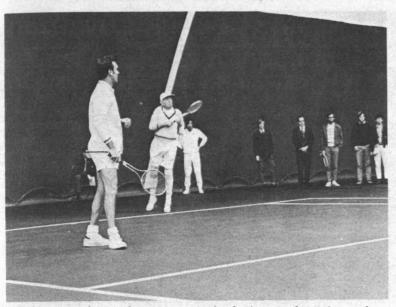
Massachusetts Institute of Technology



November 10, 1971 Volume 16 Number 19



J. B. Carr, background, returns serve in the inaugural tennis match as his partner, Vic Seixas, watches. -- Photo by Margo Foote

J.B. Carr Inagurates Indoor Tennis Facility

In a novel ceremony which included exhibition tennis matches, the J. B. Carr Indoor Tennis Center was dedicated last

Howard W. Johnson, Chairman of the Corporation, opened the ceremony before an audience of some 200, which included classmates of Mr. Carr, '16, members of the faculty and administration and students.

In citing Mr. Carr's gift, part of the fiftieth reunion contribution given by the Class of 1916 five years ago, Mr. Johnson said, "I know of no individual who has persevered of prodded more effectively than Jasper Carr has during

the past five years." 'We honor Mr. and Mrs. Carr and Mr. and Mrs. David B. Carr for their generosity and foresight in making possible this superb Indoor Tennis Center," Mr. Johnson continued. "Their magnificent gift to tennis and their helpful advice in the planning of this Indoor Center have made possible the additional savings in funds to build two more outdoor courts."

Mr. Johnson introduced Mr. Carr, who formally presented the Center to the Institute. Mr. Carr outlined the advantages of tennis, that it is inexpensive, requires little equipment, and matches are

easily arranged. He stressed the benefits of the game in maintaining good physical condition throughout life.

President Jerome B. Wiesner accepted the Center on behalf of the Institute, saying, "I count it a privilege to be part of this dedication ceremony and to express to you and your family our affection and esteem for what you have done for the sport of tennis at MIT. I know that countless generations of students and staff will stand in your debt.'

Following the formal cere-(Continued on page 8)

Wiesner Announces Formation of MIT Council for the Arts

of Art in New York last Thursday evening, November 4, President Jerome Wiesner announced to a gathering of 900 MIT alumni the formation of the MIT Council for

Stressing that this was an announcement "within the MIT family, rather than to the public at large," the President spoke of the future of the arts at MIT. "We will begin small," he said, "but we hope eventually to transform MIT into a large multi-purpose arts

The meeting, one of the regular gatherings of the MIT Alumni Center of New York, drew the largest alumni turnout in recent memory and began at 6pm with a reception for Dr. and Mrs. Wiesner and a special private viewing of three Metropolitan exhibits. The Met's director, Thomas Hoving, was host. Chairman of the event for the Alumni Center was Mark J. Grebler '63. Honorary Chairman was Paul Tishman '24, the financier and art collector, who, with Dr. Wiesner, will be cochairman of the new Arts Council.

Dr. Wiesner said that the Arts Council was the outgrowth of a committee spearheaded by Mr. Tishman, Mrs. Jerome S. Rubin, Mrs. Julius A. Stratton, and Angus N. MacDonald '46. "The Council will be a permanent organization with a national membership, involving faculty and students, element to the Institute's life to expand our commitment to education and to augment all aspects of the creative arts--research, teaching, dissemination, and action," he added. He also announced that Professor Roy Lamson of the Department of Humanities has been appointed special assistant to the President for the arts at MIT.

Members of the faculty who went to New York to attend the meeting included: Joseph Dee Everingham, professor of literature and Director of Drama; Albert R. Gurney, Jr., associate professor of literature; Gyorgy Kepes, Institute Professor and director for the Center for Advanced Visual Studies; Richard Leacock, visiting professor of cinema; Klaus Liepmann, professor and director of music; Donlyn Lyndon, professor and head of the Department of Architecture; Henry A. Millon, professor of the history of architecture; Robert O.

visual design; Barry B. Spacks, associate professor of literature; Minor White, professor of photography; Kasha Linville, Director of Exhibitions; Howard Webber. Director of the MIT Press.

Noting how the Lewis Commission Report had recommended greater emphasis on the arts at MIT during the 1950's, the President said that he had been a witness to a similar recommendation on the national level when, during the time he served in the White House, August Heckscher prepared the report for President Kennedy that served as the basis for what is now the National Foundation on the Arts and the

(Continued on page 8)

The Report of the President for the 1970-71 academic year is included as pull-out supplement in this week's is-

Budget Review to Halt Drain on Unrestricted Funds

Chancellor Paul E. Gray said this week that MIT's administration is setting out to realize significant economies in this year's budgets and to apply stringent reviews to next year's budgets so as to reverse the growing annual demand on unrestricted funds for operating purposes and to apply these funds to new and creative

"If we can reach an equilibrium between demands and resources, we will be able to turn our attention to the development

of resources for new programs which are vital to the long-term objectives of the Institute," he said. "We have been experiencing continuing rapid growth in the annual requirements for unrestricted income which is used to bring expenditures into balance with revenues.'

"In common with most US universities, MIT's current financial stringencies arise from the same inflationary pressures that beset the nation as a whole, from the leveling off of federal support for basic scientific research, and from the decline in federal fellowships and student aid," Dr. Gray said. "Unrestricted income has been traditionally used for the initiation and encouragement of creative new programs that are essential to MIT's continued renewal and revitalization."

Dr. Grav said the growth in demand for unrestricted funds forces a hard look at 1972-73 budgets and requires strenuous new efforts to achieve significant reductions, particularly in administrative and plant operations that support the academic and research program.

The president and the chancellor, Dr. Gray said, will be in touch, through meetings, personal interviews and community statements, with individuals and

(Continued on page 8)



Professor King, right, receives the Danforth Award from Merrimon Cuninggim, President of the Danforth Foundation.

Dr. King Wins \$10,000

Wagoner Takes UMOC Title as Record Total Is Collected

Paul Wagoner, '73, the Great Court Jester from Phi Beta Epsilon, eked out a narrow lastminute victory in Alpha Phi Omega's most successful "Ugliest Man On Campus" contest ever.

Wagoner, who received \$605.54 in votes, was presented with the first prize, a dinner for two courtesy of the Top of the Hub, in an informal ceremony in the Student Center on Friday

In all, APO collected \$3,083.83 during the week-long contest, a \$900 increase over last year's record total. APO annually donates the entire proceeds of the contest to CARE.

The race remained close throughout the week, with only \$16 separating the top four candidates as late as noon Friday. Only in the last hour of the contest, during which the candidates collected more than \$700, did Wagoner surge to his narrow victory over Dave DeBronkart, of The Tech, and Leon Rivchun (Ugleon), of Chi Phi, who collected \$563.14 and \$514.83 respectively.

Other results were: Scott Evernden (Mr. Natural), of Sigma Phi Epsilon, \$480.63; Dave

(Continued on page 8)

for 'Gifted Teaching' Dr. John G. King, professor of physics at MIT, has been selected as one of the recipients of the Danforth Foundation's annual E.

Harris Harbison Awards for Gifted

The awards were presented Saturday night during a dinner at Washington University in St. Louis, Missouri. Each award includes a \$10,000 grant to be used

by the recipient to further his academic career and interests.

Professor King is a leading proponent of educational innovation and reform. He has introduced several new methods of teaching in his own undergraduate classes, including the concepts of "Con-centrated Study" and "Corridor Labs," and has authored and co-

(Continued on page 8)



Three youngsters play on the unusual swing set in the Central School playground. Made from clusters of old tires and chains, the swings are a favorite among the children. One said, "This is lots more fun than the plain old swings that just go back and forth, back and forth.'

Local Deans to Consider Future of Engineering

Dean Alfred H. Keil will join five other deans of engineering from the Boston area in a panel discussion on "Engineering Education for the 1980's" tonight at 8pm in the auditorium of the Department of Transportation at 55 Broadway, Cambridge.

Among the topics that the panel will consider are the role of professionalism in engineering, the need for knowledge of law and politics in engineers, engineering contributions to programs of social concern, retraining engineers for new careers, and the role of the university in the continuing education of engineers. Members of

Arco Van to Give Pollution Checks

MIT Ecology Action is bringing the Atlantic Richfield Company's Clean Air Caravan on campus this Thursday and Friday, November 11 and 12, to test the pollution emission of privately owned automobiles. Anyone may bring his car in for analysis free of charge and ARCO's technicians will explain any malfunctions in the pollution control devices on the vehicles. The Caravan will set up its exhaust emmissions analyzer in the duPont parking lot behind Rockwell Cage, and will be in operation from 9am to 5pm on both days.

the audience will have the opportunity to question the panel on any of these topics.

Joining Dean Keil on the panel will be Dean Ernest D. Klema of Tufts University; Dean Melvin Mark of Northeastern University; Dean Peter S. McKinney of Harvard University; Dean Arthur T. Thompson of Boston University; and President Russell Beatty of Wentworth College of Technology. In addition, Nelson Calkins, of Norton Company, and Robert Coughlin, of General Electric Company, will represent industry on the panel.

The discussion is sponsored by the Boston Section of the Institute of Electrical and Electronics Engineers. The public is invited to attend and participate.

church not too far from MIT is an innovative nursery-kindergarten-the Central School. Founded in 1968, Central

School is a learning center for children, parents, teachers and the surrounding-community. Its "open classroom" model has commanded the attention and interest of educators throughout the United States and abroad. Several members of the MIT community have been involved with the school since its founding, either as Central School parents or as members of the Advisory Resource Board.

Representing all parts of Cambridge, the school's enrollment is racially and economically integrated. The core class consists of 30 children, half middle-income white and non-white and half lowincome white and non-white. Enrollment is balanced according to sex and age (ranging from 31/2 to 5½ year-olds). The school is run cooperatively by a vocal group of parents and staff, also from varying socio-economic backgrounds.

Central School director Mrs. Lisa Dittrich says, "The integrated core demonstrates one of the school's main premises-that a child can best be educated by maintaining very close communication between all those concerned with his welfare.

"The environment at Central School encourages interaction and communication between children. It teaches them what makes a relationship work or not work, what it means to trust, to be shy, to be different from one another. This kind of learning is particularly important when one is trying to foster respect in young children

Tucked away in a spacious old for their peers-black, white, rich urch not too far from MIT is an or poor."

Program That's Fun, Educational

Central School Offers Youngsters

Housed in an old church at 264 Broadway, the Central School emphasizes an open-structured, informal classroom that adjusts its environment, schedule and programs to the needs of each child. The main classroom is painted in bright colors and divided into small "corners" where the children learn to read and "do math" in a natural way as they work on exciting projects.

There are "corners" for carpentry, mathematics, housekeeping, reading, drawing and painting, clay modelling, storytelling, etc. Everything-hammers, crayons, toys, pictures, and even the rabbit--has an indentification tag. These are used for reading and spelling lessons, as well as for teaching the children to put materials back where they belong.

The children learn how to bake cupcakes in the kitchen and plant and tend a vegetable garden in a neighboring yard. In preparation for Halloween, an old apple press was set up in the classroom and everyone helped make apple cider.

Education at the Central School is not limited to the classroom. Almost every day groups of four or five children set out on field trips--perhaps to the harbor, a construction site, a bakery, or for a bird walk in the neighborhood. The playground is equipped with a homemade jungle gym and swing set, made from old car tires, wood and chains.

Three full-time teachers, a volunteer, and parent helpers work in the classroom every day. Student teachers from Tufts, Boston University, Harvard and Wheelock also provide assistance. Eight

governing committees, made up of parents and staff, meet regularly to discuss classroom evaluation, hiring of staff, follow-up work with alumni and parent education.

The Central School is also a comfortable, cheerful community center. Mrs. Dittrich says, "Parents from very different backgrounds spend many hours together planning such things as an auction, a course they are giving to the community, or a school weekend in Vermont. We conduct weekly seminars for parents to enhance their understanding of the educational process here and at other schools. When parents leave the Central School, they are equipped to take an active part in their children's future education.'

Mrs. Dittrich continues, "Community outreach is another important aspect of the school. We provide evening educational workshops for public and private school teachers and parents, and our facilities are available to Cambridge's Community School Program, a neighborhood public school and other community groups."

Volunteers Needed to Man IAP Booths

The Independent Activities Period (IAP) Planning Office is seeking student volunteers to man IAP information booths in the Lobby of Building 7 and the Student Center. The volunteers, equipped with IAP notebooks that will be continually updated, will answer the nuts and bolts questions on how IAP will work this year. Interested students should call the IAP Planning Office, Ext. 1973, to apply.

Tech Talk

Volume 16, Number 19 November 10, 1971

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Please address all news and comment to the Editor, Room 5-111, Ext. 3277.

Quarter Century Club Plans Hawaiian, European Tours

The Quarter Century Club will sponsor three charter flight trips to vacation spots around the world in 1972. Included on next year's itinerary are tours of Hawaii, London and Greece. Each will last for eight days and seven nights.

first trip to Hawaii on January 7,

The trips are open to all members of the MIT community and their immediate families. The Quarter Century Club will be

mailing out information on the

IPC's Fast Fortran Course Offered Again This Month

Because of the large response to the October "Fast Fortran Course," the course will be offered again this month, from November 15-19.

Sponsored by the Information Processing Center, the course is intended for serious potential users of the computer for scientific and mathematical applications, and requires some programming

knowledge. The course consists of five one-and-a-half hour lectures with considerable outside reading, problem solving and preparation of programs to be run.

There is a \$5 fee which covers computer costs for the exercises. Enrollment is limited to 20 and preregistration is required. Those interested should see Mrs. Susan Litten in Room 39-427.

in the coming weeks.

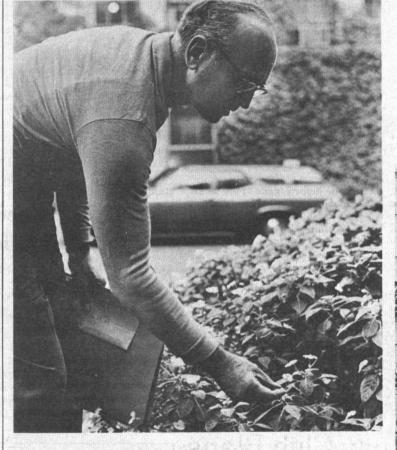
The Club got into the travel business almost two years ago. Their first effort was also a trip to Hawaii in the spring of 1970. Only 35 people signed up, but it was enough to give the Club the encouragement it needed.

"Our next attempt had much better planning and organization," says Club secretary, Jack Newcombe. "We went to the island of Majorca and 135 people came

along." All the trips include under one price round trip jet air fare, hotel costs, two meals per day on a multiple restaurant plan, tips, porterage, and often a cocktail party for the entire group. Arrangements are made through reputable travel agencies. Although the amount of money saved varies, most of the tours are much less expensive than normal commercial travel.

Other trips planned for 1972 are to London on April 9, and Greece on November 11. As with the trip to Hawaii, the Club will mail out information a few months before each.





Only yesterday, it seems, our balmy Indian Summer lured many members of the community outdoors to admire the campus greenery.

-- Photos by Margo Foote





Special Concert to Be Memorial for Tucker

A special memorial concert in honor of the late Gregory Tucker will be presented on November 20 at 8:30pm in Kresge Auditorium, under the sponsorship of the music faculty.

Performers will be the Juilliard String Quartet and guest violist John Graham; violinist Roman Totenberg, pianist Luise Vosgerchian, clarinetist Ray Jackendoff, flutist Karl Kraber, and pianist Frederick Rzewski.

Gregory Tucker, who died last July, had served on the music faculty since 1947. He was a major force in planning and establishing the present music program at MIT.

Professor Tucker was an accomplished pianist and composer. He performed with the Boston Pops Orchestra, and an ensemble player with the Juilliard String Quartet, and with many other groups; he also gave many solo recitals. He played classical and romantic music as well as unknown works by contemporary are limited to two per person.

American composers.

A versatile composer, Professor Tucker not only wrote chamber music and symphonic band pieces but also works for the theater and modern dance.

The Juilliard String Quartet will open the concert with Beethoven's Quartet in F minor, Opus 95; next, violinist Roman Totenberg, pianist Luise Vosgerchian and clarinetist Ray Jackendorf will perform Bartok's Contrasts. Flutist Karl Kraber and pianist Frederic Rzewski will begin the second half of the concert with Gregory Tucker's Merwan Songs for Alto Flute and Piano, followed by Bach's Sonata in G minor for flute and piano. The Juilliard String Quartet and violist John Graham will close the concert with Mozart's Quintet in G minor for strings.

The concert is free, but tickets are required. For tickets apply by mail only to the Music Office, 14N-233B, enclosing a selfaddressed return envelope. Tickets

Symposium on China to Be Held Saturday

Three seminars featuring eight distinguished China scholars and a lecture by Stanley Karnow, the widely respected China correspondent of the Washington Post, will highlight a one day symposium on China this Saturday, November 13, at MIT.

The symposium, jointly sponsored by the MIT Chinese Students' Club and the Center for International Studies, will focus on the recent development and present status of Chinese technology and culture, and of Chinese-US relations. All activities are free, and the public is invited to attend and participate in the discussions.

The program will begin at 10:30am with a seminar entitled "Medicine and Science in China." Dr. Paul Dudley White, of Massachusetts General Hospital, and Professor Ethan Signer, of MIT's Department of Biology, both of whom recently visited China, will lead the discussion. At 1:00pm, Ezra Vogel, professor of sociology at Harvard University, and Thomas Bernstein, professor of political science at Yale University, will discuss "Trends in Chinese Society," and at 3:30pm "US-Chinese Relations" will be analyzed by Ishwer Ojha, Chairman of the political science department at Boston University, and political scientists Daniel Tretiak, of York University in Toronto, Ying Mao Kaw, of Brown Univeristy, and Peter Tang, of Boston College. All seminars will be held in Room 10-250.

In addition to the seminars, the film "China," by Felix Green, as well as other films on the subject, will be shown throughout the day in Room 9-150. Scheduled

3:00pm and 6:00pm.

In the evening, at 8:00pm, also in Room 10-250, Stanley Karnow will present a lecture entitled "China After the Storm," dealing with the reintegration and strengthening of Chinese society following the cultural revolution. Mr. Karnow is a longtime southeast Asian correspondent and recently returned from a tour of the Chinese mainland.

Recruiting Dates

Representatives of the following companies and institutions will be on campus during the next week. Students interested in talking with them should visit the Placement Office (Room E19-445) to arrange appoint-

November 10: Naval Ship Research and Development Center. November 10 and 11: E. I. duPont de Nemours.

November 11: Albany International Corporation; Amos Tuch School of Dartmouth College; MIT Lincoln Laboratories.

November 12: Celanese; Columbia Graduate School of Business; Environmental Protection Agency; Hamilton Standard; Polaroid; Radiation Inc.; Watkins Johnson.

November 15: Duke University Graduate School of Business Administration; Metropolitan Life Insurance Company; New York University Graduate School of Business; Boston University Systems Engineering Department; Stone & Webster.

November 16: First National Bank of Boston; Texas Instruments, Inc.; Sikorsky Aircraft; Columbia Gas System Services; starting times are at 12:30pm, Lawrence Radiation Laboratory.



7:30pm, Rm. 10-105.

Symposium on China*

Events of Special Interest

Corporation Joint Advisory Committee (CJAC)**

Discussion on "University Investing and Corporate Res-

ponsibility" (Bowman Report), Thursday, November 11,

Sponsored by the Chinese Students Club and Center for

International Studies. Saturday, November 13. Seminars:

Medicine and Science with Dr. Paul Dudley White of

Massachusetts General Hospital and Professor Ethan Signer

of MIT, 10:30am-12noon, Rm. 10-250; Chinese Society

and Internal Politics with Professor Thomas Bernstein of

Yale and Professor Ezra Vogel of Harvard, 1-3pm, Rm.

10-250; U.S.-Chinese Relations with Professor Ying-Mao

Kaw of Brown University, Professor Ishwer Ojha of Boston

University, Professor Peter Tang of Boston College and

Professor Daniel Tretiak of York University, 3:30-6pm,

Rm. 10-250. Lecture: China After the Storm by Stanley

Karnow of the Washington Post, 8pm, Rm. 10-250. Films: China by Felix Greene and others, 12noon, 3pm, 6pm, Rm.

November 10 through November 19

Laser Spectroscopy - How to Find a Needle in a Haystack Professor Michael S. Feld, physics. 4:30pm, Rm. 26-100. Tea, 4pm, Rm. 26-110.

Control of Growth and Protein Turnover in Muscle*† Dr. Alfred L. Goldberg, physiology, Harvard Medical School. Nutrition and Food Science Seminar. 4:30pm, Rm. 16-134. Coffee, 4:15pm.

Building-Sense: Teaching Architects about How Buildings

Edward B. Allen, architecture. ERC Colloquium. 12n, Rm.

Temperature and Concentration Measurement in Flames: Radiation Probing in Depth*

I. Garag, chemical engineering. 2pm, Rm. 10-275.

Intra Urban STOL Studies

technic Institute of Brooklyn. Mechanical Engineering

Development of Dynamic Membranes for Desalination and Water Pollution Control*

Seminars and Lectures

9-150. Free admission to all events.

Wednesday, November 10

Arc Fusion and Other High Temperature Techniques Dr. T.B. Reed, Lincoln Laboratories, Ceramic Seminar Series. 1pm, Rm. 10-105.

The Ford Motor Company People Mover System* Richard Shackson, civil engineering, Transporation Division. 1:30pm, Rm. 1-350. Refreshments after seminar.

Prospect for Controlled Fusion*

Professor David Rose, nuclear engineering. Electric Power Systems Engineering. 3pm, Rm. 10-105.

Endotoxin and Periodontal Disease

Dr. Henry M. Goldman, dean of BU School of Dentistry and associate director of BU Medical Center. Oral Science Seminar. 3-5pm, Rm. E18-301.

Breaking Nambu Goldstone Symmetries

Professor H. Pagels, Rockefeller University. Joint Theoretical Seminar. 4pm, Rm. 6-120. Tea, 3:30pm, Rm. 26-110.

The Ion Microprobe Mass Spectrometer: Determination of Near-Surface Concetnration Gradients

Dr. J. Paul Pemsler, Kennecott Copper Corp. Metallurgy and Materials Science Special Seminar. 4pm, Rm. 8-205.

Pigs vs. Augs: The Angles of Exsolution Lamellae in

Professor Peter Robinson, geology, University of Massachusetts. Earth and Planetary Sciences Colloquia. 4pm, Rm.

Intercalated Complexes of Layered Sulfides and Lewis Bases-A Large Class of New Superconductors*

Dr. F. Gamble, Esso Research and Engineering Company. 4:15pm, 2nd Floor Conference Rm, National Magnet Laboratory.

Thursday, November 11

Housing Situation in Large Cities of Korea and Metropolitain Areas & National Development in Argentina W.T. Han and A. Stadecker. SPURS Seminar. 1-3pm, Rm. 9-351.

The Wall Region in Turbulent Shear Flow*

Dr. James M. Wallace, Max-Planck-Institut fur Stromungsforschung. Interdepartmental Acoustics Seminar. 4pm, Rm. 5-134. Coffee, 3:30pm, Rm. 1-114.

Uses of the Diamond Anvil Press in Mineralogy and Geophysics

Professor William A. Bassett, University of Rochester. Earth & Planetary Sciences Special Seminar. 4pm, Rm. 54-811.

Rheological Behavior of Fluids and Cavitation Fluid Mechanics Films. 4-5pm, Rm. 3-270.

Friday, November 12

Professor Michael J. Rabins, system engineering, Polyseminar. 3pm, Rm. 3-270.

P.H. Wadia, chemical engineering. 3pm, Rm. 10-275.

The Properties of High Density Electron-hole Plasmas in Semiconductors at Low Temperatures: Evidence for

Professor Maurice Glicksman, Brown University. Materials and Science and Engineering Colloquium. 4pm, Rm.

Monday, November 15

Nuclear Engineering Doctoral Seminars*

The Engineering Feasibility and Fuel Cost Analysis of Variable Nuclear Fueling Intervals, T. Rieck; Synthesis of Neutron Distribution in Fast Reactors for Depletion Studies, A. Torri; The Problem of Determining Monetary Worth of Nuclear Fuel to Be Used in Computing Nuclear Energy Cost, H. Watt. 3-5pm, Rm. NW12-222.

Analytic Modeling in the Context of Decision Making: Some Recent Examples in Water Resource Planning Professor D.H. Marks, civil engineering. Water Resources and Hydrodynamics Seminar. 4-5pm, Rm. 48-316. Coffee, 3:30pm, Rm. 48-410.

Secondary Flow and Surface Tensions** Fluid Mechanics. 4-5pm, Rm. 3-270.

Housing Crisis of the 70's-How It Relates to Jews* Arnold Yoskowitz, graduate student, Urban Studies and Planning. Hillel Graduate Discussion Group. 8pm, Rm. 441, Student Center.

Tuesday, November 16

Microwave Propogation Studies**

Dr. Robert K. Crane, Lincoln Laboratory. 3:30pm, Lincoln Laboratory Cafeteria.

Stacking Faults, Twins and Martensite*

Professor John W. Christian, University of Oxford. Metallurgy and Materials Science Colloquium. 4pm, Rm. 3-370. Coffee, 3:30pm, Rm. 8-314.

Finite Element Method for Fracture Mechanics

Professor T.H. Pian, aeronautics and astronautics. Ocean Engineering Seminar. 4pm, Rm. 5-324. Coffee, 3:30pm, Rm. 5-314.

Medical Electronics in the Service of Two Clinical Disciplines--Neurosurgery and Orthopedic Surgery *

Professor Henry Wallman, Chalmers University and University of Gothenburg. Electrical Engineering Seminar. 4pm, Rm. 10-105.

Fighting Hunger in America: The Sad Political Realities* The Honorable Ernest Hollings, US Senator from South Carolina. Nutrition and Food Science Seminar. 7:30pm, Rm. 9-150.

Wednesday, November 17

A Proposed Open University for Massachusetts*

ERC Colloquium with introduction by Dr. Jerrold Zacharias, director of ERC. Panelists include: Edward C. Moore, chancellor of Massachusetts Board of Higher Education; EDC and ERC staff, MIT faculty. 12n, Rm. 1-390.

Float-Zone Stability and Crystal Growth

Dr. J. Haggert A. D. Little. Ceramics Seminar. 1pm, Rm.

The Role of Probability in Foundation Engineering Professor Warren J. Baker, civil engineering. 1-3pm, Rm.

Early Diet and Cariogenesis

Dr. James Shaw, Harvard School of Dental Medicine. Oral Science Seminar. 3-5pm, Rm. E18-301.

Deformation Behavior of Body-Centered Cubic Metals and Alloys*

Professor John W. Christian, University of Oxford. Metallurgy and Materials Science Colloquium. 4pm, Rm. 3-370. Cofee, 3:30pm, Rm. 8-314.

The Process of High Volume Production of Mechanical Parts: Some Interesting Problems*

Louis Quagliata, Draper Laboratory. Decision and Control Sciences Group Seminar. 4pm, Rm. 39-500.

Thursday, November 18

The Dilemma of an Architect in a Developing Country L. Gunaratna. SPURS Seminar. 1-3pm, Rm. 9-351.

Waves in Fluids and Generation and Propagation of

Fluid Mechanics Films. 4-5pm, Rm. 3-270.

The Energy Crisis-Long Range Planning versus Piecemeal Technology*

Professor David White, Ford Professor of Engineering. Operations Research Center Seminar. 4pm, Rm. 24-307. Refreshments following seminar in Rm. 24-219.

Linear and Nonlinear Effects in Light Scattering from

Professor Peter A. Wolff, physics. 4:30pm, Rm. 26-100. Tea, 4pm, Rm. 26-110.

The American Jewish Student at the Hebrew University* Professor Hayin Avni, member of Institute of Contemporary Jewry, Hebrew University. Hillel. 7:30pm, Rm. 473 Student Center.

Friday, November 19

Batch Distillation*

W.C. Sifleet, chemical engineering. 2pm, Rm. 10-275.

Laminar Diffusion Flames*

R.E. Mitchell, chemical engineering. 3pm, Rm. 10-275.

The Lead Salt Semiconductors as Viewed through the NMR **Looking Glass***

Professor Stephen Senturia, electrical engineering. Center for Materials Science and Engineering. 4pm, Rm. 10-105. Refreshments, 3:30pm.

Complex Machine Tools

Samuel A. Francis, technical vice president, Sippican Corp. Mechanical Engineering Seminar. 3pm, Rm. 3-270. Coffee, 4pm, Rm. 1-114.

Student Meetings

Technique Staff Meeting

Every Saturday. 11am, Student Center, Rm. 457.

Tech Engineering News*

ERGO Staff Meeting

Staff meeting. Every Sunday, 5pm, TEN Office, Student Center, Rm. 453.

Every Sunday, 6pm, Student Center, Rm. 443.

MIT Club Notes

Book of the Week*

Informal discussion over dinner of Radical Man by Charles Hampden-Turner. Wednesday, November 10, 5:15-7:15pm. Ashdown Dining Hall (table near the door). Anyone who has read the book is welcome. James Snell, 523-1198.

Alpha Phi Omega*†

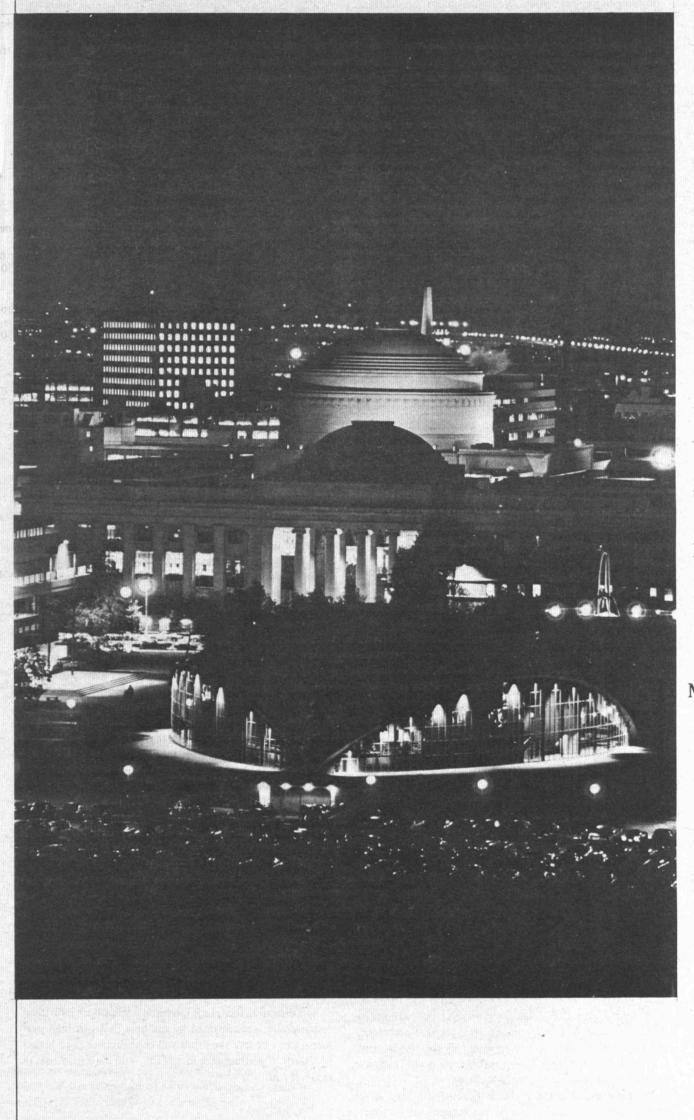
Chapter meeting. Wednesday, November 10, 7:30pm, Student Center, Rm. 407. Refreshments served.

Tech Dames**

Meeting with guest speaker Audrey Hoffman well-known interior decorator. Wednesday, November 10, 8pm, Mezzanine Lounge, Student Center.

Scuba Club*

Professor Damon Cummings, ocean engineering, will discuss "Ocean Engineering Summer Laboratory" and show slides. Wednesday, November 10, 8pm, Rm. 20E-017. For more information call Skip Scheller, 776-2168.



REPORT OF THE PRESIDENT

FOR THE ACADEMIC YEAR

1970-1971

MASSACHUSETTS INSTITUTE
OF TECHNOLOGY



In presenting my annual report for 1970–71, I am conscious that it is the last in the series that I will have submitted as President of the Institute.

At the outset it is important to emphasize two enduring propositions: that ours is an institute based on education in science with a primary focus on enlarging the horizons of science; and, second, that we are fundamentally concerned with the development of technology and with its applications to society. Both parts of that statement, the cultivation of science and technology and the sharpening concerns for their application to society, are critical parts of our franchise. It is worth repeating that statement at a time when a broad public concern has arisen about science and its applications and when there is new public concern about the support of higher education generally. The most important reflection growing out of this year is that we at M.I.T., in our own way, and in a way wholly consistent with our purpose, must understand these concerns, must meet them openly, and must seek to answer them. Throughout its history, M.I.T. has shown an exceptional ability to combine constancy of principle and continuity of direction with a willingness to change our educational approach within this framework. We will need this ability now and in the years ahead.

It was to this fundamental of the M.I.T. education that I spoke five years ago:

As the Institute founded by William Barton Rogers proceeds in its second century, we call for a renewal of our historic plan. The elements of this plan draw from the basic fiber, the very character of this institution: our power to act, our foundation in science, our commitment to research, our determination to build the humanities and the arts, our emphasis on the importance of the environment and, above all, our expectations for the performance of our students. These basic propositions make M.I.T. a university that never looks back as a conserver of the past but always forward as a maker of the future.

These last five years have seen us persist on these lines.

My reports in these years have sought to review the significant events of the year, both our accomplishments and our shortcomings. I have thought it was important, also, to stress the need for asking the right questions of the events around us, to maintain a capacity for thinking about the future in spite of the pressure of current events, and to reflect deeply on the alternatives before us. This report follows that outline.

First, on the year itself. It was a good year for M.I.T. Much was accomplished that gives our future a better chance. I do not mean it was a quiet one. There was dynamic effort and interaction. But the Institute was not subjected to the constant threat of confrontation near the surface which had been present in other years, and there was a sense of healthy change and vitality that was good for all of us. Two questions that I raised in last year's report, the danger of politicizing these institutions and the problems of maintaining an internal and independent discipline system, seemed to have lost their immediacy as pernicious problems. A great deal of reevaluation of our educational process and a stimulation stemming from many sources but principally due to the excellent effort of the M.I.T. Commission produced much useful debate and the outline of new directions.

The record of any university and certainly of our Institute is best expressed in the growth and learning of the people associated with it. In the best of times and in the worst of times, individual students, faculty members, researchers, and employees find their way to learning and performance. One expression of individual attainment is the conferral by M.I.T. of 974 undergraduate degrees and 1,283 graduate degrees, including 400 doctorates, a total of 2,257 in the last year. Accomplishment is also expressed in the awarding to faculty and staff members of major honors including the Nobel Prize and many other distinguished awards, as well as less visible but equally significant forms of recognition. I suppose, too, that accomplishment is noted by the quality of our graduate programs. Once again, the American Council on Education has rated the Institute among the top half-dozen universities of the nation and first in our own category.

New developments in curriculum, about which I will say more later, made excellent headway. Curriculum changes were taking place as the M.I.T. Commission continued the discussion of its first report. The stimulation produced by that report, the formation of a special task force on education, and the continuing experimental efforts by several departments, notably in the School of Science, promise major productive and student-centered programs for the near future. We saw more effort in the public policy area and in various interdisciplinary efforts at both the graduate and undergraduate levels. We saw the effective beginnings of Supplement Page 2, Tech Talk, November 10, 1971

several new laboratory efforts. The most visible change perhaps was the successful inauguration of a one-month independent activity and study period between the fall and spring terms. The experience surpassed expectations. Let us see if there is equal enthusiasm in the next few years. One new program deserving special note was the planning and building of the Community Fellows Program for leaders of community organizations, to begin in the fall of 1971.

In the continuing struggle to maintain financial support for research at M.I.T., we have largely held our own. There were small increases in the level of research on the campus as a whole and in the off-campus laboratories, but inflation made such levels less productive. Support for efforts in new fields in environment and in health sciences and for maintaining important basic areas was difficult to obtain.

The many laboratories at M.I.T. are engaged, consequently, in a struggle of funding good ideas in a spare Federal climate. In an important specific case, I have reported on the Draper Laboratory in the past years, and its progress is described in the report of its Chairman and President. We continue to develop its disengagement from the Institute, conscious of our requirement to keep the Laboratory sound in the process and slowed, I suppose, by the general downtrend in activity in the area of its greatest expertise. We persist, with the leadership of an outstanding board, in our efforts.

A steady erosion of support in some key areas was a worrisome concern. For example, support for graduate students in critical fields across the country is waning. The number of Federal graduate fellowships is about 40 per cent



The M.I.T. Charter is presented to the new President, Dr. Jerome B. Wiesner, by Howard W. Johnson, Chairman of the Corporation, on October 7, 1971.

less than it was four years ago, and that number is further declining. While M.I.T. is faring somewhat better than most, we face a serious crisis in the support of able young people who wish to pursue science and engineering at the graduate level.

Other areas are more positive. A review of last year shows that our effort in enrollment of minority students, both graduate and undergraduate, and in minority staff employment continued to make progress. The number of women students has increased by about 10 per cent to over 600. In September, 1970, 91 women entered M.I.T. as members of the freshman class; this year that number will exceed 120, the largest on record.

The year was marked by the opening of the Frank S. MacGregor House, a dormitory residence housing 324 students, and the completion in 1971 of the remodeling of Burton-Conner, housing 344 students. Construction on a third student residence, Westgate II, which will house approximately 400 graduate students, was begun. Among academic buildings, the Ralph M. Parsons Laboratory for Water Resources and Hydrodynamics was dedicated. Work on the George R. Wallace, Jr., Astrophysical Observatory was essentially completed, and plans for the formal dedication are tentatively scheduled for this fall. Work was begun on the electrical engineering and electronics buildings, M.I.T.'s largest single building project since the move to Cambridge. On the building front beyond our campus, a major phase of M.I.T.'s housing program in Cambridge, 684 units for the elderly, was approved by the Department of Housing and Urban Development and is the nation's largest project under the Turnkey Program.

On the fiscal side the Institute finished the year on a break-even basis, once again without incursion on endowment funds. We did so in the face of major inflation and cost pressures, both regular and unexpected in nature. This result was achieved by continued cost-cutting effort; by increased revenues from tuition and endowment income; by near-record gifts, grants, and bequests; by the relentless draw on unrestricted current balances; and by deferment of some needed programs. When one considers the demands during the year on new funds for substantial student aid, the new building construction, and a substantial addition to the

endowment capital of the Institute, this financial balancing act is noteworthy. The fund raising efforts of the Institute resulted in a total of 39.6 million dollars in gifts, grants, and bequests, barely exceeded in only one other year in the Institute's history. Included in this total were the gifts of the largest number of contributing alumni on record. The longer term outlook is not as bright, but it is satisfying to report this result in the atmosphere of general gloom on the collegiate financial scene.

Plans were completed during the year to elect representatives of recent classes to the Corporation. In the spring five young trustees were recommended for election to the Corporation, to take office in the coming year.

Finally, a new chapter in the Institute's history was begun with the election of Jerome B. Wiesner as President and the concurrent election of Paul E. Gray as Chancellor, a new version of a time-honored office at M.I.T. designed to add further depth to the leadership of the Institute. Both appointments became effective on July 1, 1971.

The year ended with a Commencement full of hope, I thought, and full of challenges rightly placed before this institution.

And so another year goes into the record. The events are recorded in detail in the reports of the Schools, departments, and offices of the Institute. What does one discern from these diverse events? Are the pieces reported here isolated parts of the experience of the human beings that make up the long line of history that is M.I.T.? Some undoubtedly are, but others add to a pattern, often begun long before our time and continuing as part of a gradual evolution and probably revolution of the Institute. Let me cite some of the more important patterns as they appear to me.

TEACHING

It is instructive to chart the change in the undergraduate pattern of education from one of complete prescription to one of a substantial requirement for individual selection and individual responsibility. Let us take, as an example, ten years ago. In the fall of 1961, 900 freshmen enrolled in a uniform program consisting of a two-term sequence in general chemistry, physics, calculus, introductory humanities, and one elective subject each term chosen from a list of 16. Each freshman registered for the five subjects. There were very few exceptions.

At the writing of this report in September, 1971, 1,000 freshmen assembled in Kresge Auditorium to hear faculty and deans describe five options in chemistry (including biology), six options in physics, six options in calculus, and five options in the freshman humanities. In addition, freshmen learned they could take undergraduate seminars, participate in the Undergraduate Research Opportunities Program, and choose from a list of some 200 elective subjects offered by virtually all of the Institute's 24 departments. Furthermore, a number of freshmen now have an opportunity to spend the year in one of three experimental programs, known as the Experimental Study Group, the Unified Science Study Program, or the Concourse Program.

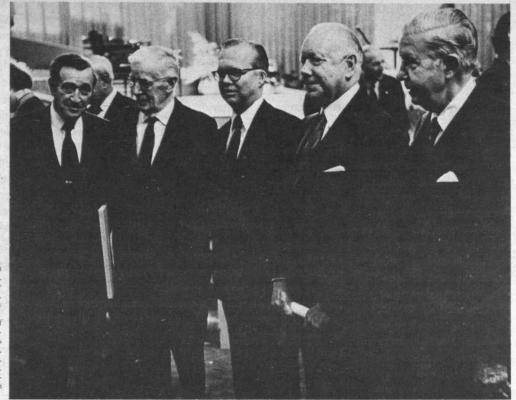
M.I.T. has always asserted that this is a place where mature students decide what they want to do and have an opportunity to do it. In the past ten years we have come a long way toward achieving this goal in the first year of our education. It has been the result of hard work and imaginative thinking on the part of many generations of teachers, undergraduates, and administrators who, in the M.I.T. tradition, have not been satisfied with a successful past but who have sought each year new standards of accomplishment and flexibility. In every department there are now programs offering diverse alternatives for the student. There is effective cross-registration with other institutions, notably Wellesley College.

The same can be said for other levels of education. We see signs that the opportunity to participate in the choice of one's own program produced a greater sense of responsibility and most likely some gain in standards of performance.

As a direction, then, I see increased emphasis on individual responsibility accompanied by multiple paths to high performance. I believe the result will contribute to even higher standards of performance in real life — in choice, in risk, in achievement.

FIELDS OF STUDY

A second direction is noted by the development and growth of new fields of study at the Institute. It is tempting to cite too quickly the fields of worth and deep intellect that characterize the vital interest of all of us today — the health sciences, the urban field, the studies of environment, transportation, and other systems of management, and engineering. But we should not overlook the fields in which the Institute has labored for years and which take on new edge



Four generations of leadership join for the inauguration of Dr. Wiesner. On Dr. Wiesner's left, Dr. Vannevar Bush. Vice President of M.I.T.. 1932-1938, and Honorary Chairman of the Corporation, 1959-1971; Howard W. Johnson, President of M.I.T.. 1966-1971, and now Chairman of the Corporation; Dr. Julius A. Stratton, President of M.I.T.. 1959-1966; and Dr. James R. Killian, Jr.. President of M.I.T.. 1949-1959. Chairman of the Corporation, 1959-1971, and now Honorary Chairman of the Corporation.

and new challenge: every field of more traditional application of the civil, mechanical, chemical, electrical, and ocean engineering, as well as new emphasis in other important applied fields. The new fields include areas which have historic roots in the curriculum. Our new Department of Philosophy is one example. Our program of joint degrees with the Woods Hole Oceanographic Institution is another. There is a growing interest and, I hope, competence in problems of public policy associated with the application of technology. A study of the General Catalogue demonstrates the difference. A study of recent graduate student theses is even more revealing.

There is no decay of interest in fields of long investment and importance, but the direction is, as I once said, toward areas of greater human significance.

THE NATURE OF THE M.I.T. POPULATION

There are other areas where direction can be plotted. In recent years the recognition of the full contribution of women within the staff and in the student body has been better appreciated. From the time of Ellen Swallow Richards, a hundred years ago, the place of women has been secure, but increasing numbers more nearly reflect the growing recognition of women's potential and accomplishment. The same can be said of the black students and staff. The contribution made to education and to understanding among different people is great and growing. Let no one doubt the meaning of this growth. An earlier recognition, that of M.I.T. as an international as well as an intensely national institute, is seen from the records of the registrar. I do not know of an institution of the first rank which has as large a proportion of students and staff from outside the country. The relationship of this fact to the ultimate search for the whole brotherhood of man is worth noting, especially in this time of increasing international tension.

THE WORKING ENVIRONMENT

I note another direction. It relates to the increasing concern for our surroundings both on the campus and in the cities in which we live. I do not refer solely to the massive addition of new buildings on the campus, important as these additions have been. Rather I mean the way in which the Institute is a place for trees, for greenery, for color, and for beauty of design and interest. It shows from Massachusetts Avenue to the unexpected parks that dot the campus. I am also glad to note the way in which we have participated and sought to participate in the improvement of Cambridge and Boston. Both factors respond to real need. Both advance the spirit.

CONTINUITY

If these areas represent innovation where we believe that change helps to achieve a finer result, there are fundamentals of the Institute that have not changed, where the direction remains steady and where we derive satisfaction from some beliefs that do not change with the times. I have already noted some of these. Paramount is our base in science. We continue to believe that the pure scholarship of science is important for its own sake, as the extension of man's understanding of nature. Teaching and research into the fields of science are our preoccupation, and I see little inclination to shift this commitment at M.I.T. Beyond the work of the individual scientist and his student, I also see a continuing lively interest in larger programs, mobilizing the efforts of many in laboratories and in various sponsored

programs. This larger effort has constantly demonstrated itself as a method of education, as well as a way to find answers to significant problems. The record of the work of our faculty and staff, ready to take on new and ambitious assignments, continues to be outstanding.

STILL BEFORE US

But apart from those directions that show constant evolution and apart from those that are as fixed in M.I.T.'s life as the parts of the compass, there is a third category — those areas of large importance, present and potential, where we are seeking, still, to understand the problem and to find a clear pattern. These are still unsolved problems of transcending importance to M.I.T. I would cite our need to understand the full power of the humanities and liberal studies in our curriculum and to realize the fruits of our understanding. We know that the study of humanities must be interlocked with the study of science, that there is a unity of liberal education. We know, too, that achievement of this oneness of education is a reality for many of our students. And yet, we are troubled by the apparent inadequacy of our educational structure to ensure that this integration is fully effective. There seems to be a fault in the face of our structure. It is a problem of immense significance. M.I.T.'s singular strength in both science and humanities should make the Institute a special place for dealing with this issue. But we have not yet found the way.

Another problem that lies before us is to seek a better definition of the role of the Institute in public service. We are proud of our efforts up to the present, and we will surely continue to render a significant contribution to the technological problems of our society. But the paths are more complex in these times, and the integration of service with education poses some quandaries where resolution is not yet clear. Public service and M.I.T. go together. It is a grand tradition, but new definitions of the interface are yet to be found.

There are other problems, now common to higher education in general, that deserve our best attention. There is a pressing demand for patterns of education for adult life, for alumni for example, and for mature professionals in many fields. M.I.T. has some world-famous examples of effective programs: the Sloan Fellowship Program, the Advanced Engineering Program, the SPURS Program for foreign professionals, among others. We have alumni seminars and the special summer programs, but surely the new technology can produce imaginative ways to satisfy the need to learn anew, and we must find them.

There is still under the heading of problems a wholly new specter of underutilization and unemployment for new advanced degree holders in this decade, especially in the areas of physical sciences and engineering. The sources of the problem are complex but rest mainly in the distortions of an on-again, off-again government demand and in the long lead-time for education of a doctoral candidate. Boom or bust is no basis for effectually providing for the scientific development of the nation. I do not agree with the grim predictions of those who see major unemployment in the last half of the decade. The market, as it has in the period of "shortages," adjusts relatively quickly. But there is a problem, and we are concerned.

We share other problems with the world of education. I have spoken in each of my annual reports on the problem of financing M.I.T. We are a special place, and we fare a bit better than many others. But the financial problems ahead for higher education are horrendous. Increasing tuition must

continue in the face of rising costs, but I, for one, fear that such a continuation will bear most heavily on the large middle group of our students that fall in the financial range between the very needy and the very affluent. I fear that a steadily rising collegiate budget could eventually prevent many of them from attending M.I.T. There is a very real need here that has not received adequate attention by anyone in higher education.

We must maximize our efforts at raising private resources. The satisfaction of investment in private education is still there despite the occasional uneasiness for some that accompanies the support of youth. But quality institutions need Federal support in addition, and new forms of that support must be devised if the long-term interests of our society are to be protected. It is almost that simple.

And now I come to the closing of my report on last year. In addition to the election of our new President, the year saw five new appointments as heads of departments in the Institute. Professor Glenn A. Berchtold succeeded Professor John Ross as Head of the Department of Chemistry; Professor Kenneth M. Hoffman succeeded Professor Norman Levinson as Head of the Department of Mathematics; Professor Edward A. Mason succeeded Professor Manson Benedict as Head of the Department of Nuclear Engineering; Professor Eugene B. Skolnikoff succeeded Professor Robert C. Wood as Head of the Department of Political Science; and Professor Richard L. Cartwright became the first Head of the new Department of Philosophy.

In an understandably rapid turnover leading to his election as Chancellor last March, Professor Paul E. Gray was appointed Dean of the School of Engineering last December, succeeding Dean Raymond L. Bisplinghoff, who requested leave of absence to become Deputy Director of the National Science Foundation. In July Professor Alfred A. H. Keil, Head of the Department of Ocean Engineering, succeeded Dean Gray as Dean of Engineering. In another category, Professor Hartley Rogers, Jr., was elected Chairman of the Faculty, succeeding Professor William T. Martin, who served in that post with distinction for two of the most active years on the Institute's record. All of these colleagues deserve our greatest appreciation. We are grateful to them.

Again last year, distinguished members of our faculty reached retirement age, and I would like to note their remarkable service to generations of M.I.T. students. They are Lawrence B. Anderson, Dean of the School of Architecture and Planning; E. Lee Gamble, Professor of Chemistry; Truman S. Gray, Professor of Electrical Engineering; and John T. Nickerson, Professor of Nutrition and Food Science. They have made immense contributions to the quality of M.I.T.

I report too the retirement of James R. Killian, Jr., Chairman of the Corporation, who completes more than 40 years of service to M.I.T. This distinguished record of service to the Institute, to our country, and to the world of education has few equivalents in our time.

And so I come to the end of this report. I do so with a conscious and studied sense of optimism about M.I.T. and its future. I am aware that the prevailing atmosphere for higher education tends to be gloomy. I do not share it. There is, I know, a foreboding sense of a world trying to move away from technology yet knowing that technology must provide the basis for dealing with our largest problems. M.I.T. has a continuing and positive part — a unique part to play in the solution of these problems. And as for the gloom, we must remember that the world of higher education has come through a rough and stormy period, unmatched in history. While no one can say that the period is over, the shape of the problems ahead is now better defined. Who can say that the assaults on the university from within or without are over, but they have tended to subside. And, it can be said, we have a certain experience.

Frankly, we should have expected a difficult transitional time. The society of man has a way of correcting extremes of both position and expectation. From a pendulum swing in which many thought the universities could do no wrong, we have come through a time when many thought that the universities could do no right. The truth, of course, lies at neither extreme. Some scars will remain, some for a long time. No institution of note is immune from them. But there is a clearer understanding now that universities are human institutions which should be distinguished by their overriding concerns for learning and for the uncharted frontiers of the mind. Such concerns are bound to produce discomfort, but they also provide the best way yet devised to deal with man's insatiable quest for understanding himself and nature and for sustaining civilization. Those are big enough preoccupations for any human institution. Now it remains for each institution to reexamine its charter - to seek to understand the basis on which it deserves support and then to follow its own course resolutely.

For us at M.I.T. we have had an opportunity to test our foundations. They are firm. In the most placid of times

perhaps the best thing that an administration can do is to get out of the way and let the work proceed. These have not been placid times. The record is there to be examined. We have continued on our path of improving our pattern of education, and we have sharpened our old sense of purpose. We are stronger, in a sense, than we were. But we will need every support we can muster in the future, and we must be bold in calling for that support. In a world that is above all a technological one, M.I.T. has too important a calling to be content with less than a preeminent contribution through education, research, and service to the improvement of man's state. With the leadership of our new President, I have no doubt that we will continue to forge ahead.

And, at the end, how does one adequately speak the appreciation he feels to all in the administration and all of those who are joined in the work of M.I.T. Let me cite them: the Faculty, the members of the Corporation, the staff and employees, the student body, and the alumni. They are a splendid company. There will be many of us, I believe, who will remember these past days and years and will be glad that we were here in this place and at that time.

STATISTICS FOR THE YEAR

The following paragraphs report briefly on various aspects of the Institute's activities and operations during 1970–71.

REGISTRATION

In 1970–71 student enrollment was 7,799, a decrease of 225 over the 8,024 enrolled in 1969–70. This total was comprised of 4,120 undergraduate and 3,679 graduate students.

Graduate students who entered M.I.T. last year held degrees from 306 colleges and universities, 179 American and 127 foreign. The foreign student population was 1,358, representing 17 per cent of the total enrolled. The foreign students were citizens of 87 different countries.

Degreeş awarded by the Institute in 1970–71 included 955 Bachelor's degrees, 19 Bachelor of Architecture degrees, 770 Master's degrees, 113 Engineer degrees, and 400 Doctoral degrees — a total of 2,257.

The number of women at M.I.T., both graduate and undergraduate, has increased continuously. In 1970–71 there was a total of 604 full-time women students at the Institute, compared with 557 in 1969–70. In September, 1970, 87 women freshmen entered M.I.T. In September, 1969, the number was 73. In 1970–71, 108 degrees were awarded to women, compared with 96 in 1969–70.

STUDENT FINANCIAL AID

During the 1970–71 academic year the student financial aid program was characterized by increases in total awards, in number of individuals assisted, and in loans made and by a decrease in the relative percentage of scholarship funds used.

A total of 2,270 undergraduates who demonstrated the need for assistance (57 per cent of the enrollment) received \$2,995,208 in scholarship aid and \$1,510,198 in loans. The total, \$4,505,406, represented a 7 per cent decrease in direct aid over last year.

Scholarship assistance was provided by the scholarship endowment in the amount of \$1,378,475; by outside gifts for scholarship in the amount of \$502,659; in the form of direct grants to needy students totaling \$646,224; and by M.I.T.'s own operating funds in the amount of \$325,400. The special program of scholarship aid to minority group students represented an additional \$142,450 from specially designated funds. An additional 153 students received direct grants from outside agencies, irrespective of need, in the amount of \$242,200. Outside scholarship support thus totaled \$1,391,083, slightly higher than last year's total.

The undergraduate scholarship endowment was increased by the addition of three new funds. These new funds, together with supplements to others, represent an addition of \$400,012 to the scholarship endowment, whose principal now stands at \$19,108,514.

Loans totaling \$1,510,198 were made to needy undergraduates. Of this amount, \$362,684 came from repayments to the Technology Loan Fund; \$995,929 from the National Defense Loan Fund; and the remainder from other M.I.T. loan funds. An additional \$398,818 was obtained by undergraduates from state-administered Guaranteed Loan Programs and other outside sources.

Graduate students obtained \$292,925 from the Graduate Loan Fund established to provide loans at prime commercial interest rate. As a lender under the Guaranteed Loan Program, M.I.T. also made \$197,900 in loans to graduate students under this program. The total loaned by M.I.T. to 2,034 graduate and undergraduate students was \$2,128,277, a substantial reduction from last year's total. Supplement Page 4, Tech Talk, November 10, 1971

PLACEMENT

It was a challenging year for the Placement Bureau. The depressed state of the economy sharply curtailed the number of jobs available to graduating students and to alumni seeking new positions, and the Bureau was hard pressed to provide effective help.

The number of firms and government agencies which came recruiting was down by a quarter, from 286 in 1969–70 to 216. The drop followed a significant reduction in recruiting in 1969–70. Many of the firms that came had few jobs to offer. Many that did not come reported that they would be hiring no one.

One response of students was to stay out of the job market. Fewer Bachelor's and doctoral degree candidates made interview appointments. The number of Bachelor's candidates having interviews dropped to 294 from 500 the year before; the number of doctoral candidates dropped from 301 to 252. Only Master's degree candidates came for interviews in equal numbers.

Relatively few students who looked for jobs ended up unemployed, but unemployment was a significant factor in some fields. Doctoral candidates in chemistry were particularly hard hit. Only one out of 21 students who received a Ph.D. degree in chemistry in June obtained a regular faculty position; none found a job in industry. Most found temporary appointments as postdoctoral fellows and research associates.

Alumni using the Placement Bureau jumped by a third, from 728 in 1969–70 to 972. Ninety per cent of those registering were either out of work or soon expected to be. The Bureau conducted interviews in New York for alumni located there and a member of the staff spent three days counseling alumni in Seattle. The Bureau joined with the Alumni Association in organizing a two-day seminar in April on career prospects in different fields. Starting in May, a Bulletin of Available M.I.T. Graduates was mailed to employers with summary data on alumni looking for employment. The Bulletin, which omits individuals' names, has elicited requests for resumes from a promising number of companies.

FINANCES

As reported by the Treasurer, the total financial operations of the Institute, including sponsored research, were maintained at very near the level of 1969–70. Educational and general expenses — excluding the direct expenses of departmental and interdepartmental research, of the Lincoln Laboratory, and of the Charles Stark Draper Laboratory — amounted to \$71,945,000 during 1970–71 as compared to \$66,012,000 in 1969–70. Reflected in the finances of the Institute was the increase in the use of general purpose funds of \$4,907,000, compared with \$4,636,000 in the preceding year to meet the greater expenses of instruction, departmental sponsored research, and related plant and administration activities.

The direct expenses of general departmental and interdepartmental sponsored research increased from \$46,409,000 to \$49,015,000, and the direct expenses of major laboratories and special departmental research decreased from \$99,129,-000 to \$87,232,000, due primarily to reduced subcontracts to outside organizations.

The construction program of the Institute continued to make progress in 1970–71, with the book value of educational plant facilities increasing from \$136,926,000 to \$143,120,000.

At the end of the fiscal year, the Institute's investments, excluding retirement funds, had a book value of \$316,176,000 and a market value of \$395,428,000. This compares to book and market totals of \$290,693,000 and \$320,330,000 last year.

Figure 3 shows the growth of M.I.T.'s funds and plant assets from 1961 to 1971. The increase in endowment for general purposes in 1970–71 resulted principally from the transfer to endowment of the larger part of the final receipt from the estate of Mrs. Katharine Dexter McCormick.

GIFTS

Gifts, grants, and bequests to M.I.T. from private donors increased to \$39,637,000 during fiscal 1970–71 as compared with \$19,621,000 for the previous year, as a result of the receipt of partial distributions from three bequests. The former figure includes unrestricted direct gifts to the Alumni Fund of \$1,010,000, which made up a part of the total of \$2,564,000 reported by the Alumni Fund in 1970–71.

PHYSICAL PLANT AND CAMPUS ENVIRONMENT

A number of new academic and residence facilities and a variety of supporting projects were dedicated, completed, or renovated, while others were either under construction or being planned. Among the most important of these physical changes were those involving on-campus housing.

In November, the Frank S. MacGregor House was dedicated, marking the first new major housing construction for men since 1947. This new residence, the product of seven years of thoughtful discussions and planning, has important benefits for the quality of student life at M.I.T. Its acceptance by the Institute was to the tune of bagpipes and a handsome display of the MacGregor tartan.

The Westgate II graduate student residence is under construction and should be completed by next September. The renovation of Burton-Conner House was completed earlier than expected, permitting the House to be available to students returning in the fall of 1971. The renewal of this building, which can house 344 undergraduate students in suite-type accommodations, has been done with imagination and taste and should give pleasure and service to many generations of students.

In a different vein, under construction are the electrical engineering and communications research building, which is now happily ahead of schedule, and a group of central utilities that will provide greater steam and refrigeration capacity for M.I.T.'s buildings.

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The Ralph M. Parsons Laboratory for Water Resources and Hydrodynamics was dedicated in October, 1970. This construction involved the addition of two floors to Building 48 and a major refurbishing of existing laboratory facilities.

The M.I.T. Press occupied new and expanded facilities on Carleton Street in the fall. The Press now has facilities befitting its position as an important and vigorous university press.

On Briggs Field the J. B. Carr indoor tennis facility has made indoor tennis a reality. The facility, housed in an inflatable structure, accommodates four tennis courts.

Nearing completion at the Institute's field station in Westford is a new astrophysical observatory. The Observatory, which will house 16" and 24" telescopes, was made possible by a gift of Mr. George R. Wallace, Jr., '13.

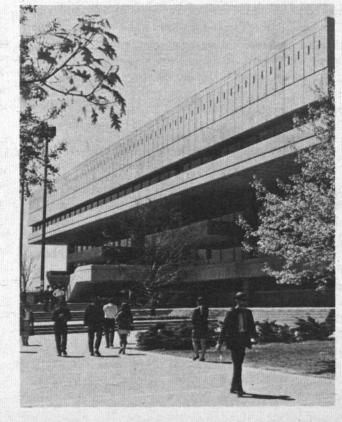
Several major renovations of Institute facilities were accomplished this year, giving new life and utility to our versatile buildings. Most notable among these were in the Eastman Laboratories for the Department of Chemistry and in the Rogers Building for the Department of Urban Studies and Planning.

The internal and external environment of the Institute changed in a variety of ways, all of which have sought to improve the quality of life at M.I.T. One of the most significant visual changes has been the conversion of the Institute's main corridors from monochromatic gray to a gallery of light and color into which students and faculty have brought exhibitions of student work and departmental projects. Contemporary communications media installed in the corridors are being used to publicize the rich variety of activities at the Institute.

A modified version of the plan for the Massachusetts Avenue crossing and landscape project was completed just before the close of the school year. New, hardy Japanese Zelkova trees have replaced the dead and dying elms along the Avenue, and new bus shelters, tubs of bright flowers, and new lighting and signal devices are all in place.

Another landscape addition deserves special mention. In memory of Mrs. Frances Ropes Williams of the Class of 1904, her daughter Miss Constance Williams, '64, dedicated to the Institute a display of Hosta plants developed by the late Mrs. Williams. This delightful addition to our land-scape has been installed in the courtyard adjacent to the Maclaurin Building.

Changes have been made in the Housing and Dining Services. In response to student input, the Dining Service has agreed upon a campus-wide program of optional food contracts on a one-year experimental basis beginning this fall.



MIT Club of Boston**

red H. Keil, Dean of Engineering, will speak on "The ucation of an Engineer at MIT" on Thursday, November 12:25n-1:30pm, Aquarium Restaurant, 100 Atlantic Boston. Luncheon cost \$3.50, payable at the door.

ology Action*

arsday, November 11, 8-10pm, Rm. 473, Student

ver Club***

meeting for all members. Friday, November 12, 30pm, Faculty Club.

erary magazine will be sold Monday through Friday, vember 8-12, 9am-5pm, Bldg. 10 Lobby.

hite Water Club**†

Pool session. Tuesday, November 16, 8-10pm, Alumni Pool.

Book of the Week*

formal discussion over dinner of Personal Knowledge by chael Polanyi. Wednesday, November 17, 5:15-7:15pm. ndown Dining Hall (table near the door). Anyone who s read the book is welcome. James Snell, 523-1198.

aha'i Discussion Group*

dnesday, November 17, 7:30pm, Rm. 473, Student

Scuba Club Pool Session**

Wednesday, November 17, 8pm, Alumni Pool.

Baker House SPAZ Jogging Club**

Daily, 10:45pm, Baker House Second Floor West.

Tech Model Railroad Club**

Every Saturday, 4pm, Rm. 20E-210.

MIT/DL Duplicate Bridge Club**

Every Sunday, 7pm, Blue Room, Walker. Every Tuesday, 6pm, Student Center Rm. 491.

ddlywinks Association*

very Monday, 8-11:30pm, Student Center Rm 473.

very Monday, Wednesday and Friday, 5pm; every Satur-1pm. Exercise Room, duPont Gym. Beginners velcome.

Outing Club*

ery Monday and Thursday, 5pm, Student Center Rm

Classical Guitar Society**

assical and Flamenco guitar classes: private, Mondays, m-9pm; group, Thursdays, 5pm-8pm. Rm 1-136. For ervations or more information call 661-0297.

Rugby Club**

ery Tuesday and Thursday, 5pm, Briggs Field. For more formation call Wayne Book, X5095, or Ron Prinn, X2452.

encing Club**

Open fencing. Every Tuesday, 6-9pm, Fencing Rm., duPont thletic Center.

Table Tennis Club***

eeting and practice session. Every Wednesday, 30-10pm, T-Club Lounge, duPont Gym.

paring Association*

round school, first Thursday of every month; general eetings, third Thursday of every month. 7:30pm, Student enter Rm 473.

ience Fiction Society* very Friday, 5pm, Rm 1-236.

ndian Folk Dance and Lore***

ponsored by Boston Indian Council, Inc. Every Friday, 11pm, Student Center Rm 407.

udent Homophile League*

egular meeting and mixer. Every Friday, 7:30pm. Mission hurch, 33 Bowdoin St, Boston.

ollege Life/Campus Crusade for Christ*†

eadership training classes. Series of lectures and seminars all followers of Jesus interested in learning to comunicate their faith. Every Friday, 8-9:30pm. For more formation call Professor Paul Schimmel, X6739 or Bob illiams at 536-6868.

ridge Club**

uplicate bridge. Every Saturday, 1-5pm, Student Center m 473. Admission is \$2 per term or 75cents per session.

ery Saturday and Sunday, 1:30-5:30pm, Student Center m 407.

Music

Thursday Noon Hour Concert*

Featuring a lute concert of Italian Renaissance music performed by Hopkinson Smith. Thursday, November 11, 12:10n, Chapel.

Thursday Noon Hour Concert*

Featuring a concert of French music with performers Gian Lyman and Sarah Cunningham on viola da gamba, and Alex Silbiger on harpsichord. Thursday, November 18, 12:10n, Chapel.

Mixed Chorus

Informal singing group. Every Monday, 9:30pm, McCormick Hall. For more information call Sue, dormline

Dance

Modern Dance Technique Class**

Elementary/Intermediate. Every Monday, Wednesday and Friday, 5:15pm, McCormick Gym.

Tech Squares*

Square dancing every Tuesday, 8-11pm, Rm. 10-105. For more information call dormline 0-888 or 492-5453.

Dance Workshop**

Modern dance classes. Elementary, Tuesdays and Thursdays, 10am and 2pm. Intermediate, Tuesdays and Thursdays, 12n. General classes, Thursdays, 7pm. Admission: \$2 for the community, free for students. McCormick Gym. For more information, call Cha-Rie Tang, dormline 0908.

Friday Afternoon Dance Break*

Folk Dance Club. International folk dancing on the oval lawn in front of Kresge. Every Friday, 12:30-1:30pm.

Folk Dance Club*

International folk dancing. Every Sunday, 7:30-11pm, Sala de Puerto Rico.

Folk Dance Club*

Balkan folk dancing. Every Tuesday, 7:30-11pm, Rm. 407, Student Center.

Folk Dance Club*

Israeli folk dancing. Every Thursday. 7:30-10pm, T-Club Lounge, duPont Gym.

Exhibitions

Sculpture by Lynda Benglis*

Until Friday, November 19, visitors may watch the artist construct a large foam sculpture in Hayden Gallery. A party, celebrating the completion of the sculpture, will be held Friday, November 19, 8-10pm in Hayden. Sculpture displayed through December 17.

Works by Henriette Grindat*

Reporter-photographer. On display in Creative Photography Gallery until Tuesday, November 30, 12n-7pm, duPont Gym, 3rd floor.

The Art of Rigging and Buoy System for Air-Sea Studies* Hart Nautical Museum. Bldg 5, first floor.

Main Corridor Exhibitions*

Presented by students and departments. Bldgs 7, 3, 4, 8.

Mixers

Friday Afternoon Club**

Music, conversation and all the cold draft Budweiser you can drink. Also featuring Rich Holloway, folk singer. Every Friday, 5:30pm. Ashdown House, basement Games Rm. Admission: men \$1 and women free, must be over 21.

Movies

Investigation of a Citizen**

LSC. Friday, November 12, 7pm and 10pm, Rm. 26-100. Admission 50 cents.

Husbands**

LSC. Saturday, November 13, 7pm and 9:30pm, Rm. 26-100. Admission 50 cents.

Objective Burma*

Film Society. Monday, November 15, 8pm and 10pm, Rm. 10-250. Admission \$1.

Woodstock**

LSC. Friday, November 19, 7pm and 10pm, Kresge. Admission 50 cents.

Athletics

Sailing*

Coed invitational. Saturday, November 13, 10am. Charles River Lower Basin.

Religious Services and Activities

The Chapel is open for private meditation from 7am to 11pm every day.

Hillel*

Brunch. Sunday, November 14, 11am, Rm. 10-105.

Hillel Religous Services*

Monday-Friday, 8am, Rm. 7-102.

Christians for Dinner*

United Christian Fellowship. Every Tuesday, 6-7pm. Walker Dining Hall (under the sign of the fish).

Christian Science Organization*

Weekly meeting including testimony of healings. Every Tuesday, 7:15pm, Rm. 8-314.

Christian Bible Discussion Group*

Every Thursday, 12:15pm, Rm 20B-031. For information, call Professor Schimmel, X6739 or Ralph Burgess, X2415.

Islamic Society Prayers*

Every Friday, 1pm, Kresge Rehearsal Rm B.

Vedanta Service *

Every Friday, 5:15pm, Chapel. Discussion hour, 6pm, Ashdown Dining Hall.

Hillel Religious Services* Every Friday, 7:30pm, and every Saturday, 9am, Chapel.

Roman Catholic Mass*

Every Sunday, 9:15am, 12:15pm and 5:15pm, Chapel.

Christian Discussion Group* Bible study and discussion of Christianity today. Every Sunday, 9:30-11:00am, McCormick Seminar Rm A. For more information call Ron Gamble, X6712 or 547-4279.

Christian Worship Service* Every Sunday, 11am, Chapel.

Classes in Hebrew, Talmud, Yiddish, T'Hillim and Medieval and Modern Jewish History. For details, call Hillel office,

Free Draft Counselling*

Hillel, 312 Memorial Drive, X2982. Call or visit, 10am-5pm.

Don't Forget

Tech Dames*

Annual Bake Sale. Thursday, November 18, starting at 8am, Bldg. 10 Lobby.

Muddy Charles Pub**

Join your friends at the Muddy Charles Pub, 110 Walker, 10:30am-7:30pm daily. X2158.

Announcements

Wellesley-MIT Residence Exchange

Applications for the spring 1972 residence exchange are available in Rm. 7-101 and Rm. 7-111. Applications are due Wednesday, November 10.

Community Health Project

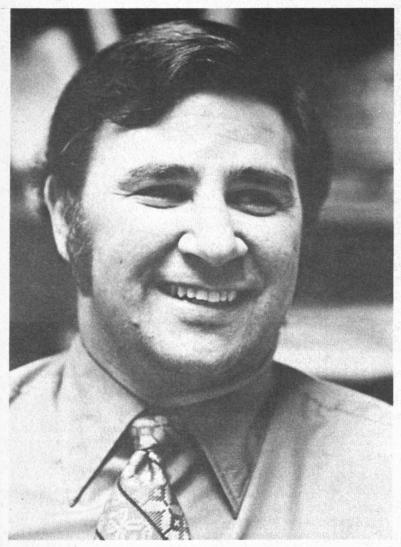
Volunteer grad and undergrad students needed to help interdisciplinary team of students and faculty develop health services in Roxbury. Work will entail survey, analysis of need, facility location and design. Time commitment must be 3 consecutive hours, 2 days a week, beginning December 1. Call Jim King, X4523.

*Open to the Public

**Open to the MIT Community Only

***Open to Members Only †Freshmen encouraged to attend.

Send notices for November 17 through November 26 to the Calendar Editor, Room 5-111, Ext. 3279, by noon Friday, November 12.



"It was lots of fun," says Dick Caloggero of his term as a loaned executive at the United Fund.

drive on campus. I think the most

important part of my work was

meeting with the solicitors and

encouraging their questions in

order that they may better under-

tions, there were 13 which had

not participated in UF campaigns before," he continues. "I managed

to persuade all but two to take

Planning Office for several years,'

Dick comments, "but I really

learned a lot more about the

Black Appeal campaign at MIT

will continue through November

24. At the end of last week

pledges and contributions to the

MBUF totaled \$32,313 and to the

The combined United Fund-

MBUF while I was there.'

"I've been the solicitor for the

"In my group of 52 institu-

stand how the MBUF works.

part this year.

Caloggero Is 'Loaned Executive' for MBUF

ties in the United Fund, MIT does a terrific job-there's no question about it," says Richard J. Caloggero of the Planning Office.

He speaks with some authority. He's just returned to the Institute after serving for eight weeks as a "loaned executive" in the United Fund.

Dick was one of two staff members lent by a university in this year's campaign. Together they encouraged 104 colleges, universities and museums to participate in the drive. Altogether there were about 60 persons working as loaned executives, representing business and industry throughout the Massachusetts Bay area.

"I would call on the president or vice president of a school and seek his personal support in taking part in the United Fund drive," Dick reports. "Then I would meet with the designated campaign chairman and assist him in the preparation and planning for the

LBJ Press Agent to Talk at Wellesley

George Reedy, former press secretary to President Lyndon Johnson, will speak on "The American Presidency" Thursday night November 11, at Wellesley College. The lecture, sponsored by the Wellesley College Political Science Department, will begin at 7:30pm in the Pope Room of the College Library.

made and shown on a monitor in the lobby of Building 10 with something on the order of a half hour delay.

ist who is presently a visiting professor at the University of Rochester, uses two-component polyurethane foam to create huge, expressionistic shapes that cantilever off walls like strange, flowing apparitions. She began working with foam several years ago. After she completes the sculpture for Hayden, it will remain on view

Thinclads, Sailors Complete Winning Seasons as Fall Sports Wind Down

Cross Country

The MIT cross country team ended its regular season on a happy note last week. The harriers ran past Brandeis 32-43 (low score wins) and Boston University 32-55 to finish with 11 wins and two losses for the year.

The 11-2 record-the best since 1967's undefeated season-was even more impressive because the team lacked a superstar. The squad was consistently paced by senior captain Bob Myers and junior John Kaufmann, although the pair managed only three individual victories in eight outings this fall. A veteran team, the squad will lose the servives of graduating seniors Myers, Pete Borden, Crain Lewis, Chip Kimball and Rich Goldhor.

Soccer

It was a season of shutouts for MIT's soccer team. The booters were involved in eight shutouts during their recently completed 5-8 campaign.

Behind the bulwark of Tech's defense, senior goalie Tom Aden, MIT blanked Amherst, Brandeis and Boston College. Aden's efforts equal the best defensive work by an MIT goalie in eight

Offensively, two other senior members of the squad matched the single game scoring mark of three goals set in 1963 to All American center forward Bob Mehrabian, '64. Co-captain Dave Eskin and forward John Kavazanjian, scored their "hat tricks" against Brandeis and WPI respec-

Sailing

The men's sailing team raced to a fourth place finish in the Schell Regatta over the weekend. Senior captain Tom Bergen, "A" division skipper, and junior Al Spoon, "B" division, were MIT's entries in the regatta that pitted teams from all over the country. Yale ended the two-day event in first place, followed by Tufts.

Two weeks ago the Fowle Trophy race pitted MIT against Tufts, Harvard and Coast Guard. When it was over, Tom Bergen, Al Spoon, Larry Bacow, '73 and Steve Cucchiaro, '74, had combined to edge Tufts out for the New England

Water Polo

The Tech water polo team ended its second season as a varsity

ClosedCircuit TV to Cover Hayden Sculpture Creation

Closed circuit television coverage will be provided beginning today in the lobbies of Buildings 10 and 7 and in the hallway outside Hayden Gallery showing the artist, Lynda Benglis, as she creates a large sculpture from polyurethane foam inside the gal-

The coverage in Building 10 lobby and in the hallway outside the gallery will be live between 1pm and 5pm during the ten days it will take her to complete the sculpture. Videotapes will be

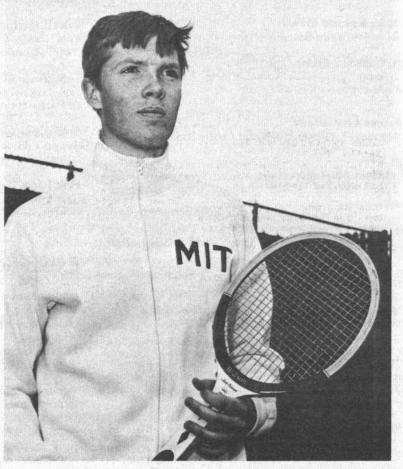
Miss Benglis, a New York artthere until December 19.

team with an 11-6 overall record and a New England championship. In the Easterns MIT lost to eventual tournament champion, Fordham, then defeated Brown, but lost to Harvard. The team finished sixth in the tournament--an encouraging sign for so young a varsity sport.

Women's Athletics

Women's athletics continue in full swing. Under coach Chris Randall, the field hockey team wrapped up its season last week and the girls head indoors for a ten-game basketball schedule. Listed as upcoming hoop opponents are Emmanuel, Regis, Salem State, Wellesley and Lowell State.

Earlier this fall sophomore Bill Young won both singles and doubles championships at the Brandeis tennis tournament. Young, MIT's number one player as a freshman last spring, defeated Harvard's Hugh Hyde in straight sets, 6-2, 6-1, in the semifinals and then went on to erase another crimson netman, Charlie Krusen, by the same score for the singles title. Then, teamed with fellow sophomore Kevin Struhl, Young took the doubles title by defeating the Harvard duo of Krusen-Hyde in straight sets, 6-2, 6-4. This marks the second year in a row Bill has won this tournament.



Sophomore tennis ace Bill Young.

McCormick's Open House Draws Large, Hungry Crowd

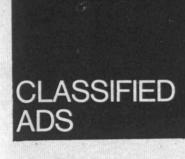
Last Wednesday night McCormick Hall was alive with activity as the doors were thrown open for a campus-wide Open House.

The informal get-together drew quite a crowd-some 350 students, faculty and members of the administration responded to the coed's hospitality. McCormick president Marsha Keyes, '73, said, 'Even Dr. Wiesner came. We hadn't expected him, but were pleasantly surprised when he arrived. He seemed to enjoy talking to the students in such an informal atmosphere."

The evening was spent meeting people and talking, not to mention sampling all the homebaked refreshments. The Open House must have been a success-200 dozen cookies, 20 gallons of ice cream, six pounds of chocolate and butterscotch sauce, four pounds of walnuts, 15 gallons of punch and 150 cups of coffee disappeared before the evening was over.

A week before the party, posters announcing the Open House were sent to all campus living groups and the girls started making cookies. They baked and baked and baked. Sophomore Sue Spencer who turned out 48 dozen cookies singlehandedly emerged as McCormick's champion cookie maker.

Marsha reports that the girls hope to sponsor another Open House in the spring. "Everyone had such a good time--we've got to do it again. I hope there will be a McCormick Open House every



Ads are limited to one per person per issue and may not be repeated in successive issues. All ads must be accompanied by full name and extension or room number. Ads may be tele-phoned only to Ext. 3270, or mailed to Room 5-105. The deadline is 5pm

For Sale, Etc.

Zenith 24" TV, Walnut console, exc cond, best offer. X2515 or 877-7152

Child furn: rock hourse, \$10; metal jumper, \$8; wood shoo-fly rocker, \$7; car seat, \$3; Gerry, X5513 Linc.

Stud snows for VW Beetle on rims, lk, \$60. X4580 or 354-1049.

Old refrig, gd run cond, \$20. X6424. Joe Tencati.

Wurlitzer electronic piano, exc cond, \$250. Irvine X2968 6-9pm.

Kaid port dishwaher, exc cond. Marcy, X5777 or 776-9637 evgs.

USAF flight jacket w/ fur hood, new \$50, exc cond. call 926-1445 evgs.

Snows w/ rims, 5.55 X 14, \$15 ea; 3

tires w/rims, \$8 ea. Albert X1916. Car top luggage/ski carrier for VW bus,

\$15. X5274. Pr. 14" Falcon or Comet rims, \$5. Ellis

X5704 Linc.

Nikon FTN w/F1.4, case, comp warranty, best offer. call 491-1620.

crib, \$5. Halima X7462 or 354-7240 evgs.

Braun hairdryer, used few times, \$10.

Helen 492-2831. Zenith 19" TV, gd cond, \$25. Larry

X6543.

Ethan Allan maple dinette set, 4 chrs, best offer. Call 776-5909.

Head stand skiis, 200 com, w/ bindings, \$60 or best; woman's parka; other ski clothes. Call 492-5583.

Stud snows, 7.75 X14, \$20. Gerald X288 Draper 7.

Fisher studio upright piano, exc cond,

\$500. call 489-3161.

Singer vacuum, ex cond, \$25. Dick, X4170.

Tvs: 18" Ambassador bl \$ wh port, \$50; Motorola port, gd sound, poor picture, \$10; walnut china cabinet, shelves & drawers, \$15; Alpina port typewriter, \$50. call 492-2141.

Wheels for '66 Ford, 14", \$5. X2768.

Broil King broiler overn, \$20; wh figure ice skates, size 8, \$15; elec hair setter & case, \$15. call 265-3493.

Desk w/ 6 drawers, \$45; gr swivel chr, \$20; step tabl, \$15; fluorescent desk lamp, \$5. X3240 or 868-0316.

Firm mat & spring, almost new, \$30. Call 646-2960.

Head 720 skis, 203 cm, w/ Nevada toe & heal, used once, \$145; Rossignol Strato 210 cm skis w/ Nevada toe & Marker Rotomate swivel heal, \$135; w/out binds, \$105; Jack Frailey,

H.I. Henry violin, appraised at \$500, sell for \$300. Peter 342-3281 Fitchbg.

Set of Journal of Chem Physics '70-'71, \$25. Ted Ikeda, X1813.

Dbl bed w/spring, matt & frame. Dorm

Antiq Chickering sq grand piano, plays well, \$450. call 729-6899.

Oval br braid rugs, 34" X 53", \$6; man's Canadian Shamrock ice skates, size 10, \$10. call 232-0484 evgs.

Amber custom-made mink stole, gd cond, \$50. Call 383-1360.

Kent 5 string banjo, hardly used, \$40.

Rich, X5288.

Olivetti Praxis 48 elec trypwr, new \$155. Don, X7398.

Antique platform rocker, refinish & \$70. Brian, X5338 or 484-0050 evgs.

Bks: Quantum Mechanics by Messiah. vol 1&2, \$5 ea; Classical Dynamics by Marion, \$9.50; Solid State Physics by Kittle, \$9.50; Elementary Plasma Physics by Longmire, \$6, etc. Gene, X4185 or 734-0951.

Pirelli snows on VW wheels, \$50. George, X3531.

Stud snows mounted for VW bus, 7.35 x 14, used 3k, \$70 new. call X2239.

Scott FM receiver, 60 watts, exc cond, \$120 or best. call 731-8858 evgs.

Silvertone 21" TV, walnut console, \$30. call 648-1825 evgs.

Heathkit GR-64 shortwave receiver, w/ manual, \$50. Tom, 734-2168 evgs.

Swing-o-matic wind up swing, \$15; 'cello, like new, \$75. call 246-0296

Stud snows on rims, 7.35 - 14, 1/4" tread, \$35; chains, \$4. Doug, X7220.

New bell shortie helmets, \$15 ea or \$25 for 2; Hart std metal skis, 190 cm, \$20, X7381.

Skitiquit Jaguar metal kiis, 165 cm, exc cond. Karen, X7179 or Bonny, 262-7761.

Port manual Smith Corona, \$35. Neil, X2109.

Laminated wd skiis, 160 com, exc cond, \$20; laminated 160 cm wd skis, \$10; head std, 185 cm, \$40; Reiker buckle boots size 6[, \$20; and others. Paddleford, X7111 Linc.

Coleman 1 gal. thermos, \$5. Dave, X4849.

Snows, 7.35 x 14, 4 ply, \$20. Barry, 864-8390.

End this w/ drawers: coffee thi, maple

arm chr; ski rack. John, X5001. Danish sofa w/ 2 end tbles, \$50 or best. Tovah, X7060

BASF LP-35 Stand 1800', \$3 ea; similar low noise, \$3.75 ea. Warren, X0837

DL or Dan, X8397 DL.

Fujicarex II SLR w/ case, f 1.9, 50 mm, f.4 35 mm, f2.8 80 mm, gd cond,

\$80. Bernie, X6091. Mahog dr chrs, leather covered, \$10 ea.

Scuba equip: 2 hose regulator, tank, ufe vest, fins. X3785 or 266-2968.

Wing chr, \$10; leather hassock, \$2; straight chr, \$1. X4388 or 566-2035

Man's 3 sp bicycle, exc cond. call 661-3341 evgs.

Full length Span wedding gown, size 12, lace waterfall back panel, long sleeves, w/ hoop. Seed pearl head piece & veil. call 862-9287.

Acoustic Research 2AX speakers, exc cond. call 646-8336.

Lrg motorcycle helmet w/ shield, best

offer. John, X7950.

New authentic russian balilika w/ bk of instruct. best offer. Dores, X3531.

Austrian mt boots, size 8N, exc cond, \$12; Keltie A-4 pk bag, exc cond, \$15. Schuster, X3161.

Head 360 skiis, 195 cm, used 1 season, marker bindings; Kofaach metal-rein forced plastic buckle boots, 81/2 & ski poles. Paul, 492-1569.

Figure skates: 31/2 M, 3M, 7N, \$6/pr. X5755 Linc.

Sansui PU777 Tuner, \$80; Pentax spotmatic f1.4, \$130; Popular Electronic flash, \$7; new 8 X 30 binoculars, \$10. call 547-9672.

Japan lithographs, note cards, old wood cut prints, reasonably priced. exc cond. X4160.

Smith Corona port typwr, \$40; GE port phono, \$30; GE hairdryer, \$6; elec blender, \$6. call 864-9481 evgs.

Lexington receiver w/ speakers, am/fm stereo, \$30. Dorm X9536.

Cooking unit w/ 2 burners, \$10.

Old fash arm chr, \$15; wooden china cabinet, \$15. call 782-8419.

Morse sew mach, \$200. call 663-4436.

Northland Monarch wood skiis, 6'5' Dover cable bindings; leather dble boot, size 81/2; \$40 for all. Linda, X6187.

Koflach ski boots, 81/2, \$90; 2.05 Fisher superglass bindings & skiis, \$140; ski poles, 51", \$18; assort hockey equipment, \$20. Don Payan, X2540 or 267-6912 evgs.

Vehicles

'49 Willys overland classic touring car, registered, being operated, \$1800. call 862-5960.

'61 Buick Special, needs exhaust repair, \$50 or best. Tom, X134 Draper

'64 Corvair Spyder, 66K, 4 sp, \$150 or best. Bill, X7487.

'64 Corvair, gd cond. call 661-3177 evgs.

'64 Chrysler, 4 dr, hdtp, 103 K, exc cond, \$345. Frank, X5716 Linc.

'64 Ford Conv, new rebuilt eng, new tires, auto, exc cond. call 354-6353.

'64 Alpha Romeo, needs eng work, Am-Fm R, snows, Pirelli tires, reasonable offer. Dave, 333-0635.

'64 Chevy Impala, 4dr, exc cond, \$395. call 233-7375 evgs.

'65 Chevelle Malibu wgn, exc cond, \$450. X4558 or 444-7008 ebgs. '65 Chevy wgn, auto, pwr str, \$225.

X2337 or 846-1304 evgs. '65 Corvair, \$250. Ralph, X7320 Linc

or 665-4511.

547-8617 evgs.

'65 Chrysler, 2dr hdtp, pwr str & br, 77K, \$500 or best. '70 Bridgestone, 175 cc, exc cond, 23K, \$400 or best. Ron, X6477.

'65 Ramble Amer, gd run cond. call 969-2062 evgs.

'65 Chrysler, exc run cond, gd body, \$400. call 623-7354.

'65 Landrover wgn, \$1850. X4401 or 369-9080.

'66 Dodge wgn, R, stand, \$550. call 259-8259.

'66 Cortina, new clutch, must sell. call

'67 Opel 2 dr sedan, 30K, gd cond, \$500. X6650.

'67 Impala wgn, rebuilt eng, \$1200. X7803 Linc. or 442-9772.

'67 GTO, R & h, gd cond, \$500. Oscar, X6310 or 782-0181 evgs.

'67 Toyota, need rings & bat, \$75. Dave, 734-4532 evgs.

'68 Mustang, conv, auto, 6 cyl. Bob, X6891.

'68 MGB, wire wheels, r, exc cond, \$1350. call 289-6068 evgs. '68 VW bus, orig owner, exc cond, must sell. X2325.

'69 VW sq bk, auto, air cond, Michelins, low K, exc cond. call

471-9195 evgs. '69 Fiat 850 Spider, conv. R, snows, exc cond, \$1250. X7366 or 944-4048.

'69 Buick Rivera, 26K, air cond, Am-Fm R, fully equip, best. call 332-9616.

'69 Mercury Marguis, all pwr, 29K, factory warranty, \$2400. X7308 Linc or 365-2471 evgs.

'69 Chevy Nova, std, pwr st, low K. call 742-6581 X271.

'69 Fiat, new gen, new fuel pump, muffler & starter, needs body work, best. call 935-1402, evgs.

'69 Chevrolet Belair, r dr, 8 cyl, 32K, \$1600 or best. X7395

'69 Fiat 124 sport coupe, 5 sp, Am/ Fm, Pirelli tires, exc cond. Bob, 547-3609 evgs.

'69 Cougar 4 sp, Am/Fm, heavy-duty susp, active warranty, exc cond. X7174 or 625-9456 evgs.

'70 Cadillac Coupe de Ville, fl equipped, \$5000. call 321-2617.

'71 BMW R50, 500cc, 3.6k, elec starter, crash bars, \$1250. X117 Draper 7 or 354-4045 evgs.

Animals

Bouncy bobtail kittens. free to gd homes, call 237-1350.

Free kittens, M br & tiger strip, F grey & wh, 6 wks old. Dave McDonald X2871.

Free: 7 turtles. Kelly, X7245.

Free gerbils. call 527-0618.

F Himalayan seal-pt, gd breeder, w/ papers. call 479-1508.

F sheltie, AKC, all champion, w/air flight crate, \$10. call 491-6781 evgs.

Siamese kittens. call 897-2081 evgs.

Housing

Beacon Hill, studio apt. avail now, partly furn, \$120 w/heat. Charlie, X5714 or 227-6376 evgs.

Beacon Hill, sublet, 2 BR, 2 fireplaces, mod K & B, avail 12/1. Barbara, X5896 or 523-1752 evgs.

Beebe, Canada, mt. lodge, reasonably priced. Christine, 665-6220.

Bright/Newt line, lux 1 BR apt sublet, avail 12/1, \$250 w/h & prking, on T, air cond, pool, furn avail. John,

N. Conway, N.H., chalet for winter rental on wkend, wkly and season. Carmen, X6477.

W. Somv., 5 rm, first floor, \$135. call 776-2929 evgs.

Lost and Found

Lost: sm Zeiss telescope. X0161 DL.

Found: ring w/pearl on chain on 10/23 Kresge, Steve, X1448.

Wanted

Typist, reasonable. Jim, X4763 or

Rmmte for 3BR apt near MIT, \$91.50. Hans, X6717 or 491-4979.

Daily ride, Newt corn/MIT, 9-5. Christie, X5689 or 332-7743.

Brownie uniform. X5372 or 646-8681. Inexpensive piano. Lex, 354-0970.

Oriental rugs, all sizes. Joes, X7671

Thi saw w/motor, Dario, X7713 Linc.

Pr gd used 670 x 13 Michelin X tires for Corvair, Bill. X3223 or 646-0343.

Junk bicycle. call 661-9649.

Sm used trailer for 150 lb boat, deliver at lesiure, Frish, X2396.

Car seat for child to fit Volvo; high chr w/overhead tray. call 661-8070 evgs.

Port dishwasher. Dave, X2661 or 354-0606.

F rmmte for Spy Pond apt, avail now. Ann, X7571.

Occasional babysitter for 3 yr old boy, Cent. Sq. X6363.

Need strong help to move u-haul on 11/13. WI pay \$20 per day. X2210.

Radio 2-way, low band from 30-50. X3485 or 395-7265 evgs.

Man's bicycle. Judy X5380.

Ski chalet to sleep 7 in Me, NH, or Vt for wk of 12/26. X2479.

M or F rmmte, ow BR, \$90 w/utilities, 10 min from MIT. Andy, X2540 or 267-6912 evgs.

Chess set, reasonably priced, X4170.

Garage space for winter for 18' trailered boat in/around Bedford/Lex area. X613 Linc of 861-3467.

Used outboard motor, 31/2 Hpw, not gold plated. Rudy, X7214 Linc.

Miscellaneous

WI do typing. Susan, X1786.

372-5295 Haverhill.

Professional Santa Claus, Jim Lopez, year round. X443 Linc or

WI babysit at my home or yours,

part/full time. X6603 or 666-9671. Tech/gen typing. call 876-4744.

translating. call 547-7421.

parking area.

Young wife wl babysit at your place or mine. call 734-6938. French student wl give lessons or do

Note to parking sticker swappers: please remember to inform your supervisor and the Campus Patrol of the exchange you have made so that their records accurately reflect your new

Will swap Monroe pkg sticker for any-

thing - please. Linda, X3277. WI pay \$20 to swap Kresge for Albany only. X3350.

Posters, Reports Available in 7-111

Want to brighten up your office? Pick up extra copies of the Inaugural Events posters in the Information Center, Room 7-111.

able in the Information Center

Other items of interest avail-

Transcripts from the Colloquium of Knowlege and Values, a discussion series sponsored by the MIT Commission last spring. Speakers included Thomas Kuhn,

Richard Douglas. A report on "University Investing and Corporate Responsibility" by Professor Edward H. Bowman of the Sloan School of Management.

Charles Frankel, John Silber,

David Riesman, Robert Solow and

Tech Talk, November 10, 1971, Page 7

Employment Review Started as Effort in Cost Reduction

(Continued from page 1)

groups at the Institute over the next few weeks reviewing their current expenditures and future needs and explaining the urgency with which the administration views the need to be able to move into new areas despite current tight financial restraints.

Demands on unrestricted income amounted to \$703,000 in 1965-66, Dr. Gray said, but have climbed steadily every year since, reaching \$2.2 million in 1968-69, \$4.6 million in 1969-70, and \$4.9 million in 1970-71.

"The current budget for 1971-72 suggests that the demand for unrestricted funds required for operations could reach \$5.8 million," Dr. Gray said. "This requirement would exceed foreseeable unrestricted income by \$2 to \$3 million.

"The President and I feel we must take steps now to reverse these trends and reduce the gap.

One first step, Dr. Gray said, is a new procedure for a more stringent review of the need for filling proposed or vacant positions.

"We have resorted to this method of reviewing appointments with great reluctance," Dr. Gray said. "We feel it is preferable to an across-the-board freeze on appointments that other institutions have adopted."

The review applies to all positions on the administrative staff, exempt, bi-weekly, hourly and voucher payrolls, including those

Reminder: Tech Talk has new telephone extensions. Please use the following numbers:

Editorial Office Exts. 3277 and 3278 Institute Calendar Ext. 3279 Classified ads

Ext. 3270

Teaching Awards Offered by Tufts

Latin American Teaching Fellowships for 1972-73 are now being offered by the Fletcher School of Law and Diplomacy at Tufts University. These fellowships, awarded annually, assist Latin American universities in expanding and developing teaching programs and at teh same time provide teaching experience and field research to pre- and postdoctoral candidates.

Preference is given to applicants who have completed doctoral or professional degress or who have completed all degree requirements except dissertation. There are no citizenship or age requirements, but candidates must write and speak the language of the country to which they are assigned. LATF positions are usually offered for 24 months with an average monthly income of between \$350 and \$550.

Application forms may be obtained by writing: Latin American Teaching Fellowships, Fletcher School of Law and Diplomacy, Tufts University, Medford, Massachusetts 02155. The deadline for submitting applications is January 15.

in academic departments, laboratories and centers. Not included are academic instructional and research staff positions and DSR research staff positions.

Under the review system, requests for new or replacement personnel should include a brief statement justifying the need for filling the position and the anticipated consequences if the position is not filled. Requests should have the approval of the appropriate dean or vice president or the Provost in the case of laboratories or centers reporting to him. Requests are to be submitted to the Director of the Office of Personnel Relations.

The special reviews will be conducted by members of the academic and administrative subgroups of the Academic Council. The concern of the review panel will be to determine the need for the position, and not the qualifications of a proposed appointee. A strong effort will be made to review all requests quickly to minimize delay in filling essential po-

"We intend to administer the review in ways that will not cut into the vitality of our educational programs and operations," Dr. Gray said, "and will not undercut our commitments to affirmative action concerning equality of opportunity in employment.'



Donors line up for medical histories at the Fall Blood Drive.

-- Photo by Bob Lyons

Sign-ups Exceed Goal as Fall Blood Drive Continues

The 1971 Fall Blood Drive is in full swing with more than 1,300 members of the community scheduled to donate.

The Red Cross Bloodmobile arrived on campus Monday and will continue the drive through Friday in the Sala de Puerto Rico. By the end of the second day, 434 pints of blood had been collected. This is a good start toward the 1,250 pint goal, but it could have been better-out of the 290 scheduled appointments for Monday, only 238 donors showed up.

The secret of a successful

blood drive is scheduling. If donors keep their appointments, the 21 beds will be occupied at all times and the waiting period will be minimal. To help the drive run smoothly, donors who cannot keep their appointments should call the Blood Drive office at Ext. 7911 for rescheduling. Last minute walk-ins can avoid a possible long wait by calling to make a definite appointment.

Because of computer difficulties, some potential donors may not have received appointment cards. These people should call Ext. 7911 to find out when they are scheduled to contribute.

There is always a shortage of blood, so please make a special effort to contribute. The pint of blood that you donate may help save someone's life.

Tennis Match **OpensCenter**

(Continued from page 1)

mony, the exhibition matches

Mr. Carr, '16, teamed with former US and Wimbledon singles champion Vic Seixas in an inaugural doubles match against Mr. Carr's son David and Mitchell Gornto, a tennis pro from Palm Beach, Florida and Rye, New York. The Carr-Seixas pair won with a 4-2 score.

A singles match pitted Seixas against James Shakespeare, a tennis pro from Buck Hill Falls, Pennsylvania, which Seixas won, 6-2. In a final doubles exhibition, Seixas and Straight Clark, a former Davis Cup and US singles player, took a 6-2 set from Gornto and Shakespeare.

APO Announces **UMOC** Winner

(Continued from page 1)

Toland (Crud the Spud), of Phi Kappa Theta, \$358.14; Oded Feingold, of Hillel, \$133.15; Hermann Quincy Witherspoon, of Burton House, \$78.98, and writeins totaling \$349.39.

Among the notable write-in candidates were President Richard M. Nixon, \$77.50, Professor Gene M. Brown of Biology, \$50.02, and Deja Vu, the alligator, last year's

winner, \$33.26. At the award ceremony Friday night, UMOC Chairman Chuck Rosenblatt expressed the appreciation of APO and CARE to the candidates and to the entire MIT community for the support they gave to this year's contest.

Institute to Broaden, Expand Interest in Cultural Affairs

(Continued from page 1)

Humanities. Dr. Wiesner cited as a growing influence in our country the strengthening of the National Endowment for the Arts, first under Roger Stevens and now under Nancy Hanks, and the rise of the arts council movement since 1965 that has seen the establishment of arts councils in all 50

Distinguishing among four human skills-deductive, expressive, appreciative, and creative--President Wiesner said that at a university based on science and technology, teaching o' deductive skills tended to dor inate the pointed out, MIT's efforts to promote the applications of science and technology in more responsible ways would necessarily place increasing emphasis on these "alternate routes to intellectual development." "Creative people serve us mightily by tearing away the protective world of busyness and routine which we create to shield us from the contradictions of our existence and our actions," he said.

The MIT Council for the Arts will both contribute to and partake of the relatively new mood of cultural awareness in the country that has fostered the rise of arts councils here. These "agencies of hope," as they have been called, are more familiar abroad than in this country. In Great Britain-where the British Arts Council has been in existence for

a quarter of a century-in Francewhere Andre Malraux's Maisons de la Culture forms a countrywide network-and in Canada-where the Canada Council has for over a decade mixed support for the arts with science and the social sciences-arts councils have been seen as the natural extension of proper governmental concerns. In this country, however, the arts have traditionally been regarded as the private preserve of the privileged few, and only in recent years have cultural affairs begun to be counted as important public

Faculty Families to Host Students

Thanksgiving is a time for family gatherings, turkey and pumpkin pie. Spending holiday with their own families is difficult for many students-distance is the greatest obstacle.

The Technology Matrons are extending an invitation for "Thanksgiving Sharing" to all MIT students who cannot go home for the holiday. Several MIT families would like to welcome one or more students into their homes to share the traditional holiday festivities.

Students who wish to accept the Matrons' hospitable invitations should call Mrs. George Petievich at 969-1596 or Mrs. Edward Fredkin at 787-4455.

King Wins Danforth Award (Continued from page 1) authored many articles on these and other new teaching tech-

Winners of the Harbison Awards are chosen each year by panels of former winners, and college and university presidents. Each nominee is judged on the basis of his capability as "... an articulate, passionate teacher . . . who believes in the value of and goodness of what he is doing and sees it as a necessary task."

Three other professors from Boston area universities were also selected as recipients of the 1971 awards. They are: Dr. William Arrowsmith, former visiting professor at MIT and now University Professor at Boston Uiversity; Dr. Freda Rebelsky, professor of psychology, Boston University; and Dr. Michael Walzer, professor of government, Harvard University. All together, 10 professors from throughout the nation received Harbison Awards this

The Harbison Awards Program is named in honor of the late E. Harris Harbison, professor of history at Princeton University and a former trustee of the Danforth Foundation. This is the tenth year that the awards have been present-

MIT has had one previous Harbison Award winner. Professor Huston Smith, of the Department of Philosophy, received the award in 1963.

Deans List Office Changes

Professor Emily L. Wick, Associate Dean for Student Affairs, has moved her office from Room 5-108 to the main Dean's Office, Room 7-133. She can be reached there on Ext. 6776. Her office in the Department of Nutrition & Food Science is Room 56-307, Ext. 6791

Miss Wick continues in her position as the dean with primary responsibility for women students, but she is no longer chairman of the Premedical Advisory Council. Students interested in premedical education should consult the new chairman, Professor Bernard Gould, Room 16-521, or visit the Office of Preprofessional Advising and Counseling in Room 10-186.

Dean William Speer, Associate Dean for Student Counseling is now located in Room 5-108. His extension is 5241.