Technology at MIT will be held Friday and Saturday, May 2 and 3. The theme of this year's conference is "Science and Technology: Strategies for Educational, Economic and Political Development."

Featured speaker for the first general session will be Dr. Julian Earls, chief of the Office of En-

vironmental Health at the NASA Lewis Research Center in Cleveland, Ohio. His talk, scheduled for Friday from 3:30-5:15pm in the Sala de Puerto Rico, will climax a day of laboratory and lecture tours designed to foster an interest in science and technology among Boston's secondary school students.

Friday's program of events will also include a specially mounted

science information exhibit and general discussions of how scientific curiosity can be encouraged in the young.

Dean Mary Hope, MIT's assistant dean for student affairs, said the conference has sought to attract black experts on such workshop topics as Economic Development and Entrepreneurship, Energy and Natural Resources, Science and Engineering Education for Youth, The History of Black Contributors to Science and Technology, Career Development and Health Care Systems. Workshop sessions covering these areas will be held Saturday from

9-11:45am and from 1:45-4pm.

A special feature of the conference will be a luncheon address by Honorable Judge Mary Johnson Lowe of the New York State Supreme Court.

The final general session of the conference will be held Saturday from 4-5pm in Room 491 of the Student Center. For more information, students may call Yolanda Hinton (dorm line 0369), Kofi Bota x3-1538 or the office of Dean Mary Hope x3-4861.

## Acoustics Group Honors Two

Dr. Kenneth N. Stevens, professor of electrical and bioengineering in the Department of Electrical Engineering and Computer Science, and head of the speech communications group in the MIT Research Laboratory of Electronics, was elected president-elect of the Acoustical Society of America. The election took place at the Society's recent annual meeting in Austin, Tex.

Also at the meeting, Dr. Leo L. Beranek, lecturer in the Department of Electrical Engineering and Computer Science and president of WCVB-TV (Ch. 5), was awarded the Society's Gold Medal for his contributions to acoustics.

## Echoes

April 27-May 3

### 50 Years Ago

Technology's tennis team opened its season with an easy victory over BU.

Professor C.B. Breed, of Railway and Highway Engineering, submitted a report on Harvard Square Station to the Harvard Square Businessmen's Association.

President Samuel W. Stratton was elected Chairman of the Board of Visitors to the US Naval Academy.

### 40 Years Ago

Dr. Compton, speaking at N.Y. Technology banquet, stressed the importance of research in the educational program.

The third annual New England student ASME Conference opened at the Institute.

### 25 Years Ago

Annual Open House featured EE exhibits of a mechanical tic-tac-toe player, an osculometer (a device for recording the pressure of a kiss), and a television set on which visitors could view themselves.

The Acoustics Lab announced investigation of a new approach to detecting brain tumors by use of ultrasonic beams.

## Student Summer Projects To Offer Matching Grants

Students pursuing community projects in the Greater Boston area this summer may submit proposals for matching funds (\$400-\$800 per student) to the Office of Field Services, Laboratory for Architecture and Planning through Tuesday, May 13.

Student Summer Projects in Community Affairs, now in its fifth year, is jointly sponsored by the President's Fund for Community Affairs and the Community Service Fund.

"Funding is very limited this year," according to Timothy Bird, coordinator of field services. "What funding we have will be used to support students working in community service, technical assistance and field work."

"We hope to augment the money available by combining what we

can provide with matching support students obtain from community agencies, UROP or other sources," he said. "The goal for stipends will be \$1,200 per student."

Typical project areas will include environmental affairs, criminal justice and corrections, assistance to the elderly, civil liberties, recreation, health care, community development, youth services and education. Special consideration will be given to projects emphasizing direct service and improvement of agency programs.

Proposal guidelines may be picked up in the Information Center, Rm 7-111, and in Rms 3-234 and 4-209. Further information is available from Mr. Bird, x3-1368 or 3-1350. Decisions on grants will be made promptly.

## Obituaries

### Karin Pratter

Karin Pratter, 30, of Shirley, a secretary at Lincoln Laboratory since March, 1972, died on April 24. Mrs. Pratter leaves her husband, William H., a son, Minkoo, of Charlevoix, Mich., and a daughter, Raquel, of Shirley, Mass.

### William F. Seward

William F. Seward, 60, of Charlestown, who came to the Institute as a custodian in March, 1971, died on April 27. Mr. Seward was on disability leave beginning in January, 1974. He is survived by his wife, Marie; five sons, and two daughters.

# THE INSTITUTE CALENDAR

April 30  
through  
May 11

## Events of Special Interest

**A Marxist Approach to American Architecture and Planning\*** – **Manfredo Tafuri**, Ford Foundation Visiting Lecturer. Architecture Seminar Series. Topics: Wed, Apr 30: American Architecture in the 1920's. Thurs, May 1: American Architecture in the New Deal Age. The above all 5-7pm, Rm 3-133. Sat, May 3, Faculty Seminar: Politics, Architecture and Planning in American History. Additional participants from MIT, Harvard & BU. 10am-4pm, Rm 3-415.

**Five Day Plan to Stop Smoking\*\*** – Need help to kick the habit? Sponsored by the Medical Department & New England Memorial Hospital, Stoneham. Mon, May 5- Fri, May 9, 1-2pm, Kresge (note: Tues, May 6, Rm 26-100). Registration: \$5.

## Seminars and Lectures

### Wednesday, April 30

**Laboratory Studies in Art and Archaeology\*\*** – **Heather Lechtman**, humanities. Technology Matrons Seminar. 10am, Rm 10-340.

**Measurement and Management of Interactive Computing\*** – **Walter J. Doherty**, IBM, T.J. Watson Research Center. Information Processing Services Seminar. 2pm, Stu Ctr West Lge. Coffee 1:30pm.

**Application of Finite Element Method to Reactor Kinetics Problems\*** – **Mike Todosow**, G. Nuclear Engineering Doctoral Seminar. 3pm, Rm NW12-222.

**Mechanical Design for Neutron Source Modeling Study\*** – **Alan Forbes**, G. Nuclear Engineering Doctoral Seminar. 3pm, Rm 38-136.

**Geometry\*** – **Dirk J. Struik**, mathematics, emeritus. Mathematics Department & Concourse Forum, History of Mathematics Lecture. 3:30pm, Rm 10-105.

**New Developments in Laser Materials Processing\*** – **Edward V. Locke**, president, Locke Technology, Inc. Interdepartmental Laser Seminar. 4pm, Rm 35-225. Coffee 3:45pm.

**High Temperature Reactor Process Heat for Fuel Gas Production\*** – **C. Breuer**, G. Nuclear Engineering Doctoral Seminar. 4pm, Rm NW12-222.

**French Psychoanalysis: A Sociological Perspective\*\*** – **Sherry Turkle**, sociology and psychology & social relations, Harvard University. Technology Studies Seminar. 4:15pm, Rm 20D-210. Coffee 3:30pm.

**Skylab Medical Studies: Metabolic, Endocrine, and Hematological Findings\*** – **Dr. Sherman Vinograd**, director of biomedical research NASA. Man Vehicle Laboratory Special Seminar. 4:30pm, Rm 37-212.

**Images of Death: Dreams, Dying and the Underworld\*** – **Dr. James Hillman**, Jungian analyst, former director of studies, C.G. Jung Institute, Zurich. Technology & Culture Seminar. 5:15pm, Rm 9-150.

### Thursday, May 1

**High Speed Pictures of Explosions, Some Nuclear\*** – **Harold E. Edgerton**, Institute Professor & Professor of Electrical Measurements, Emeritus. Strobe Lab Lecture. 12n, Rm 4-402.

**The Failure of Criticism\*** – **Eugene Goodheart**, chairman, English, Boston University; **Notes on the History of Objectives\*** – **Philip Fisher**, literature, Brandeis University. Cambridge Humanities Seminar. 3pm, Rm 9-150. Refreshments.

**Wave Propagation in Strong Turbulence\*** – **R. L. Fante**, Air Force Cambridge Research Laboratories. Electrical Engineering & Computer Sciences Optics Seminar. 3pm, Rm 39-400.

**Speech Synthesis by Rule\*** – **Dennis Klatt**, electrical engineering. Interdepartmental Acoustics Seminar. 4pm, Rm 5-134. Refreshments 3:30pm, Rm 1-114.

**Crazing in Glassy Polymers\*** – **Ali Argon**, mechanical engineering. Mechanical Engineering Polymer Processing Seminar. 4pm, Rm 36-372. Coffee 3:45pm.

**A Simple Mechanical Model of Articular Cartilage\*** – **Gordon R. Higinson**, engineering science, University of Durham, England. Harvard-MIT Rehabilitation Engineering Center Seminar. 4pm, Rm 10-105. Coffee 3:30pm.

**Dispersion of Automobile Exhaust Pollutants in the Vicinity of a Highway\*** – **James Fay**, mechanical engineering. Mechanical Engineering Thermal-Fluids Seminar. 4pm, Rm 3-343.

**Prospects for Protein Resources\*** – **Dr. Max Milner**, co-ordinator, NSF-MIT Protein Resources Study. Nutrition & Food Sciences Seminar. 4:15pm, Rm 54-100. Coffee 4pm.

**Hot Gas in the Universe\*** – **George Field**, Harvard University. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45pm. Rm 26-110.

**Water Resource Conservation in Mali\*\*** – **Hans Guggenheim**. Seminar on Foreign Students & Participation in Development. 7pm, Rm 14N-304. Coffee.

**Democracy in the Workplace – How do We Get There from Here?\*** – **Stephen Margolin**, economics, Harvard University. MIT Democratic Socialist Organizing Committee Seminar. 8pm, Stu Ctr Rm 491.

### Friday, May 2

**Preparation of Alkyl and Sulfoethyl Derivatives of Polyvinyl Alcohol – Non-Random Distribution of the Substituents Along the Chain\*** – **Philippe Gramain**, Centre de Recherche sur les Macromolécules, Strasbourg, France. Chemical Engineering Polymer Seminar. 10am, Rm 12-150 (Lewis Conf Rm). Info, E.W. Merrill, x3-4593.

**Precision Laser Spectroscopy: From Recoil to Relativity\*** – **John L. Hall**. Joint Institute for Laboratory Astrophysics and National Bureau of Standards, Boulder, Colo. Interdepartmental Laser Seminar. 11am, Rm 9-150.

**Radiative Measurement of Temperature Profiles in Flames\*** – **I. Faraq**, G. Chemical Engineering Doctoral Seminar. 2pm, Rm 10-105.

**Transport Properties of the Aorta Wall\*** – **J. Schnitzer**, G. Chemical Engineering Doctoral Seminar. 3pm, Rm 10-105.

**Particulate Radiation Therapy\*** – **Michael Goitein**, radiation medicine, MGH. Nuclear Engineering Biomedical Applications of Radiation Seminar. 3:45pm, Rm NW12-222. Coffee 3:30pm.

**Deep and Shallow Convection in the Tropics** – **Ed Sarachik**, Harvard University. Geophysical Fluid Dynamics Seminar. 4pm, Rm 54-311. Coffee 3:30pm, Rm 54-923.

**Application of Solar Energy\*** – **Ephraim Sparrow**, mechanical engineering, University of Minnesota. Mechanical Engineering Seminar. 3pm, Rm 3-133. Coffee 4pm, Rm 1-114.

**Photon and Electron Probes of Surface Electronic Structure\*** – **Gary Rubloff**, IBM. Materials Science Colloquium. 4pm, Rm 9-150. Coffee 3:30pm.

**Electron-Beam Fusion\*** – **A.J. Toepfer**, Sandia Laboratories. Francis Bitter National Magnet Lab & RLE Plasma Dynamics Seminar. 4pm, Rm 36-261. Refreshments 3:50pm.

**Rural Populations in the Industrial Food System\*** – **Immanuel Wallerstein**, sociology, McGill University. MIT Lutheran Chaplaincy Lecture. Seminar. 8pm, 210 Emerson Hall, Harvard.

### Monday, May 5

**Utilization of a Five Megawatt University Research Reactor\*** – **William Wittemore**, manager, Triga Program, General Atomic, San Diego. Nuclear Engineering ANS Student Branch Seminar. 2pm, Rm NW12-222. Refreshments 3pm.

**EPRI Programs in Advanced Energy Conversion Systems\*** – **Harold Lurie**, director of research, Nuclear Engineering ANS Student Branch Seminar. 3:30pm, Rm NW12-222. Refreshments 3pm.

**An Algorithm for Chromatic Polynomials\*** – **Herbert S. Wilf**, mathematics, University of Pennsylvania. Applied Mathematics Seminar. 4pm, Rm 2-338. Coffee 3:30pm, Rm 2-349.

**Simulation of Corridor Traffic\*** – **A. Muryka**, Department of Transportation, Electrical Engineering & Computer Science Decision & Control Group Seminar. 4pm, Rm 39-500.

**Phenomenology of Plastic Flow in Metals\*** – **Edward W. Hart**, General Electric Corporation, Research & Development Laboratory. Special Materials Seminar. 4pm, Rm 3-133.

**Quality of Life and the Planning Process\*** – **Stanley West**, civil engineering, Rockefeller Foundation Post-Doctoral Fellow. Civil Engineering & Parsons Laboratory Water Resources & Hydrodynamics Seminar. 4pm, Rm 48-316. Coffee 3:45pm, Rm 48-410.

**Materials Conservation\*** – **Alan G. Chynoweth**, Bell Telephone Laboratories. Materials Science & Engineering and Center for Policy Alternatives, Materials Policy Seminar. 4pm, Rm 9-150.

**Ocean Business – Two Perspectives on the Legal and Practical Aspects of Deep-Sea Mining and Offshore Nuclear Power\*** – **Thomas Dougherty**, Offshore Power Systems, Inc; **Richard Greenwald**, Deep Ventures, Inc. MIT-Harvard Law School Law of the Sea Series Seminar. 4pm, Rm 37-252. Refreshments.

**Social Implications of Mammalian Embryology\*** – **Stanley P. Leibo**, visiting scientist, Harvard-MIT HST Program, from biology division, Oak Ridge National Laboratory. HST Biomaterials Science Seminar. 4:30pm, Rm 37-212. Coffee 4pm.

### Tuesday, May 6

**Fossil-Fuel Power-Plant Dynamic Simulation\*** – **Glenn Y. Masada**, G. Mechanical Engineering Systems & Design Division Seminar. 12n, Rm 3-465. Bring lunch, coffee & tea provided.

**Chemical Reactivity of Polymers\*** – **H. Morawetz**, director of Polymer Research Institute, Brooklyn Polytechnic. Chemical Engineering Polymer Seminar. 2pm, Rm 12-102. Info: E.W. Merrill, x3-4593.

**Ground-Based, Electro-Optical Surveillance of Artificial Satellites\*\*** – **Robert J. Bergemann**, Lincoln Laboratory. Lincoln Lecture Series. 3:30pm, Lincoln Lab cafeteria.

**Will Cable and Satellites Rescue the Performing Arts?\*** – **Robert Crandall**, Center for Policy Alternatives; **John Goberman**, Lincoln Center for the Performing Arts; **John Ward**, ESL. Research Program on Communication Policy Seminar. 4pm, Rm 9-450.

**Continental Shelves\*** – **Sir Edward C. Bullard**, geodesy & geophysics, Cambridge University, England. Earth & Planetary Sciences Colloquium. 4pm, Rm 54-100. Tea 3:30pm, Rm 54-923.

### Wednesday, May 7

**Colloquia on History, Humanities and Literature\*** – **Geoffrey Hartmann**, chairman, comparative literature, Yale University. Humanities Colloquium. 3pm, Rm 14N-304. Refreshments.

**Depletion Using the Finite Element Method\*** – **Luis Lederman**, G. Nuclear Engineering Doctoral Seminar. 3pm, Rm NW12-222.

**Preliminary Results on RECTOR, a Deformed Cross-Section Tokamak\*** – **Francois Martin**, G. Nuclear Engineering Doctoral Seminar. 3pm, Rm 38-136.

**The Last Hundred Years\*** – **Dirk J. Struik**, mathematics, emeritus, Mathematics Department & Concourse Forum, History of Mathematics Lecture. 3:30pm, Rm 10-105.

**Mixed-Mode Waste Heat Dissipation of Central Power Stations\*** – **E. Guyer**, G. Nuclear Engineering Doctoral Seminar. 4pm, Rm NW12-222.

**Stress Analysis of Wound Packages\*** – **Subbash Batra**, mechanical engineering. Mechanical Engineering Polymer Processing Seminar. 4pm, Rm 36-272. Coffee 3:45pm.

**Community Organizing\*** – **Mike Ansara**, Boston Community School, editor of *Old Mole*. SACC Studies on the Left Discussion & Lecture. 7:30pm, Stu Ctr West Lge.

### Thursday, May 8

**Aspirator Noise and its Control\*** – **Paul Jensen**, Bolt, Beranek & Newman. Interdepartmental Acoustics Seminar. 4pm, Rm 5-134. Coffee 3:30pm, Rm 1-114.

**Dewatering of Sewage Sludges; a Discussion of Drying Beds, Vacuum Filtration and Electrosmosis\*** – **Li Liang**, G. Mechanical Engineering Thermal-Fluids Seminar. 4pm, Rm 3-343.

**Physiology of Normal Articular Cartilage\*** – **Henry J. Mankin**, MD, orthopaedist-in-chief, MGH; **Edith M. Ashley**, orthopaedic surgery, Harvard Medical School. MIT-Harvard Rehabilitation Engineering Center Seminar. 4pm, Rm 10-105. Coffee 3:30pm.

**Very High Energy Vibrations in Nuclei\*** – **Isaac Halpern**, University of Washington. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45pm, Rm 26-110.

**The Spanish Civil War: Political Commitment vs. Artistic Integrity\*** – **William Watson**, humanities. Humanities Crossroads Lecture. 4:30pm, Rm 14E-304.

**The External Costs of Tobacco Smoking\*** – **David Gordon Wilson**, mechanical engineering. MIT Action on Smoking & Health Open Meeting (preceded by open committee meeting, 6pm). 8pm, Stu Ctr West Lge.

**China – Then and Now\*** – **Lord and Lady Lindsay**, Far Eastern Studies, American University, Washington, DC. China Study Group Seminar. 8pm, Stu Ctr Mezzanine Lge. Refreshments.

### Friday, May 9

**Restricted Counter Diffusion of Macromolecules in a Rigid Finely Porous Structure\*** – **T. Copeland**, G. Chemical Engineering Doctoral Seminar. 2pm, Rm 10-105.

**The Coalescence of Emulsions\*** – **M. Hellyar**, G. Chemical Engineering Doctoral Seminar. 3pm, Rm 10-105.

**Solitons in Plasmas\*** – **C. S. Liu**, University of Maryland. Francis Bitter National Magnet Lab & RLE Plasma Dynamics Seminar. 4pm, Rm 36-261. Refreshments 3:50pm.

## Community Meetings

**The Wives' Discussion Group\*\*** – Wed, 2:15-4pm, Stu Ctr West Lge. Babysitting in Stu Ctr Rm 473. Note: Wed Apr 30 in Stu Ctr Rm 491.

**Alternative Energy Interest Group\*** – Meeting Thurs, May 1, 5pm, Rm 7-403. Agenda includes business, new members, speakers. All are welcome. Wine & cheese.

**Open Marriage\*** – **Larry & Joan Constantine**, authors of *Open Marriage*. Technology Wives Organization Discussion Group. Thurs, May 1, 8pm, Stu Ctr West Lge. Refreshments.

**Poetry Reading\*** – **Michael Harper**, author of "Dear John, Dear Coltrane" and "History is your Heartbeat." Humanities Department. Thurs, May 1, 8pm, Stu Ctr Mezzanine Lge. Free.

**Panel Discussion in Observance of Abortion Action Week\*** – Panel will include a speaker from the Edelin Defense Fund. Sponsored by MIT Committee for the Right to Choose. Fri, May 2, 5:30pm, Stu Ctr West Lge.

**Women's Forum\*\*** – Meetings Mon, 12n, Rm 10-105. (Tues in case of Mon holiday).

**Men's (People?) Consciousness Group\*** – Sponsored by MIT SACC. Discussion of men's realtions with others as people. Tues, 5pm, Rm 50-361.

**MIT Club of Boston\*** – Guest at monthly luncheon meeting, Thurs, May 8 will be **Halsey Herreshoff**, naval architect, navigator for America's Cup contender *Courageous*, discussing yacht design & racing. 12:15-1:30pm, Aquarium Restaurant, 100 Atlantic Ave. Bos. Cost: \$4, payable at door. Reservations: Ms. Kiirats, x3-3878.

## Wellesley Events

**Events at Schneider Center, Wellesley College\*** – Fri, May 2: Lorraine & Rick Lee, Bill Burke at the Coffeehouse, 9pm, Sat, May 3: Pousette Dart String Band, main stage, 9pm, Street Singers all day, Sun, May 4: Casino, 9pm.

## Social Events

**Hillel Outing to Cape Cod\*\*** – Sun, May 11. Cost: \$.50. For info & reservations, x3-2982 or x8551 Dorm.

**Strat's Rat** – Sat, May 10, 8:30pm, Sala. Light & dark beer \$.25/16 oz cup (\$1 for 5). Music by WTBS, requests until 1am. College ID required.

**Ad-Hoc Over 30's Singles Chowder and Marching Society** – Luncheon meeting in Stu Ctr East Lge (small dining room off Lobdell), Fri, 12:30-1:30pm, New members always invited. Look for the table with the red balloon. Erica, x3-2117 or Marty x8-1206 Draper.

**24 Hour Coffeehouse\*** – Enjoy relaxing conversation, piano playing, games, inexpensive food, candy & drinks. Open 24 hours per day, 7 days per week, Stu Ctr 2nd fl lge.

## Movies

**David Holtzman's Diary (McBride); Brandy in the Wilderness (Kaye)\*** – Film Section Wed, Apr 30, 7pm, Rm E21-010. Free.

**The Sorrow and The Pity\*** - Humanities Film. Wed, Apr 30, 7pm, Rm 10-250. Free.

**Even Met Happy Gypsies\*** - RUKU Film. Yugoslavia, Petrovic. Wed, Apr 30, 8pm, Rm 6-120.

**Waves in Fluids; Generation and Propagation of Sound\*** - Fluid Mechanics Film. Thurs, May 1, 4pm, Rm 33-319. Free.

**Media Means Mass Control?\*** - Barker Library Film. Thurs, May 1, 5pm, Rm 10-500. Free, coffee served.

**The Computer Wore Tennis Shoes\*\*** - LSC. Special Night-Before-Drop-Date Movie. Thurs, May 1, 9:30pm, Rm 26-100. Free with drop card, ID required.

**Media Means Mass Control?\*** - Barker Library Film. Fri, May 2, 12n, Rm 10-500. Free, coffee served.

**Sleuth\*\*** - LSC. Fri, May 2, 7 & 10pm, Rm 26-100. Admission \$.50, ID required.

**Magical Death\*** - Humanities Film. Fri, May 2, 7:30pm, Rm 14N-0615. Free.

**La Strada (Fellini)** - Film Society. Fri, May 2, 7:30 & 9:30pm, Rm 6-120. Admission \$1.

**Take the Money and Run** - SCC MidNite Movie. Fri, May 2, 12m, Sala. Free admission w/college ID.

**Fantastic Planet\*\*** - LSC. Sat, May 3, 7 & 9:30pm, Rm 26-100. Admission \$.50, ID required.

**Casino Royale\*\*** - LSC. Sun, May 4, 6:30 & 9pm, Rm 26-100. Admission \$.50, ID required.

**Magnetohydrodynamics; Rarefied Gas Dynamics\*** - Fluid Mechanics Films. Mon, May 5, 4pm, Rm 33-319.

**Stanton Kaye\*** - Visiting filmmaker, discussing his films. Film Section. Wed, May 7, 2-5pm, Rm E21-010. Free.

**To Die in Madrid\*** - Humanities Film. Wed, May 7, 7pm, Rm 14N-0615. Free.

**Magnetohydrodynamics; Rarefied Gas Dynamics\*** - Fluid Mechanics Films. Thurs, May 8, 4pm, Rm 33-319.

**Thinking Machines\*** - Barker Library Film Series. Thurs, May 8, 5pm, Rm 10-500. Free, coffee served.

**Thinking Machines\*** - Barker Library Film Series. Fri, May 9, 12n, Rm 10-500. Free, coffee served.

**Cabaret\*\*** - LSC. Fri, May 9, 7 & 10pm, Kresge. Admission \$.50, ID required.

**Il Bidone (Fellini)** - Film Society. Fri, May 9, 7:30 & 9:30pm, Rm 6-120. Admission \$1.

**Chump at Oxford; The Brain that Wouldn't Die** - SCC MidNite Movie. Fri, May 9, 12m, Sala. Admission free w/college ID.

**1776\*\*** - LSC. Sat, May 10, 7 & 10pm, Rm 26-100. Admission \$.50, ID required.

**Bedazzled\*\*** - LSC. Sun, May 11, 6:30 & 9pm, Rm 26-100. Admission \$.50, ID required.

## Lobby 7 Events

**Ken Quat Group\*** - Wed, Apr 30, 12n. Free.

**Kay Dunlap and Adrian Horner\*** - Sopranos, accompanied by

Herman Weiss, piano, and Robert Sullivan, lute. Thurs, May 1, 12n. Free.

**Wellesley Madrigal Singers\*** - Wed, May 7, 12n. Free.

**String Quartet\*** - Thurs, May 8, 12n. Free.

**Femina Ludens\*** - Modern dance innovation performed by Wellesley students as part of their centennial: Education for the Year 2000. Fri, May 9, 12n. Free.

## Music

**Noon Hour Chapel Concert\*** - April Showers, flute; and Louis Arnold, guitar. Thurs, May 1, 12n, Chapel. Free.

**Music Library Concert\*** - Jack Reilly, student, pianist. Including Berg's Sonata. Fri, May 2, 5:15pm, Music Library.

**Gospel Choir Extravaganza\*** - The MIT Gospel Choir will be joined by 4 other student or church affiliated choirs in a benefit concert for the Cape Verde Islands Relief Project on Fri, May 2, 7:30pm, Kresge. Tickets: \$2.50 in advance; \$3 at door; \$1 children under 12; \$.50 MIT student discount. Available at TCA, Stu Ctr Rm 450. Reservations: 494-8770.

**MIT Concert Band Spring Concert\*** - Directed by John Corley. Concert of contemporary music and a ballet with dancers of the Boston Ballet. Sat, May 3, 8:30pm, Kresge. Free.

**Concert\*** - MIT Glee Club and Wellesley College Choir. Sun, May 4, 3pm, Kresge. Free.

**Chamber Music Society Concert\*** - Wed, May 7, 5:15pm, Music Library (Bldg 14E). Free.

**Performance\*** - Thurs, May 8, CAVS Exhibitions Rm. Works by Marcel Duchamp, Hugo Ball, Raoul Hausmann, Kurt Schwitters, Hans Otte, Ralph Jones and John Cage given by Eberhard Blum, voice and flute, with Martha Manning, participant (9pm). Part II (11:30pm): "Incoming Night: Blum at Ocean, Pier 6, Boston Harbor," sound environment by Maryanne Amacher. Reservations: x3-4415.

**MIT Symphony Orchestra\*** - Program of Chadwick, Copeland, Berger, Mozart. Sat, May 10, 8:30pm, Kresge. Admission \$1 at door.

**MIT Choral Society\*** - Performing motets, folksongs & contemporary choral works. Sun, May 11, 4pm, beginning in Killian Court and moving to Bldg 7 Lobby & Kresge. Free.

## Theatre and Shows

**Dramashop One-Act Plays\*** - A Phoenix too Frequent, by Christopher Fry and The Physicists, by F. Durrenmatt. Thurs, May 1-Sat, May 3, 8:30pm, Kresge Little Theatre. Admission \$.50.

**An Evening with the Guru People\*** - Unusual program of plays, mime & music sponsored by the Divine Light Club. Inexpensive home-baked goods & drinks. Sun, May 11, 8pm, Stu Ctr Mezzanine Lge. Free.

## Dance

**Folkdancing - International:** Sun, 7:30-11pm, Sala. **Balkan:** Tues, 7:30-11pm, Stu Ctr Rm 491. **Israeli:** Thurs, 7:30-11pm, Sala. **Noon dancing:** Fri, 12n-1:30pm, Kresge Oval in good weather, otherwise Bldg 7 Lobby. Learn & practice more difficult dances Fri, 1:30-3 or 4pm, Stu Ctr 491.

**Scottish Country Dancing\*** - Wed, 8pm, Rm 3-343. Free. Info: Yuval Peduel, x3-7860.

## Exhibitions

**Rotch Library Exhibitions** - Photographs from the Smithsonian Collection; drawings and prints by Ann Porto, G, studying at CAVS; and "Us," a collection of views of us and our nature by Kaley Ruberg. Thru Fri, May 2, Rm 7-238.

**Drawings: Andrew Tavarelli\*** - Fri, Apr 4-Sun, May 4, Hayden Corridor Gallery. Open daily. Free.

**Visual Dharma\*** - The Buddhist art of Tibet. Sponsored by the Committee on the Visual Arts. Fri, Apr 4-Wed, May 7, daily 10am-4pm, Tues 6-9pm; Hayden Gallery. Free.

**Creative Photography Gallery\*** - Photographs by Harry Callahan. Fri, Apr 25-Fri, May 16; 10am-6pm, Bldg W31. Free.

**Paintings by Esther Felix\*** - Exhibited in the Faculty Club during May. Free.

**Music Library Exhibit\*** - Postage stamps designed with musical subjects from various countries.

**Hart Nautical Museum\*** - Permanent exhibit of rigged merchant and naval ship models, half models of yachts and engine models. Open daily in Bldg 5, 1st floor.

**MIT Historical Collection\*** - Permanent exhibit, open Mon-Fri, 9am-5pm, Bldg N52, 2nd floor.

**Photographs\*** - Showing the original 19th century MIT buildings in downtown Boston and step-by-step views of construction in Cambridge. Bldg 4 Corridor.

**MITV News\*** - News program in and around MIT during the week. Shown Fri, 9am-5pm, Bldg 10 Lobby.

**Exhibition\*** - Architectural drawings, 1900-1230, from the MIT Historical Collections. East corridor Bldg 7.

## Athletics

**Home Schedule - Wednesday, April 30 - V Lacrosse.** Harvard, 4pm, Briggs Field. **F Tennis.** St George's School, 4pm, duPont courts. **F Lt Crew.** Tabor Academy, 4:30pm, Charles River. **JV/F Baseball.** New Preparatory School, 3pm, Briggs Field. **W Tennis.** Radcliffe, 4pm, duPont courts. **Thursday, May 1 - Outdoor Track.** Coast Guard, 3pm, duPont Oval. **V Baseball.** Suffolk, 4pm, Briggs Field. **Friday, May 2 - W Softball.** Emerson, 4pm, Briggs Field. **Saturday, May 3 - V "B" Tennis.** Phillips, 2pm, duPont courts. **Tuesday, May 6 - W Tennis.** Mount Ida, 4pm, duPont courts. **Wednesday, May 7 - JV/F Lacrosse.** Tufts, 4pm, Briggs Field. **Thursday, May 8 - V Tennis.** Amherst, 4pm, duPont courts. **Saturday, May 10 - V Lacrosse.** Mass, 2pm, Briggs Field. **Saturday, May 10 & Sunday, May 11 - V Sailing.** Monotype Trophy, 9:30am, Charles River.

**Rugby Football Club Practices\*\*** - Tues & Thurs, 5pm, Briggs Field. Full medical insurance necessary. Info x3-6221.

**Women's Athletic Council\*** - Meetings 1st & 3rd Tues of each month, 7:30pm, duPont conference rm. Info: Mary Lou Sayles, director of women's athletics. x3-4910.

Freshmen are encouraged to attend departmental lectures and seminars. Even when these are highly technical they provide students one means to learn more about professional work in a department and field.

\*Open to the public  
\*\*Open to the MIT community only  
\*\*\*Open to members only

Send notices for May 7 through May 18 to the Calendar Editor, Room 5-111, Ext. 3-3279, before noon Friday, May 2.

# Stop Smoking Plan to Return

MIT people who missed a chance to kick the smoking habit last fall will have another opportunity next month.

A group therapy clinic called "The Five-Day Plan to Stop Smoking" will make a return visit to the Institute, under the auspices of the Medical Department, from Monday, May 5, to Friday, May 9.

The sessions will be held from 1 to 2pm in Kresge Auditorium except for Tuesday, May 6, when Rm. 26-100 will be used. The clinic is open to all members of the MIT community and their families for a registration fee of \$5 a person. No pre-registration is necessary.

About 60 people have stopped

smoking as a result of the first clinic six months ago in October, and another 40 or so have cut down on their smoking, according to Karen Cohen Holmes, coordinator of health information and education in the Medical Department.

"Approximately 190 registered for the fall program," she reported, "and a recent sample telephone survey showed that about one-third are still off, about one-half are back on and the rest are back on but have cut down."

A similar sample of the 70 participants in a second clinic run at Lincoln Laboratory three months ago shows that one-half are still off, one-third are back on and the rest are back on but have cut down, she said.

One of those at Lincoln who quit smoking was Mrs. Dorothy B. Taylor, a technical editor who said she had had a pack-a-day habit for 27 years.

Mrs. Taylor said she had considered giving up cigarettes a number of times and was "ready" to stop smoking when the clinic came along. One of the things it did to help her finally kick the habit, she said, was to advise an abrupt "cold turkey" stop to smoking. It also showed her the damage that cigarette smoking does to lungs "and all the tars it puts into your system," she said.

The clinic will be conducted by members of the staff of the New England Memorial Hospital in

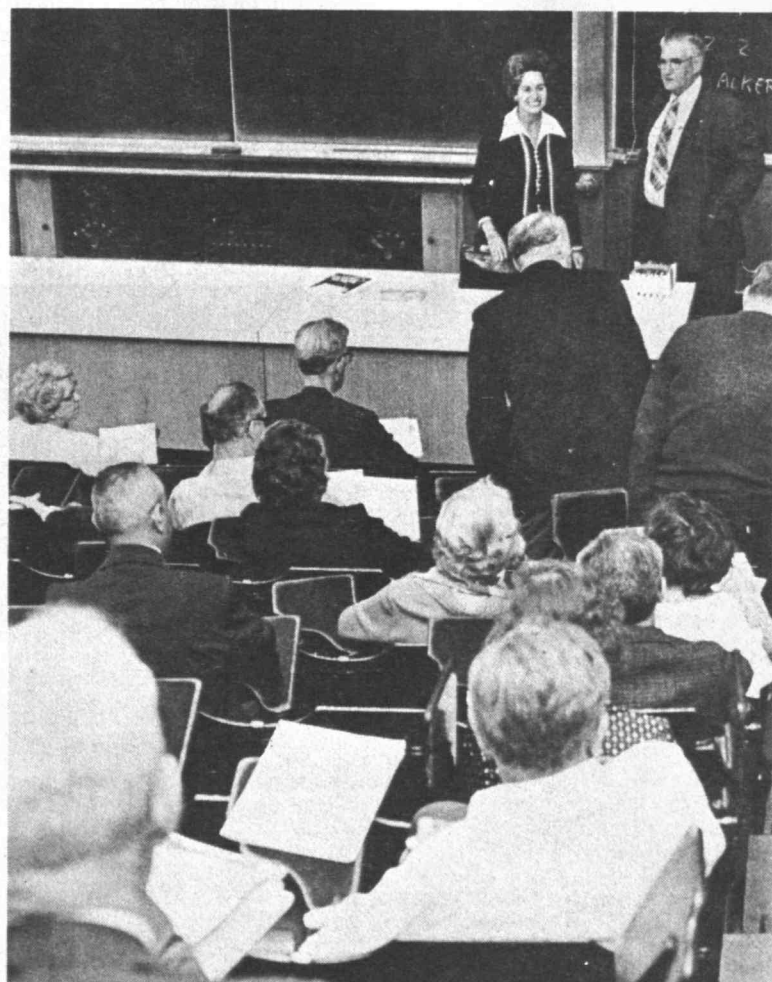
Stoneham, which sponsors "The Five Day Plan" in this area, assisted by doctors from the MIT Medical Department. The director of the program is the hospital chaplain, Rev. Walter Kloss.

"The Five Day Plan" method was originated a number of years ago by two members of the Seventh-Day Adventist Church—a physician and a clergyman—from Lancaster, Mass. Since then, the plan has been used throughout the world and is said to have enabled more than 2,000,000 persons to stop smoking.

The method is described as "a comprehensive, all-out plan of attack based on sound physical, psychological principles designed to strengthen the will and overcome the habit." One of its features is to deal each of the five days with the problems that are likely to occur at that point in time in someone's attempt to give up smoking.

## Masubuchi Speaks

Dr. Koichi Masubuchi, professor of ocean engineering and professor of materials science, recently presented the third Clarence Jackson Honor Lecture of the Washington, D.C. Section of the American Welding Society. Dr. Masubuchi spoke on the "Use of Computers for Welding Fabrication."



James Duby from the Social Security Administration in Cambridge, with Nancy R. Woodman, associate benefits officer in Personnel Office, addressed 75 retiring members of the MIT community at the final meeting in the annual pre-retirement seminar series last week.

—Photo by Joe Schuyler



Representatives of MIT's 22 men's varsity and five women's varsity sports turned out in Killian Court on Monday for a picture session with a photographer from Sports Illustrated, which plans a May feature on MIT as the university offering the most intercollegiate athletics. Later MIT photographer Calvin Campbell got the athletes to dash at him for this action shot.

## Athletic Program's Versatility Is the Envy of Many

(Ross H. Smith, director of athletics at MIT, was in Kansas City last week to attend the NCAA meetings. While there he was interviewed by Joe McGuff, sports editor of the Kansas City Star, who wrote the following column, published April 23.)

By JOE MCGUFF

Economy is the theme of the N.C.A.A. meetings that are taking place this week at the Plaza Inn. There is talk of reducing scholarships in some sports and eliminating them in others. Coaching staffs are likely to be trimmed and questions are being asked about the necessity of spring football practice.

No one is quite sure how far-reaching the economy measures will be, but big-time college athletics clearly are going to have a leaner look in the years ahead.

In austere times such as these it would seem that Jim Smith is a man to be envied. Smith, vice-president of the N.C.A.A. Council, is athletic director at MIT, a school where eggheads are the campus heroes and the big game is academics.

Smith does not have to worry about reducing scholarships because MIT does not give athletic scholarships. He doesn't have to worry about public reaction to increased ticket prices because MIT does not charge admission to any of its athletic events. The big alums don't call on Saturday night demanding to fire the football

coach because MIT doesn't play football. The big sport at MIT is crew, but if the Engineers don't win, no one drowns the coach in effigy.

Although MIT does not have football, there is no lack of interest in athletics at the school. In fact, MIT offers more intercollegiate sports for men than any other college or university in the country. The total number of programs is 22 and they range from such standard sports as basketball and baseball to sailing, water polo, skiing, squash and pistol.

MIT has five varsity sports for women plus intercollegiate clubs in five other sports. The five varsity sports are fencing, basketball, sailing, crew and tennis.

Since MIT has no income from sports, the athletic department has to be financed like any other department of the university. It submits a budget and money is allocated out of the university's general operating fund.

In this respect Smith is the envy of many of his colleagues, but even though the athletic program is not dependent on winning teams, MIT is feeling the economic squeeze and Smith is instituting economy measures.

### Recruiting Is Done on Campus

"We're suffering just like the other schools," Smith said, "although our problems may be less acute. We're fortunate that we don't give grants and we don't re-

cruit. The only athletic recruiting at MIT takes place after the students have enrolled and the coaches try to get them out for various sports. The biggest boys usually go out for crew.

"Our tuition is up to \$6,800 a year [Ed. note: \$6,800 is the estimated full cost per year.] That's a lot of money. We give no grants, but we do have what we call an equity program. It's based entirely on need and a student can get up to \$2,100 in a low-interest loan and an on-campus job. MIT is suffering financially like other schools. Returns from endowments are down and costs are up.

"We're expanding our women's athletic program. We've been given new money for that and we're getting additional money by culling out some parts of our men's program. We're trying to solve our financial problems by tightening our belts and increasing the productivity of our staff.

"One of the ways we are economizing is to cut back our basketball schedule to 20 games. We had been playing 25 to 26 games. We eliminated two of our longest trips and that will save us quite a bit of money.

"We know that our baseball team can't compete without some pre-season conditioning. This year our kids went to Florida. We put in some money and they put up \$100 each. None of them are on a free ride so we could do something like this. If a couple of them had been on scholarships there's no way the

others would have put up \$100." **Coaches Have to Be Versatile**

Many of the MIT coaches handle more than one sport. The baseball coach is also the basketball coach, and the synchronized swimming coach also helps with basketball. MIT has staggered its sports seasons to get better utilization of coaches and equipment. Schedules have been adjusted so that two or more teams can travel together on a chartered bus. On-campus eating facilities are used whenever possible.

MIT's facilities are limited, but a fund raising drive is being undertaken and if it is successful a center will be constructed for the MIT community. It would include a skating rink and a field house.

Smith said one of his most difficult tasks has been selling his staff on economy measures and convincing them that the women's program was not being expanded at the expense of the men's program.

In many respects the MIT program would appear to be a solution to the problems of commercialization in college athletics. The MIT approach puts athletics

in proper perspective as a part of the educational program rather than a money-making activity where students are paid for their athletic services by means of grants-in-aid. Once the profit-making motive is removed from college athletics then so are the abuses.

Even though Smith is a strong believer in the type of program that he has at MIT, he is not trying to convert the major football and basketball schools to this philosophy.

"I'm past thinking that way," Smith said. "I really believe in the concept of divisions within the N.C.A.A. We're a Division 3 school. I don't think there's a better program in the country than the one we have, but then Moose Krause feels the same way about his program at Notre Dame. I think major college football is good and I would not want to see it eliminated.

"There are real disciplines that come out of competitive athletics. I like what we have, but I also support the Rose Bowl, the N.C.A.A. basketball championships and similar events."

### This Week in Sports

## Heavies Lose to Harvard, Prepare for Wisconsin

MIT's heavyweight crew lost the big showdown with Harvard last Saturday, but it took a record breaking effort by the favored Crimson to beat Tech.

Harvard won its fourteenth straight Compton Cup by almost three lengths over MIT in a new Charles River 2,000 meter record of 5:48.3. Tech was 5:59.4 followed by Princeton in 6:05.5.

The race would have been much closer, had it not been for an MIT miscue in the last 300 meters. Harvard maintained a half length lead throughout the whole of the race, but MIT never appeared to be out of it until the Engineers "caught a crab" in the bow of the boat which practically stopped Tech in its tracks. MIT regained control of the boat, but the Harvards were long gone.

MIT now 5-1, travels to Wisconsin for the annual Cochrane Cup. Wisconsin is another top seeded heavyweight crew in the nation and will be a contender for the upcoming Eastern Sprints at Princeton, May 11th.

### Nine Splits Doubleheader

Tech's baseball team (9-10) split a doubleheader last Saturday against the Coast Guard Academy. Junior righthander Mike Royal (Ayer, Mass.) spotted Coast Guard a 4-0 lead after the first two innings, but settled down the last five innings, allowing only one run. The Tech batters came alive in the fifth inning, scoring three runs, but fell short, losing 5-4. Sophomore catcher Dan Sundberg (St. Joseph's Mich.) and Freshman Jeff Felton (Youngstown, Ohio) led the attack with two hits each.

In the second game, the Engineers belted out fifteen good hits for an 11-6 victory. Third baseman Felton had three more hits and two runs batted in.

Senior captain Herb Kummer (Baltimore, Md.) is still leading the team in hitting, with a 395 batting average. The big first basemen had thirty hits in the nineteen games played this season, and needs only two more to establish a new single season MIT record.



Joan Sclar, secretary to Joseph S. Collins of the MIT Community Service Fund added her efforts to

the Fund's annual campaign by distributing fortune cookies—complete with whimsical sayings—on the steps of 77 last week. Receiving the confection is William D. Huse of nuclear engineering. The campaign continues through Friday, May 2.









# Oil Spill Hazard Tied to Size of Off Shore Find

Most everyone knows that oil is a very valuable resource, providing the energy which propels our economy. But that's only when oil is in the right place.

When oil coats beaches and sea-life, it is a problem, not a blessing.

The largest single source of that problem comes from tanker accidents.

The bigger the tanker, the bigger the catastrophe. In 1967, one tanker, the Torrey Canyon, broke up off the coast of England and spilled 30 million gallons of oil, causing a lot of damage. This was an unusually large spill. In fact, that spill represented more than twice the amount spilled by all means off the US in the same year.

Yet, we are building tankers

today of one-half million tons, or more, capable of spilling three to four times that of the Torrey Canyon.

To put things more in perspective, the Santa Barbara oil spill was about three million gallons, and the Falmouth spill, with which New Englanders are most familiar, was but 300,000 gallons.

If those spills—Santa Barbara and Torrey Canyon—had occurred in Cape Cod Bay, they would have covered large areas after the spreading had stopped.

Why should this interest us in New England? Because this summer the Department of Interior is scheduled to begin oil leasing procedures for the Georges Bank

area. With the constant reminders of oil spills in other areas, many people here have voiced fears about the possibility of oil spills from developments off shore and what might happen to the beaches and fishing grounds of New England.

If there is drilling on Georges Bank, it is difficult to predict how much oil will be spilled in the process of getting it out and bringing it to shore for refining. Spills come in all sizes—from a few gallons to millions of gallons. But because we don't know how much oil is on Georges Bank, we can only estimate the likelihood of a spill and how big it might be.

The probability of a sizeable spill depends on the size of the find

—it is near zero for a small find and increases dramatically with a larger one.

(Right now the best guess is that there is one billion barrels off Georges Bank—what experts would call a medium find. As for the source of potential spills—they are as likely to come from offshore pipelines as oil tankers.

All spill estimates should consider another factor. If we assume that we will be importing the same amount of oil on the East Coast, the probability of spills will be the same with or without offshore drilling.

The current situation in Maine puts this in perspective. Right now about six and one-half billion gallons of oil are being brought

each year by tanker into Portland. All of this oil goes to Canada. This poses a far greater hazard of oil spills than the highest predictions for Georges Bank. Yet we permit this to go on without question.

When there's oil around in such quantities, there's always some danger of a spill—that danger is present in Maine right now, and the future of Georges Bank development should be considered with that in mind.

(Dr. Judith T. Kildow is assistant professor of ocean policy in the MIT Department of Ocean Engineering. This commentary was presented recently on the WGBH-TV program, *The Evening Compass*.)

## Vermont Example Cited

# Lowell Plant Closing Could Have Been Avoided

By BENNETT HARRISON

The story of the Honeywell Company's Lowell plant is a familiar one. It happens a lot with national and multinational corporations.

Decisions to keep a plant open, to close it, or to build a new one are made elsewhere, according to criteria involving profitability, costs and the political climate in perhaps dozens of locations all over the world. These companies are in business to make money for their stockholders. If that means abandoning a local community which needs the jobs and taxes, so be it. That's part of the price we pay for having a free enterprise system.

No one really knows how many

local plants and jobs are lost each year because of absentee owned companies decide to move out of New England or close down some local facility. But any such closing in Massachusetts surely makes our own state's bad economic situation a little worse. Is there anything that state government can do about the problem? Well our neighbor—Vermont—has done something. In February, the State of Vermont helped a group of workers to buy out a local plant from the company which wanted to abandon it. The story goes like this:

Last year, the GAF film company announced that it would close down its asbestos complex in Lowell, Vermont, because it could

not afford to install certain air pollution control equipment needed to comply with mine health and safety regulations. A hundred-and-eighty workers would be laid off.

The miners and mill workers organized, obtained capital through the help of governor Thomas Salmon and the state's Industrial Development Authority, and now own their plant. Their first act as owner-operators will be to install the air pollution control equipment. They have worked out a production plan which local banks have found acceptable. And they have retained most of the technicians and managers who used to work for GAF.

Every case of an abandoned plant is different, however, and

must be judged on its own merits. Before any local people—whether groups of workers, new businesspersons, or even the municipality itself—could take over and operate the Honeywell plant, for example, it would be necessary to analyze the possible uses for that space and whatever equipment Honeywell might be willing to sell.

Getting into the production of computer hardware would be pretty difficult. But perhaps a new firm could make certain specialized computer software, on subcontract to the "majors." Or perhaps wholly new products might be developed.

If such a new venture made economic sense, a state economic development bank could help it

along by providing the necessary investment funds. But right now Massachusetts does not have a development bank. Such a bank wouldn't solve all of the state's economic problems, but it would permit a little planning before a plant closed down—planning which might save jobs. And saving jobs would represent a change from last fall's campaign rhetoric about economic development to some real action in that area.

(Bennett Harrison, associate professor of economics and urban studies and planning in the MIT Department of Urban Studies and Planning, delivered this commentary recently on the WGBH-TV program, *The Evening Compass*.)

# Snyder to Succeed Martin As Education Division Director

(Continued from page 3)

One example of the education research in progress at DSRE is Professor Seymour A. Papert's LOGO Project at the Artificial Intelligence Laboratory—an effort to develop new information processing models upon which early childhood education is structured.

External collaborative arrangements to study how individuals and institutions learn are being developed with Austin College in Texas, the Centre for Educational Studies at Oxford, and the University of Geneva.

Dr. Snyder said that as director he would keep in mind two metaphorical images of the challenges facing education: "a large crowd running faster and faster on a giant treadmill which itself is constantly accelerating," and "man-made systems on the verge of running out of man's control."

"These are severe challenges," he said, "and attention to detail should not preclude attending to such larger issues."

He added that in the future the Division would need to draw on much of the research already under way at MIT and elsewhere in the world.

"DSRE will initiate further research on how people and institutions learn," he continued. "Much of this work has direct relevance for MIT, and this balance of practical, pragmatic inquiry and theoretical sophistication will serve us well as we work on solutions to the crises of our present

education."

His ultimate goal, he said, was "to make a difference—to effect the long-term outcome."

Dr. Snyder, Professor Rosenblith said, has been involved in many ways in most of the educational activities—be they experimental or analytical—that have taken place at MIT during the last fifteen years. His search for the understanding of what learning means for individuals and institutions is unsurpassed in its breadth and intensity. His accession to the leadership of the Division comes at a time when many new opportunities exist to both deepen our grasp of the learning process and to translate the newly found understanding into novel educational practices at the Institute.

Dr. Snyder, whose penetrating study of the dynamics of adaptation between individuals and educational institutions culminated in the publication of *The Hidden Curriculum* (Knopf, 1971), began his formal association with the academic community as consulting

psychiatrist at Wellesley College in 1953.

He remained in that capacity until 1959, when he accepted the appointment of psychiatrist-in-chief at MIT—a post he held for ten years. In 1967 he was appointed to the additional post of professor of psychiatry.

In 1969 he was appointed Dean for Institute Relations, a position which called upon him to give special attention to communications among faculty, students, and staff in both academic and non-academic aspects of Institute life. He undertook his work with MIT's Division for Study and Research in Education in 1973, climaxing more than two decades of research in learning as it is affected by material, conceptual and institutional surroundings.

Dr. Snyder, who is 52 years old and a native of Glen Ridge, N.J., received his MD degree from New York University College of Medicine in 1948, after attending Bard College of Columbia University and the University of Pennsyl-

vania.

He interned at the University of Chicago clinics and completed a residency in psychiatry at Cincinnati General Hospital. Upon completion of service in the Air Force during the Korean War, he was appointed a Fellow in the Department of Psychiatry at Beth Israel Hospital, where he continues to be affiliated.

Dr. Snyder has taught at Tufts Medical School and is a member of the faculty of Harvard Medical School. In addition, he is a diplomate of the American Board of Psychiatry and Neurology and a member of the Board of Consultation in psychiatry at Massachusetts General Hospital.

Among the organizations, boards, and commissions Dr. Snyder has served over the years are the National Institutes of Health, the Peace Corps, the Office of Science and Technology and the World Federation of Mental Health. He is a trustee of the Menninger Foundation and a former trustee of Antioch College.

His extensive list of writings in professional journals encompasses such topics as student medicine, alcoholism, creativity in childhood and adolescence, and current issues in higher education.

Dr. Snyder, who is the father of six children, is divorced and lives in Cambridge.

## Honors, Awards Listings Sought

Details about prospective awards or honors to be given through the Institute to MIT students are being sought for inclusion in the 1975 program for Graduation Exercises.

Information about all such awards, whether or not a recipient has been selected, should be given to Carol Beals at x6775 before Wednesday, May 14.

# Yale's Hartmann to Address Final Humanities Colloquium

Geoffrey Hartmann, chairman of the Department of Comparative Literature at Yale University, will be the speaker at the final in a series of three open colloquia sponsored by the MIT Department of Humanities on history, humanities and literature.

The lecture will be presented on Wednesday, May 7, from 3-5pm in Rm. 14E-304. There will be refreshments.

Professor Hartmann is the author of a newly-published book, *The Fate of Reading*, and of books such as *Beyond Formalism*, a study of modern critical theory; *Wordsworth's Poetry*, and *The Unmediated Vision*.

With him on the panel will be two faculty members from the MIT Department of Humanities, Barry B. Spacks, professor of literature, and Janet R. Horowitz, assistant

professor of literature.

The overriding question examined by the colloquia is the particular adjustment that has to be made in the curriculum in humanities at an institution like MIT that is predominantly oriented towards the sciences and technology.

Professor Hartmann, who recently reorganized the curriculum in comparative literature at Yale,

is described by sponsors of the colloquia as "well acquainted with the need to organize a curriculum which would be of general interest to students enrolled in the university while at the same time paying due attention to the needs of specialized training." This is especially so, they said, because comparative literature, while a specialized field, "is of such a nature that it must address itself to the generalized student."