Massachusetts Institute of Technology

January 18, 1978 Volume 22 Number 20



The Honorable Jerome H. Holland, center front, former US Ambassador to Sweden and a member of the MIT Corporation, was the featured speaker at the annual Martin Luther King, Jr., observance on Friday, Jan. 13. With Dr. Holland are Dr. Clarence G. Williams, special assistant for minority affairs at MIT, left, and MIT President Jerome B. Wiesner. In second row from left are Josephine Bartie, co-chairwoman of the Minority Interest Group, Chancellor Paul E. Gray and Provost Walter A. Rosenblith. The ceremony followed a silent walk from the main lobby to Kresge Auditorium. More than 200 members of the MIT community participated in the walk and ceremony. —Photo by Calvin Campbell

'Welfare Class' Is Small, Study Finds

The hard-core "welfare class' in the United States is much smaller than commonly believed, according to two researchers at the MIT-Harvard University Joint Center for Urban Studies.

The significance of their findings, they say, is that public policy having welfare reform as a goal may well be based on erroneous assumptions.

"A very central issue is always the apprehension and fear that we are harboring a welfare class. people with long-term and heavy dependency on welfare," says Pro-fessor Martin Rein of MIT, coauthor of a study with Professor Lee Rainwater of Harvard on "Patterns of Welfare Use."

"Many of the discussions of the

'welfare crisis'—the growing costs of means-tested programs-seem to assume that a principal cause of the crisis is a growing number of these people," Professor Rein comments. "We found, however, that they are a relatively small percentage of all those who receive welfare.

Overall, Professors Rein and Rainwater found, people in the welfare class represent less than 10 per cent of those who ever go on welfare, and only a little over a fifth of those already on at any one

This suggests, Professor Rein says, that it might be useful to think of other categories of welfare recipieints as the more typical.

And because these other recipients Committee to Plan Computer **Growth over Coming Decade**

A new committee to plan the growth of the Institute's computer systems and services for the next 10 years has been established by MIT Chancellor Paul E. Gray and Provost Walter A. Rosenblith.

In their charge to the Committee on Future Computational Needs and Resources, Dr. Gray and Dr. Rosenblith said that the Committee "should appraise the changing complexion of information and communication resources that could become available to the Institute, and make recommendations for the evolution and development of information processing resources at MIT."

The Committee's chairman is Professor Michael L. Dertouzos, director of the MIT Laboratory for Computer Science, and its cochairman is Mr. Weston J. Burner, director of MIT's Information **Processing Services.**

'We intend to examine the Institute's needs in relation to expected computer developments, in the areas of education, research, and administration," Professor Der-touzos said. "Our recommendations will be aimed at providing

wider access to facilities and making possible new uses of computers for the needs of the Insti-

"MIT's computer facilities are formidable; but they have evolved on the basis of local needs and considerations, hence little if any use is made of their potential on an intra- and inter-departmental as well as an inter-laboratory basis. The decreasing costs of computer equipment and the already visible increased proliferation of local systems distributed within MIT suggest the exploration of alternatives-such as communication networks-that may link these re-

"In addition, advances in office automation and the appearance on campus of isolated text editors suggest that the committee investigate document preparation systems, and an electronic mail and message facility to reduce paperwork.

Most importantly, Professor Dertouzos suggests that MIT should plan and benefit from better

(Continued on page 8)

are typically people who use welfare only during periods of crisismarginal, unstable employment and family disruptions are the most common problems-the proper target of welfare reform should be to reduce crises in families and jobs.

"A program of universal benefits for the working as well as nonworking poor (for example, child allowance or tax credits), supplemented perhaps by the development of a new form of social insurance to cope with the economic risks for single parents, should go a long way toward reducing the number of people who make use of means-tested programs and the number who remain on welfare for even a moderate period of time, Professors Rein and Rainwater

They feel that the effect of socalled "work disincentives" of welfare programs has been greatly exaggerated. For the vast majority, they believe, what is needed is

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4 from MIT Named To Astronaut Corps

Four MIT people—one a staff scientist in the Center for Space Research, the other three alumniare among 35 new candidates selected this week by the National Aeronautics and Space Administration to be astronauts in the forthcoming space shuttle pro-

Take THE PROPERTY STORY

The CSR staff scientist is Dr. Jeffrey A. Hoffman, 33, of Weston, an astrophysicist and a member of CSR's Cosmic Ray Group since July, 1975. Dr. Hoffman presently serves as project scientist for one of four x-ray detection experiments now operating aboard the High Energy Astrophysical Ob-servatory satellite launched by NASA last August.

The alumni include:

Dr. Ronald E. McNair, 27, who received the PhD degree in physics from MIT last February after working in the MIT Spectroscopy Laboratory with Professor Michael Feld. One of three black males among the 35, Dr. McNair is now with the optical physics department of Hughes Research Laboratories, Malibu, Calif.

Terry J. Hart, who received the SM degree in mechanical engineering from MIT in 1969. He is



Dr. McNair

now an engineer with Bell Telephone Laboratories, Long Valley,

Cmdr. Frederick H. Hauck. 36. who received the SM degree in nuclear engineering from MIT in 1966. A naval pilot, he is now

(Continued on page 8)

R&D Efforts Can Be Misdirected—Thurow

The nation's research and development effort needs to be given new direction if the United States is to realize an adequate return on its investment, says a noted MIT economist and management ex-

One of the major lessons still to be learned, writes Professor Lester C. Thurow of MIT's Sloan School of Management and Department of Economics, is that massive funding alone, such as in President Richard Nixon's "War on Cancer," is not enough to assure success.

In cases such as this, he writes in the January issue of Technology Review, MIT's national journal of science and technology, R&D funds often are allocated unproductively because hard facts "are overwhelmed by the lustre and apparent brilliant success of such

massive-mobilization R&D efforts as the Manhattan Project and various space projects."
"Unfortunately," he comments,

'these successes often lead us to the erroneous conclusion that all our big problems could be solved if only we somehow came up with supporting funds.

"But problems are solvable only after they progress from the frontier of scientific knowledge toward the frontier of engineering knowledge. After all, if the basic scientific concepts necessary to formulate a solution are not known, money is of little use. One cannot implement the unknown.'

To some extent, he says, the "War on Cancer" fell into "this nearly sterile domain," having achieved a level of support through the 1971 National Cancer Act that

(Continued on page 3)

Annual College Bowl to Test MIT Wits

Have you ever wondered how much people at MIT really know?

Then come to the MIT College Bowl and find out. College Bowl is a challenging contest of wits modelled after GE College Bowl. for 17 years a popular television program. Four teams of four people each will compete for prizes and glory at 8pm on Tuesday, Jan. 24, in Kresge Auditorium. The public is invited to attend, free of charge.

The MIT Libraries are sponsoring the event for Independent Activities Period, the Institute's annual January term. Competition is open to all MIT and Wellesley College students, faculty and employees.

Edwin Diamond, senior lecturer in political science, will moderate the playoff. Judges will be Wesley L. Harris, Sr., director of the Office of Minority Affairs and associate professor of ocean engineering and aeronautics and astronautics; Alvin C. Kibel, professor of literature in the Department of Humanities, and Mary P. Rowe, special assistant to the president and chancellor for women and work.

Teams will compete two at a time, racing against time and each other to answer toss-up questions and go on for bonus points. College Bowl Company, the firm that provided the questions for the television series, will provide all questions for the MIT College Bowl.

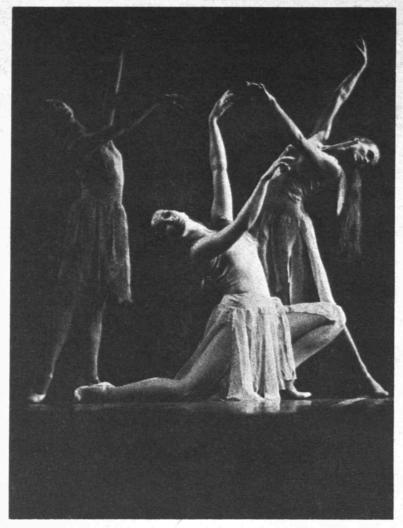
AA Invites Students For Pizza & Beer

The Alumni Association wants to introduce students to some of its members over pizza and beer. If you're interested in joining the party, which will be at 6pm on Thursday, Jan. 26, in the Bush Room (10-105), contact Bonnie Jones or Nancy Wheatley, Rm 10-110, x3-8222, by January 24.

Winners will receive the following prizes: four cases of Schlitz beer from Crown Distributors, Inc.; four dinners at Jonah's on the Terrace from the Hyatt Regency Cambridge; movie passes from Sack Theatres Corporation; four \$15 gift certificates from the Tech Coop; four pairs of stereo headphones from the MIT branch of Tech HiFi; four American Heritage Dictionaries from Houghton Mifflin Company; four three-volume sets of Fundamentals of Mathematics from MIT Press; \$200 worth of computer time from MIT Information Processing Services; four passes for five movies each from the MIT Lecture Series Committee, and four literature searches from NASIC Search Service, MIT Libraries.

The public is invited to join the fun, cheer on a team, and discover that people at MIT know much, much more than science and en-

gineering.



Boston Repertory Ballet To Premiere Kurkjian Work

"Cole Porter Suite," a new piece choreographed by Sam Kurkjian, ballet master of the Boston Repertory Ballet, will be premiered at the company's MIT performance on Saturday, Jan. 28, at 8pm in Kresge Auditorium.

The piece will feature six songs by Cole Porter-"Goodbye, Little Dream, Goodbye," "Easy to Love," "You're Sensational," "In the Still of the Night," "What Is This Thing Called Love," and "Every Time We Say Goodbye." Appearing on the stage with five dancers from the company will be a singer, Susan Allen, and a pianist, Herman Weiss. By moving the vocalist and musician from the

MacVicar, UROP Cited by 'Change'

Describing the Undergraduate Research Opportunities Program (UROP) as a "bold, pioneering program under which undergraduates join faculty researchers on a level formerly regarded as the domain of graduate students," Change magazine pays tribute to UROP and its director Professor Margaret L. A. MacVicar.

Professor MacVicar was cited as one of 32 outstanding college and university teachers in the fields of anthropology, foreign languages and physics in the fifth semiannual report on teaching published by the magazine. Professor MacVicar has been director of UROP since its inception in 1969.

The two-page article said UROP is considered "as a significant reform movement in higher educaorchestra pit onto the stage, Mr. Kurkjian intends to make them more a part of the performance.

Members of the Boston Repertory Ballet will also dance "Soiree Musicale," choreographed by An-thony Tudor, and "Speed Zone," by Mr. Kurkjian. In addition, Lydia Abarca and Ronald Perry, principal dancers with the Dance Theater of Harlem, will appear as guest artists in the Boston-area debut of "Pas d'Agon," choreographed by George Balanchine to music by Igor Stravinsky, and in "Corsaire Pas de Deux" by Petipa, the choreographer of "Sleeping Beauty" and "Swan Lake."

Tickets for the performance, which is sponsored by the Graduate Student Council (GSC), are on sale for \$3 in the GSC office, Rm 50-110, x3-2195, and at the desk of Ashdown House. Beginning Monday, Jan. 23, they will be sold in Lobby 10 from 8:30 to 10:30am and from 11:30 to 1:30pm.

Prior to the performance, Mr. Kurkjian will give two free lecturedemonstrations in the Sala de Puerto Rico of the Student Center. The first, at 1pm, on Monday, Jan. 23, will show the fundamentals of ballet technique. The second, at 7:30pm on Wednesday, Jan. 25, will cover the history of ballet and the elements of ballet composition.

A teacher from the company, Leo Guerard, will also be offering master classes for students taking IAP ballet classes with Reeva Gibley through the Athletic Department. Registration for these classes was so large that a second beginner ballet class was added through the support of the GSC, the Alumni Association, and Vincent Fulmer, secretary of the Institute.

INSTITUTE **NOTICES**

Announcements

BSO Open Rehearsals**-Discount tickets for Wed, Jan 25, on sale now at TCA, Stu Ctr Rm

February Degree Recipients—Cards enclosed with Feb degree notice must be returned to Rm E19-344 by Jan 20. Indicate whether diplomas are to be mailed, called for in person, & if attendance at commencement June 5,

RUNE**-the MIT journal of arts and letters is seeking submissions—poetry, short fiction, essays & graphics—for spring issue. Drop off manuscripts, Rm 14N-305, or send through Institute mail to Rm 50-301. Deadline: Feb 28, 1978. Info: Susan, 566-0030, or Don, 267-6448.

Wives' Group**-A list of international women interested in exchanging conversation in Italian, Japanese, German, Portuguese, Farsi, Chinese, etc., for English conversation is available from the Wives' Group. Contact Karen Devine, x3-2916.

New UROP Listings

For more detailed information on UROP opportunities listed, MIT undergraduates should call or visit the Undergraduate Research Opportunities Program Office, Room 20B-141, Ext. 3-5049 or 3-4849 unless otherwise specified in the listing. Undergraduates are also urged to check with the UROP bulletin board in the main corridor of the Institute.

What's It All About?

On Wed, Jan 25, UROP is holding an informal gathering. UROP staff and under graduate UROP participants will be available to answer questions and talk about the program-how it works, and what it's like. Faculty, staff, and students who have any questions, comments, complaints, or praise, or who would just like to meet the UROP staff are welcome to drop by. 2:30-5:00pm, Chipman Room (8-314). Refreshments

Eloranta Summer Fellowship Program

A limited number of summer research fellowships for MIT undergraduates will be awarded this spring under the Eloranta Fel-lowship Program. The fellowships are intended to support summer research or study projects and associated travel. Any MIT undergraduate may apply, including seniors whose summer projects would actually occur after graduation. Students must submit a written proposal outlining plans for a summer project, including an indication of how the project will contribute to his/her education objectives, how the project will be carried out, the support available, and a budget. Letters of recommendation should be included. Proposals for the summer of 1978 should be submitted before March 20, 1978, to Ms. Norma McGavern, UROP Office.

Center for Transportation Studies

Opportunity for a student to work on demand-responsive para-transit project for the Center for Transportation Studies; to assist in establishing an encoding network for the computer dispatching of vehicles. Duties will include data collection, editing, analysis and transformation. Must have a working knowledge of PL/1, with other computer lan-

guages helpful. Contact: Lynn Wiles, Rm 1-075, x3-5304.

Cambridge Schools

The Cambridge School Department's Manager of Plant Administration would like students to work with him in some studies of energy use in the public schools. The following are some of the topics that have been suggested for study: 1) A study on the cost effectiveness of installing added insulation to exist-ing roofs at certain schools; 2) A study on what energy savings would be realized by installing a humidification system; 3) A study to determine the cost effectiveness of double glazing

Nutrition and Food Science

An opportunity is available for a student to participate in a nutrition study, freshman or sophomore student preferred. The investigation will use adult subjects from the MIT community and will test milk tolerance secondary to lactose malabsorption. Student will assist in administering tests, interviewing subjects and analyzing data. No previous knowledge or experience required. Project starts immediately; hours are flexible.

Contact: Dr. N. Scrimshaw, Rm 16-325, x3-5101, or Marianne Unger, Rm 20B-216,

Club Notes

MIT Ecology Action*—Meeting, Thurs, Jan 19, 5:15pm, W20-002.

MIT Electronics Research Society**-Our computers are up, our scopes are running. IAP is the time to build that electronics project. Lab, Rm 20B-119 is open evenings. Info:

Exotic Fish Society*-Meeting, Tues, Jan 24,

Shotokan Karate Club**-Practice, Mon & Tues, 6-7pm, Fri, 6-8pm, duPont T Club Lng. Info: Bill Kerr, x5-6518 Dorm or Bing Wu, MIT Figure Skating Club**—Sun, 11am-1pm, MIT Skating Rink. Bring skates. People who skate forwards comfortably and have at least attempted to skate backwards are welcome to meet other skaters and practice their skills.

MIT Go Club*—Meetings, Mon & Wed during IAP, 8pm, Rm W20-491.Go is played, taught. Discussions on strategy, occasional speakers on basic tactics announced in advance. Check on basic tactics announced in adv IAP Guide for additional activities.

MIT Juggling Club*—Juggling practice, all levels. We teach beginners. Sundays, through IAP, 12:30-4pm, Rm W20-473, free.

MIT Space Habitat Study Group*—Interdisci-plinary discussions of space industrialization, colonization & related issues. Tues & Thurs, 7pm, Marlar Lng (Rm 37-252). Contact: Beverly Bugos, x3-6896.

Religious Activities

The Chapel is open for private meditation 7am-

Christian Service*-Sun, 10:45am, Chapel. Singing, preaching, sometimes testimonies, prayer following. All invited.

MIT Hillel Services*—Daily Minyan: 8am, Rm 1-136. The Downstairs Minyan (Conservative Egalitarian): Sat, 10am, 312 Memorial Dr. Reform: Fri, 6:30pm, Chapel. Orthodox: Fri, Sundown, Kosher Kitchen (50-005); Sat, 9am, Bush Rm (10-105).

Interdenominational-Worship and holy communion, Wed, 5:05pm, Chapel, sponsored by Lutheran-Episcopal Ministry. Get acquainted supper following. Info: Randy Clark, x3-6921.

Prayer Time**-Bible class, Fri, 1-2pm, Rm 20E-207, guest speakers, music, refreshm Miriam R. Eccles, founder-director, Alpha and Omega Missionary Society.

MIT Vedanta Society*-Meditation and discourses on the Gita by Swami Sarvagatan-anda, of the Ramakrishna Vedanta Society of Boston. Fri, 5:15pm, Chapel.

IAP Notices

The numbers in parentheses indicate an IAP activity. For further information consult the IAP Guide or call x3-1668.

ws Writing Seminar (567)**—Mark James & David Koretz, News Editors, The Tech. Wed, 7:30pm, through IAP, Rm W20-483

Opportunities at DEC*-Digital Equipment Corp college recruiting presentation on en-gineering, manufacturing and field service careers. Thurs, Jan 19, 1:30pm, Marlar Lng (37-252). Sponsored by EECS Student-Faculty Committee. Everyone welcome especially EECS seniors & grad students. Refreshments.

Rosh Chodesh Marathon in Honor of Women, Nature & Moon (549b)**—sponsored by MIT Hillel. Wed, Jan 18, 7pm, Rm 3-310.

SAA Art Classes (530)**-Photo Sess Wed, Jan 18, Studio Lighting, 7:30-10pm, free. Framing Workshop: Thurs, Jan 19, noon-1pm, free. Weekend Pottery Workshop: Sat, Jan 21, 10am-4pm; Sun, Jan 22, 10am-12:30pm &/or 1:30-4pm, \$5. Rm W20-429. Info: x3-7019.

Transcendental Meditation (638)**-I. Rojak, Lincoln Lab. Transcendental Meditation Dis-cussion For Those Who Practice TM Tech-nique. Wed, Jan 18, noon, Rm 50-250.

Visual Language Slides: Sources for a Modern Potter*—Sat, Jan 21, 7-9pm, Rm W20-429, free. Sponsored by SAA. Info: x3-7019.

What It Takes To Publish a Newspaper (570)**—You are invited to see what it really takes to publish an issue of *The Tech*. Mon, 7pm-midnight, Tues, noon-midnight, through IAP, Rm W20-483. Info: x3-1541.



Wednesday, Jan. 18 Channel 8: 12-1:30pm

DANIEL P. MOYNIHAN at Kresge Auditorium. Recorded 12/7/77.

Channel 8: 12-1pm

GRIST FOR THE MILL Produced by Glorianna Davenport and Ann Marion.

Friday, Jan. 20 Channel 8: 12-1:30pm

WILLY BRANDT Chairman of the Social Democratic Party of Ger-many and President of the Socialist International. Recorded 3/9/77 for the "World Change and World Security" lecture series.

Monday, Jan. 23 Channel 8: 11am-12noon

1-2pm

LIGHTING FOR VIDEOTAPE PRODUCTION SET UP, CARE AND OPERA-TION OF THE VIDEOTAPE SYSTEM

Tuesday, Jan. 24 Channel 8:

A PRACTICAL GUIDE TO SETS AND PROPS FOR VIDEOTAPE PRODUCTION HOW TO PERFORM ON TELE-VISION.

How to Bring the Ballet to MIT & Keep Your Thesis Advisor Happy (560a)**—Mark Gott-lieb, G. Fri, Jan 20, noon-1:30pm, Rm 3-133.

Is Tech Hell? (399b)**—Meeting time changed from 2pm to 3pm. Mon, Jan 23, Rm 7-105.

Israel Aliyah Information Night (609b)** Assorted speakers, Wed, Jan 25, 8pm, Stu Ctr, West Lng. Sponsored by MIT Hillel.

Tour to Hewlett-Packard Medical Facility** Visit to plant in Maynard, discussion with company engineers. Fri, Jan 20, Leave Lobby, Bldg 39, 12:30pm. Free. Sponsored by EECS Student-Faculty Committee. Info: EECS Undergrad Office, Rm 39-476.

Tour to Prime Computer Inc**—Visit to plant in Framingham, discussion with company engineers. Thurs, Jan 26, leave from Lobby, Bldg 39, 12:30pm. Free. Sponsored by EECS Student-Faculty Committee. Info: EECS Undergrad Office, Rm 38-476.

Preprofessional

BROOKHAVEN NATIONAL LABORATORY. Summer Student Program for the education and training of selected undergraduates with an interest in research and teaching. Students will work with members of the scientific staff and gain research experience in accelerators, biology, chemistry, engineering, math, medicine and physics. Applicants must be US citizens who have completed junior or senior year by June, 1978. Stipend is \$125/week with limited travel expenses

OAK RIDGE ASSOCIATED UNIVERSITIES. Student Research Participation program provides selected students with opportunity for independent study, research, development under guidance of senior staff members at several major energy research and develop-ment laboratories. Selection of participants based on evaluation of academic records potential for graduate study, professional goals and acceptability in on-going research programs. Ten week appointments start June. Weekly stipend of \$125. Deadline: Jan 23, 1978.

LONG ISLAND JEWISH-HILLSIDE MEDI-CAL CENTER, NEW HYDE PARK, NEW YORK. Program is designed to provide student with understanding of selected current concepts in biomedical sciences and opportunity to participate in current research project at the Medical Center. Selection of participants based on a combination of scholarly achievement, letters of recommendation, previous research experience and a statement of interest in the program. Deadline: Feb 17, 1978.

Additional information available in Preprofessional Advising and Education Office, Rm 10-186, x3-4158.

Echoes

Jan. 15 - Jan. 21

50 Years Ago

Williard J. Slagle '28 was granted a year's leave of absence from the Institute. He will tour the United States as representative of the American Olympic Association. He was currently serving as president of the MITAA and has been active in various other athletic activities throughout his career at MIT.

40 Years Ago

Beaver skiers will leave for Woodstock, Vt., where they will practice for the Skiing Carnival held in New Hampshire later in the season. Dr. Hauser of the Department of Chemical Engineering will act as coach for the Tech group.

25 Years Ago

Oscar H. Horovitz '22 was notified by the US State Department that his film, "Ice Follies," had been judged by the Italian Olympic Committee as the best in the eighth international competition of sports films for amateur photographers.

Prepared by Marcia Conroy, MIT Historical Collections, x4444.

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253-2701.

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Community Players to Present 'Rosencrantz and Guildenstern'

Rosencrantz and Guildenstern, a short play by William S. Gilbert of Gilbert and Sullivan fame, will be presented by the MIT Community Players at their regular January meeting.

All are invited to attend the free performance and meeting at 7:30pm on Wednesday, Jan. 25, in the Student Center Mezzanine Lounge

First presented in 1891, Rosencrantz and Guildenstern is a parody of Hamlet. The one-act play is 20 minutes long and will be

staged with full period costumes and props. Several of the actors will be playing the same roles they had for the Community Players' full-scale production of Hamlet in

Charles Berney, a senior research associate in the Department of Nuclear Engineering, unearthed the play after considerable research and will direct the production. Among the actors will be Ronald Rivest, associate professor in the Department of Electrical Engineering and Computer Science, and David Dreyfuss, a graduate student in aeronautics and astronautics from Akron,

x3-2060. Dues, \$2. New members welcome.

x5-6550 Dorm.

1-2pm

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R&D Efforts Can Be Misdirected—Thurow

(Continued from page 1)

was inefficiently large. "While no one quarrels with the need to cure cancer," he adds, "the fact remains that an all-out war on cancer should not be declared if it cannot be won."

The only way to avoid such situations, he writes, is to exercise extreme caution. "Massive-mobilization R&D should be called for only rarely."

So-called "massive-mobilization R&D" is one of three categories that Thurow believes should be established for the purpose of analyzing the returns that might be expected from specific R&D undertakings.

The two other categories, which by far include the vast majority of R&D programs, are "basic-capability research" and "missionoriented research."

Basic-capability programs would include all those that build up a general fund of knowledge on which mission-oriented and massive-mobilization efforts could draw; mission-oriented projects would be structured to achieve stated benefits, and would include whatever specific breakthroughs in basic knowledge were deemed necessary to realize the benefits sought.

A massive-mobilization R&D effort, having the highest priority and cost, would be undertaken only when the benefits were important enough to justify using a significant fraction of the country's resources.

Once these categories were in place, Thurow says, other specific courses of action could be undertaken to enhance the productivity of R&D efforts in the United States.

Funds for basic-capability R&D should be allocated on the basis of eight cross-disciplinary areas: life sciences, agricultural sciences, environmental sciences, material sciences, energy sciences, behavioral sciences, space sciences, and equipment sciences. Funds supporting research in basic capabilities should be spent on the basis of meeting costs of supporting enough R&D personnel in each area to be able to expand rapidly should breakthroughs actually occur.

-Funds for mission-oriented research should be spent according to a modified cost-benefit analysis, showing for each project clearly stated ranges of possible benefits and costs as well as an estimate of maximum possible benefits.

Wherever possible, more than one individual or group should estimate the ranges of costs and benefits. Since it is not possible to make analytical comparison among noncommensurate objectives, mission-oriented research proposals should be sub-divided into four

types: national independence, lifesaving, economic goods and services, and non-economic "qualityof-life" goods and services.

—Massive mobilization research should be untertaken only very rarely and only after the necessary basic knowledge has been accumulated

The probability of producing spinoffs and economic multipliers should always be ignored in allocating R&D expenditures because the programs must be evaluated on the basis of R&D benefits expected directly from those programs.

—Planners must take institutional constraints into account when allocating R&D expenditures. "There is no sense in spending money to develop faster trains unless you are also going to improve railroad roadbeds."

—Some procedure must be developed to overcome initial high unit costs and risks in civilian non-medical production. A good solution probably would be to extend government expenditures that support civilian R&D projects farther along the development path, with the condition that all production data and processes be made public.

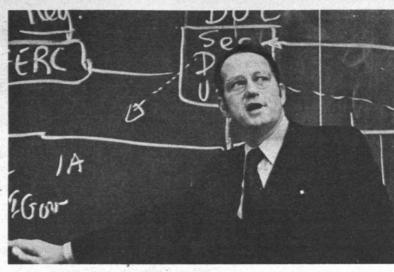
—R&D aimed at techniques to reduce production costs is probably being slighted in favor of R&D focussing on developing new products. The problem can best be solved by reducing or eliminating exclusive proprietary rights from those who do cost-reduction research, possibly by widely disseminating progress reports.

Foner, Schwartz Book Translated

A Russian translation of the book, Superconducting Machines and Devices: Large Systems Applications, edited by Dr. Simon Foner and Dr. Brian B. Schwartz of the Francis Bitter National Magnet Laboratory, has been published recently by MIR Press Moscow.

The book, originally published by Plenum Press, 1974, is a compilation of world-wide applications of large-scale superconductivity and is based on the NATO Advanced Study Institute, held in Italy in 1973 and directed by the authors.

A second book, Superconductor Applications: SQUIDS and Machines, also with Drs. Foner and Schwartz as editors, was published by Plenum Press in 1977. Dr. Foner is chief scientist and head of the research division of the laboratory and Dr. Schwartz is a member of the laboratory staff.



John M. Deutch, formerly head of the Department of Chemistry and now director of energy research in the Department of Energy, returned to the campus last Friday (Jan. 13) to discuss energy research policy in the United States before an overflow crowd in Rm 6-120.

Weiner Refutes Reports On Japanese A-Bomb Work

An MIT science historian has taken issue with news reports, based on documents and other information he has uncovered, implying that the Japanese may have been close to developing an atomic bomb during World War II and that this could have been a factor in the US decision to drop atomic bombs on Hiroshima and Nagasaki.

"In no way was there any nuclear arms race with Japan," says Professor Charles Weiner. "Feasibility studies conducted by Japanese physicists during the war were completely irrelevant to the human and ethical questions of whether the United States should have used atomic bombs. That issue has to be dealt with on other grounds."

Professor Weiner also disputes suggestions in the news articles that the Japanese entered in a "conspiracy of silence" to keep the fact of their wartime nuclear research secret after the war ended. Furthermore, he denies that the wartime research efforts could have constituted a valid reason for destroying Japan's five cyclotrons in 1945.

Dr. Weiner, professor of the history of science and technology in the School of Humanities and Social Science, has published a study of the development of nuclear physics in Japan during the pre-war period, and also on the destruction of the nuclear research facilities by occupation forces after the war.

His published work prompted Japanese physicists and historians to make available to him personal recollections, historical accounts published in Japan and archival documents concerning Japanese nuclear research during the war, a subject absent from US accounts of the history of nuclear research. Professor Weiner has been preparing to publish a full-scale account of the Japanese wartime efforts, including the reproduction of key documents he has obtained.

Last fall, after Deborah Shapley of Science magazine learned of his work, Professor Weiner responded to her request for some of the material for an article she was preparing for the magazine. Her resulting story in the Jan. 13 issue, in some of its interpretations, and a series of news articles stemming from it, prompted Professor Weiner to make the following statement in a letter to the editors of The New York Times, The Boston Globe, The Washington Post and other newspapers that carried the stories:

"The Japanese did not have the capacity to make an atomic bomb during the war. This was known by those in the United States who made the decision to drop atomic bombs on Hiroshima and Nagasaki. The historical evidence that has come to light since the end of the war demonstrates only that the Japanese physicists, like those in many other countries, explored the feasibility of developing such a weapon. The Japanese came to the conclusion that it was not possible to achieve during the war.

"Some of the Japanese physicists who worked on the wartime fission project, reported on their activities to the Allied occupation authorities in October 1945, and detailed accounts of the project were published in Japan in 1953, 1970, and 1973. This is hardly a conspiracy of silence.

"When the allied occupation troops destroyed the Japanese cyclotrons in November 1945, American atomic scientists protested. They correctly pointed out that cyclotrons cannot be used to make atomic bombs, that Japan did not have the necessary uranium, and that in any event all such research was forbidden and was under strict control by the occupation authorities. In the weeks prior to the destruction of the cyclotrons, the use of these basic research instruments had been approved for projects in the fields of biology and medicine. The historical evidence now available does not change this assessment, nor does it justify the actions of the US military authorities, who acknowledged in December 1945 that the destruction was a

Otenti Installed In Masons' Post

William G. Otenti, assistant manager of the MIT Employees Federal Credit Union, was recently installed as Worshipful Master of the Richard C. Maclaurin Lodge.

"The Tech Lodge," the first college lodge of Masons in the US, was instituted in 1920, and was named for MIT's sixth president.

Mr. Otenti, a resident of Wakefield, Mass., was installed at a public ceremony held in Cambridge. Installing Masters were Right Worshipful Walter Wrigley, past District Deputy Grand Master for the Cambridge 2nd Masonic District and John L. Berini, past master of John Warren Lodge, Holiston. The Qualifying Master was Harold F. Mercer, past District Deputy Grand Master for the Cambridge 2nd Masonic District.

ADP XI Applications Are Sought

The Office of Personnel Development is now accepting applications for the next Administrative Development Program—ADP XI.

The program, which is open to all faculty, staff, and exempt employees of the Institute, provides professional development for those with administrative and management responsibilities at MIT. More than 250 people have participated in the program to date.

Those interested in participating in the ADP will be asked to attend an information panel session. In these sessions, former ADP participants will describe course structure and content, share their own ADP experiences, and answer questions. Course descriptions and application forms for the ADP XI will be available at the panel sessions, which will be scheduled January 19 through January 24. Applicants may call Ellen O'Hara, x3-4277, to sign up to attend an information panel session.

Applications for the ADP XI must be received in the Office of Personnel Development, Rm E18-320, by Friday, January 27. The ADP Selection Committee will choose participants according to criteria designed to achieve a heterogeneous group from Institute departments, laboratories, and centers.

The first class of the organizational psychology section will be held on Wednesday, Feb. 22 from 1:30 to 5:00pm in Rm E18-320. This section, which will meet every Wednesday for 10 weeks, will be taught by Drs. Adam and Maureen Yagodka and Ms. Ellen O'Hara, from the Office of Personnel Development. Instructors for the financial management section, which will be held in the fall of 1978, are: George Dummer, director of the Office of Sponsored Programs; John Currie, director of finance; other members of MIT's financial administration; and Dr. Zvi Bodie, assistant professor of finance and economics at Boston University School of Management. The schedule for the second portion of ADP XI will be announced at a later date.

AARP Appoints Committee Heads

Committee chairmen were appointed at a recent meeting of the board of directors of the MIT Cambridge Chapter of the American Association of Retired Persons (AARP). Those named were:

Bus trips—Netta Murphy; hostess—Peggy Norton

Sunshine committee—Josephine Lloyd

Membership committee—James Maclary Nominating committee—Frank-

lin Bidwell
Special Activities committee-

Abe Rich Program committee—Jeri Whit-

man
Publicity committee—Anne

Humphries Newsletter—Julia McLellan Refreshments—Sal Lauricella

Speaking for the membership committee, Mr. Maclary noted that when formation of the chapter was first discussed a year ago, about 100 people signed up saying they were interested who have not yet enrolled in the chapter. He also emphasized that membership is available to any person age 55 or older whether or not retired. Many of the 150 members of the MIT Cambridge chapter are still working. Membership is also open to the Cambridge community.

The next meeting of the chapter will be a wine and cheese party on Tuesday, Feb. 28. Further details will be announced in a later issue.



DEMONSTRATING a high density plasma source are Professors Louis S. Scaturro, left, and Peter A. Politzer at fusion open house sponsored by the Department of Nuclear Engineering (IAP #246).



January 18 through January 29

Lave and Let Die** mission 75c w/MIT or Well

Seminars and Lectures

The numbers in parentheses indicate an IAP activity. For further information consult the IAP Guide or call x3-1668.

Wednesday, January 18

Cytotoxic T-Lymphocytes* — Herman Eisen, professor of immunology, biology. 9am, Rm E18-408.

Substitution Stragtegies for the Textile Industry in the 1980s (215)** 9am: G.C. Tesoro, adjunct professor, mechanical engineering. 10am: Prof. S. Backer, mechanical engineering, Fibers and Polymers laboratory; The Question of Fire Hazard, Apparel and Furnishings. Ilam: Prof. Tesoro; "Tris" in context: a Case History. 1:30pm: C.Huggett, Center for Fire Research, National Bureau of Standards; What of the Future for Flame Resistant Textiles and the Fire Problem. 2:30pm: Prof. Tesoro; Chemical Approaches for Flame Retardants in the 1980s. Seminars meet

Energy Seminar Series (410)** - 9:30am: Drew Bottaro, sponsored research technical staff, Energy Laboratory; Legal Mechanisms in the Implementation of Energy Policy, Rm 66-144. 2pm: Richard F. Topping, sponsored research technical staff, Energy Laboratory; Combined Gas Turbine-Steam Turbine Power Plants, Rm 66-144. 2pm: Prof Ben Ball, management & engineering, Energy Laboratory; Can We Plan Ourselves Out of the Energy Crisis? Rm 66-148.

Office of the Future (385)** - Marvin Sirbu, research associate, Center for Policy Alternatives; Albert Vezza, research associate, electrical engineering & computer science. Electronic Mail-Technology & Policy, 10am-noon, Rm 4-231.

Recycling Space at MIT (632)** - 10am-12:30pm, Rm 10-105.

The Why and How of MIT's X-Ray Astronomy Satellite SAS-3 (394)** W. Mayer, Center for Space Research C. Canizares, assistant professor, physics. 10am, Rm 37-571.

Bicycles in the Real World (552a)** - Peter Fiekowsky, U. Bicycle Dynamics: How Fast Can a Bike Go? 11am, Rm 24-612.

Lasers for Poets (510)** - Mike Burns, G. 11:45am-1:15pm, Rm 8-302.

Cells In Motion (41)** - Prof Eugene Bell, biology. Noon, Rm 9-150. Mathematics of Galaxies and Plasmas (199)** - C.C. Lin, Institute

Professor, mathematics. Noon-1:30pm, Rm 2-390.

A Brief Introduction to Law (325)** - Prof Jeffrey A. Meldman, Sloan School of Management. Legal Advocacy and Legal Research, film "Case in Point." 1-3pm, Rm E52-143.

Highlights of Aeronautics and Astronautics (2)** - Jack L. Kerrebrock, Richard Cockburn Maclaurin Professor of Aeronautics & Astronautics, Shock Structure in Transonic Compressor Rotors, 2pm, Rm 33-206.

Workshop on Amory Lovins' Proposals for Soft Energy Paths (410a)** Panel Discussion: J.W. Meyer, Plasma Fusion Laboratory; M. McKinstry, nuclear engineering; C.J. Ryan, executive director, System Dynamics Group, Sloan School of Management; W.J. Jones, research staff, Energy Laboratory. 2pm, Rm 2-143.

Methodology For Learning Languages (211)** - Frans Van Dyck, mechanical engineering, 2pm, Rm 3-446.

The Water Permeability of Human Erythrocyte in the Temperature Range (+25C to -10C)** — Thomas H. Papanek, doctoral thesis presentation, mechanical engineering. 2pm, Rm 37-212, Refreshments.

Taking Molecules Apart & Putting Them Together With Photons (73)** - Prof J. Steinfeld, 2pm, Rm 6-233.

Physics Potpourri (293)** - Prof David Frisch, physics, Devices for Intravasal Male Fertility Control, 3pm, Rm 4-231.

New Technology (448)** - Albert Hopking, Draper Laboratory, Ultra-Reliable Computers and Avionics, 3:30-5pm, Rm 33-419.

Special Aeronautic Physics Program** - Prof Jonathan I. Katz, A. The Edition Limit 4:15pm, Rm 37-212.

Environmental Issues in Massachusetts (600)** — Representatives of the State CZM Office, Sierra Club, Coastal Zone Management in Massachusetts, 7:30-9pm, Rm 66-110.

Thursday, January 19

Substitution Strategies for the Textile Industry in the 1980s (215)** -9am: H. Zollinger, visiting professor, mechanical engineering; head, Textile Chemistry Laboratory, ETH, Zurich; Chemical and Optical Characterization of Effluents for Dyehouses. 10am: C. Schouten, Sandoz Company; Low Liquor Dyeing. 10:45am: Prof Zollinger; Elimination of Dyes from Effluents by Physiochemical, Chemical, and Microbiological Methods. 11:30am: Prof Zollinger; Chromium Ions in Effluents for Mordant Dyeing. 1:30pm: W.G. Klein, director, K & S Laboratories; Static Electricity, Its Cause and Control — An Engineer's Approach. 2:15pm: G.C. Tesoro, adjunct professor, mechanical engineering; A Chemist's Approach to Elimination of Static Electricity. 3pm: Prof Tesoro; Soiling Tendencies in Textiles - Dry Dirt, Oily Dirt. 3:45pm: S. Goldwasser, consultant; Soil Removal: Mechanisms of Washing, Finishes Affecting Soil Release. Seminars meet in Rm 66-360.

Energy Seminar Series (410)** — 9:30am: Esteban Hnyilicza, sponsored research technical staff, Energy Laboratory; Energy Modeling for Policy Analysis. 2pm: Joel Levy, sponsored research technical staff, Energy Laboratory; Emissions of Nitrogen Oxides in Fossil Fuel Combustion Seminars meet in Rm 66-144.

Office of the Future (385)** - Ira Goldstein, associate professor, electrical engineering & computer science. Artificial Intelligence and Office Automation. 10am-noon, Rm 4-231.

Saliency and Decomposition of Meaning in the Use of Motion Verbs** Prof Willem J.M. Levelt, Projektgruppe fur Psycholinguistik, Max-Planck-Gesellschaft, Nijmegen, Holland. Psychology seminar. 10am, Rm

Probing Condensed Matter with Neutrons (251)** - Prof Sidney Yip, nuclear engineering. 10am, Rm 24-115.

Recycling Space at MIT (632)** - 10am-12:30pm, Rm 10-105.

The Kibbutz (342)** — Joseph Shepher, Sociology & Anthropology, Haifa University, Israel. Family and Familism, The Story of Non-Captive Wives. 10:30am-noon, Rm 7-403.

A Brief Introduction to Law (325)** - Prof Sanford J. Fox, Boston College Law School, Criminal Law. 1-3pm, Rm E52-143.

Insurance - Life, Car, Property (399)** - Various Insurance Experts, Insurance and You. 1-3pm, Rm 10-250.

Highlights of Aeronautics and Astronautics (2)** - Charles W. Haldeman, aero/astro, Magnetic Levitation, 2pm, Rm 33-206.

The Geneva Peace Conference - Will It Convene? (624)** - Prof L. Gross, Fletcher School of Law, Tufts University, The Legal Aspects of the Israeli Arab Dispute Diplomacy, 2pm, Rm 3-370.

What is Philosophy? (272)** - Prof Irving Singer, philosophy & linguistics. What is Aesthetics? 2pm, Rm 26-168.

Workshop on Amory Lovins' Proposals for Soft Energy Paths (410a)** Panel discussion. (See Wed, Jan 18, 2pm, for list of participants.) 2pm, Rm 2-143.

Soap-Bubble Carnival (191)** - Frank Morgan, C.L.E. Moore Instructor, mathematics, Math and Magic, 3pm, Rm 66-110.

Critical Phenomena in a Rat Lens (293)** — Toyoichi Tanaka, assistant professor, physics. 3pm, Rm 4-231.

Prediction Problems with Loss Structure Considerations (490)** — Prof Paul Berger, management science, Boston University, Applications of Operations Research. 4pm, Rm 24-115.

Progress in Recombinant DNA (382)** - Phillip A. Sharp, associate professor, biology. 4pm, Rm E17-614.

Reflections on Mechanical Engineering (214)** - Carl R. Peterson, associate professor mechanical engineering, Mining: or Mechanical Engineering in Depth, 4pm, Rm 3-133.

Engineering in Medicine & Biology** - J.S. Soeldner, Joslin Research Laboratory and J. Giner, Giner, Inc. Progress Toward a Miniature Artificial Implantable Pancreas for Diabetics - A Bioengineering Approach. 6:30pm, Rm 36-155. Refreshments at 5:30pm, Dinner following meeting. IEEE Group Seminar.

Islamic Law and Morality (601)* - Muddassir H. Siddigui, religion director of Islamic center of New England. Islam in Perspective. 6:30pm, Rm 3-270.

Education and the Foreign Student: The Relevancy of Professional Training with Respect to Social Issues (602)** -- Discussion and film, five students speak. Role of the Professional in International Development. 7:30pm, Rm 14E-304.

Friday, January 20

Substitution Strategies for the Textile Industry in the 1980s (215)** -9am: A. Bolling, economics division, National Cotton Council, Memphis, Tenn.; Energy Requirements for All Cotton Fabrics. 10am: Rev L. Van Windel, associate professor, chemical engineering, Catholic University, Washington, D.C.; Energy Requirement for Synthetic Textiles. 11am: P.J. Sarjeant, research director, WESTVACO Corp.; Material Limitations in the 1980s — Renewable Resources. 11:45am: E.N. Brightbill, energy and materials dept., E.I. Du Pont Co; Material Limitations in the 1980s — Non-Renewable Resources. 1:30pm: R. Goldman, head, Ergonomics Lab., US Army Laboratories, Natick; Physiology of Comfort. 2:15pm: Prof S. Backer, mechanical engineering, Fibers & Polymers Laboratory; Fabrics, Clothing and Comfort. 3pm: R. Goldman; Comfort in the 1980s - Physiological Aspects. 3:45pm: Prof Backer; Comfort in the 1980s - Materials Aspects. Seminars meet in Rm 66-360.

Energy Seminar Series (410)** - 9:30am: Betty Woody; Energy Issues and Needs of the Cities. 2pm: Michael McNallan, research associate, Energy Laboratory; Corrosion in Gas Turbines. Seminars meet in Rm 66-

Office of the Future (385)** - Michael Zisman, assistant professor, Sloan School of Management. Automation of Almost Routine Office Procedures, 10am-noon, Rm 4-231.

Superconductivity — Materials Development for Large Scale Practical Applications (297)** — Rene Flukinger, visiting scientist, materials science & engineering. Theoretical Basis of Order-Disorder Phenomena in Promising Alloy Systems, noon-2pm, Rm 4-145.

English Discussion for Foreigners (565f)** - Discussion Leader: I. Rojak, Lincoln Laboratory, 12:30-1:30pm, Rm 50-250.

Hot-Film Anemometer Studies of Arterial Blood Flow Characteristics** - Robert M. Nerem, associate dean, graduate school, Ohio State University, Columbus. Arteriosclerosis Center Seminar. 12:30-2pm, Rm E17-421. Bring lunch.

A Brief Introduction to Law (325)** - Prof Joseph F. Vittek, Jr., Franklin Pierce Law Center. Tort Law, 1-3pm, Rm E52-143.

GISMO - All Improved Computer Language for Engineers* - Prof Pei, City College of New York. 2-4pm, Rm 48-316.

Highlights of Aeronautics and Astronautics (2)** - Prof Wallace E. Vander Velde, aero/astro, Stabilizing the Image Seen By a Moving Camera, 2pm, Rm 33-206.

Workshop on Amory Lovins' Proposals for Soft Energy Paths (410a)** - Panel discussion. (See Wed, Jan 18, 2pm, for list of participants.) 2pm, Rm 2-143.

Physics Potpourri (293)** - Bruce R. Patton, assistant professor, physics. Liquid Crystals - The Fifty States of Matter, 3pm, Rm 4-231.

Monday, January 23

Energy Seminar Series (410)** - James W. Meyer, assistant to director, Energy Laboratory, Fuel Conservation in Domestic Space, 9:30am, Rm

Environmental Chemistry (59)** - Ronald A. Hites, associate professor, chemical engineering. 10am, Rm 66-110.

Office of the Future (385)** - Marvin Sirbu, research associate, Center for Policy Alternatives; Michael Zisman, assistant professor, Sloan School of Management. Where Do We Go From Here? 10am-noon, Rm 4-231.

The Search For The Nuclear Grail (252)** - Prof Irving Kaplan, nuclear engineering. Wartime Efforts to Develop Atomic Weapons, 10am,

Northermal Resonant Microwave Response in Living Cells** Fritz Keilmann, Max Planck-Institut fur Festkorperforschung, Stuttgar W. Germany. Spectroscopy Laboratory Seminar. 11am, Rm 66-360.

Public Policy Hard Core Unemployment (108)** - Symposium. Profe sors L.C. Thurow, M.J. Piore, H.C. Katz, economics. noon-1pm, Rm

A Brief Introduction to Law (325)** - Jeffrey A Meldman, assista professor, Sloan School of Management. Contract Law, 1-3pm, Rm Es

A Formal Theory of Tonal Music (165)** - Ray Jackendoff, profess linguistics, Brandeis University, 1pm, Rm 4-160,

Analysis of Substrates of Intermediary Metabolism (264)** Brunengraber, associate professor, nutrition & food science. 2-4pm, Rm

Cooling System Design for Power Plants (80)** - John J. Shan research assistant. 2-4pm, Rm 48-316.

Highlights of Aeronautics and Astronautics (2)** — Prof Theodore H. Pian, aero/astro, Computer-Oriented Structural Analysis. 2-4pm, Rm 3

Use of Perfused Organs for Metabolic Studies (261)** -Brunengraber, associate professor, nutrition and food science. 2-4pm, R 66-160

Physics Potpourri (293)** - Prof George Clark, physics. X-Rays fro the Clouds of Magellan. 3pm, Rm 4-231.

The Crenation & Prelytic State of the Human Red Blood Cell* - Pro F.R.N. Nabarro, University of Witwatersrand, Johannesburg, South Africa. 3pm, Rm 4-163.

Rehabilitation Engineering in the Netherlands and the US — An Informed Comparison* — Henk G. Stassen, professor in man-machin systems, Delft University of Technology, 4pm, Rm 1-236. Coffee, $3:30\mathrm{pm}$

What It Takes to Publish a Newspaper (570)** — staff of The Tech. 7pm

Tuesday, January 24

Energy Seminar Series (410)** — 9:30am: Dr George Berry, sponsore research staff, Energy Laboratory; John Donovan, associate professo Sloan School of Management, Decision Support Systems for Energy Policy Analysis. 2pm: W. Loubsky, sponsored research staff, Energy Laboratory, MHD Disk Generators. Seminars meet in Rm 66-144.

Is Entropy Related to Microscopic Quantum Effects (254b)** - Pro Elias Gyftopoulos, nuclear engineering, 10am, Rm 26-204.

Issues and Concerns for Those Planning a Medical Career (493)**Prof Stephan Chorover, psychology, Prof Bernard Gould, biolog
Ethical Problems in the Use of Humans in Medical Research, 10am, Ra

Neither Feast nor Famine** - Dr. Selwyn Enzer, Center for Futu Research, University of Southern California, MIT-Harvard Food & Nutr tion Program/Center for Advanced Engineering Study Seminar. 10am-noo

The Kibbutz (342)** — Joseph Shepher, sociology & anthropology, Haif University, Israel, My Children, Your Children, Our Children — Th Dynamics of Collective Education. Meeting will open with a short film Israeli Boy: Life on a Kibbutz. 10:30am-noon, Rm 7-403.

What It Takes to Publish a Newspaper (570)** - staff of The Tech Noon-midnite, Rm W20-483.

Atmospheric Science - The Planetary Connection (220)** - Pro Ronald G. Prinn, meteorology. 1pm, Rm 54-311.

A Brief Introduction to Law (325)** - Louis Menand, special assistant the provost, senior lecturer, political science. Constitutional Law. 1-3pm

Annual Macroeconomic Policy Symposium (105)** — Professors P.A. Samuelson, Institute Professor; R.M. Solow, Institute Professor; 8 Fischer, acting associate head of dept; economics. 1-3pm, Rm E52-461.

Symposium on Undergraduate Chemistry Research** - Research party ticipants will speak on chemistry related projects. 1:30-4pm, Rm 4-370.

The Geneva Peace Conference — Will It Convene? (624)** — 2pm. Rm 3 370.

Highlights of Aeronautics and Astronautics (2)** - Prof Leon Trilling aero/astro. How Big Are Raindrops? 2pm, Rm 33-206. Analysis of Substrates of Intermediary Metabolism (264)**

Brunengraber, associate professor, nutrition & food science. 2-4pm, Rm 66 Workshop on Amory Lovins' Proposals for Soft Energy Paths (410a)' Panel discussion. (See Wed, Jan 18, 2pm, for list of participants.) 2pm

Engineering Internship Program (501)** - Prof J.M. Sussman, civ engineering; associate dean for education programs, school of engineering

2:30pm, Rm 1-246. SV40 Cell DNA Recombinants** - Dr. Ernest Winocour, department virology, Weizman Institute, Israel. 4:30pm, Rm 6-120. Coffee 4pm, 5th

vestibule, Bldg 56. Reflections on Mechanical Engineering (214)** - Prof David Wilson mechanical engineering, The New Types of Auto Engines: or Would You

Let Your Spouse Go Out With a Diesel? 4pm, Rm 3-133. Topics in Operations Research (491)** - Arnold Barnett, Sloan School

Islam in Perspective (601)* - Mrs Zuhar Bahumi Sakr, Family Life and

of Management. Death at an Early Age. 4pm, Rm 24-115.

Status of Women in Islam, 6:30pm, Rm 3-270.

Space Industrialization and Colonization (308)** - Prof Michael Modell, chemical engineering, Sustaining Life in A Space Colony. 7pm Marlar Lng (37-252).

Wednesday, January 25

Rm 2-143.

Office of Sponsored Programs (565)** - George F. Prendergast. assistant director. Grants and Contracts. 9am-noon, Rm 5-234.

Issues and Concerns for Those Planning a Medical Career (493)**

Prof Jeffery Harris, economics. Possible Impacts of Federal Health Regulation, 10am, Rm 4-145.

Environmental Chemistry (59)** - Ronald A. Hites, associate professor chemical engineering, 10am, Rm 66-110.

The Search for the Nuclear Grail (252)** - Prof Irving Kaplan, nuclea engineering. The Search for the Ideal Nuclear Reactor Type, 10am, Rm 9

Bicycle Repair and Bicycles in the Real World (552a)** — Peter Fiekowsky, U. Bicycle Dynamics: Elements of Steering, Safety, Comfort and Dependability, 11am, Rm 24-612.

Brief Introduction to Law (325)** - J.D. Nyhart, associate professor, School of Management. Regulatory Law, 1-3pm, Rm E52-143.

formal Theory of Tonal Music (165)** — Ray Jackendoff, professor of uistics, Brandeis University, 1pm, Rm 4-160.

rgy Seminar Series (410)** - 9:30am: W.J. Jones, senior research Energy Laboratory, Introduction to Issues and Possibilities of ctric Rate Structure. 2pm: John Haggerty sponsored research staff,

hlights of Aeronautics and Astronautics (2)** - Prof John Dugundero/astro, Flutter Vibrations of Aircraft and Structures, 2pm, Rm 33-

OP Colloquium (526)** — UROP staff & students. Informal, come & to us. Eats too! For students, staff & faculty. 2:30pm, Rm 8-314.

sics Potpourri (293)** - Prof Henry Kendall, physics, Physics and iety: The Country's Energy Problems, 3pm, Rm 4-231.

Technology (448)** - Gordan Tully, Massdesign Architects. Solar rgy Design in Architecture, 3:30-5pm, Rm 33-419.

Non-Expansion of the Universe: Basics (190)** - Prof I.E. Segal, ematics, 4:30pm, Rm 2-190.

Industrialization and Colonization (308)** - Prof August Witt, erials science and engineering, Space Manufacturing, 7pm, Marlar (37-252).

hursday, January 26

rgy Seminar Series (410)** - 9:30am: S. Tung, sponsored research f, Energy Laboratory; Fluidized Bed Combustion. 2pm: R. Cannon, arch associate, Energy Laboratory; MHD Electrodes. Seminars meet in 66-144.

Entropy Related to Microscopic Quantum Effects (254b)** - Prof as Gyftopoulos, nuclear engineering, 10am, Rm 26-204.

rief Introduction To Law (325)** - Gordan F. Bloom, senior lecturer, an School of Management; Anti-Trust Law and Trade Regulation. frey A. Meldman, assistant professor, Sloan School of Management; ent Law. 1-3pm, Rm E53-143.

hlights of Aeronautics and Astronautics (2)** - Prof Judson R. on, aero/astro, Flow Fields by Computer, 2pm, Rm 33-206.

at is Philosophy (272)** - Prof Joshua Cohen, What is Political losophy? 2pm, Rm 26-168.

sics Potpourri (293)** - Ernest Moniz, associate professor, physics, sics and Society: The Nuclear Fuel Cycle, 3pm, Rm 4-231.

velopments in Commercial Satellite Communications Part II: dulation and Access Systems** — John Harrington, vice president of arch and engineering, Communications Satellite Corp, Washington, Systems, Communications & Control. 4pm, Rm 39-500.

th and Planetary Science Lecture Series (90)** - Ed Boyle, assistant essor, Earth & Planetary Science. Theories of the Pleistocene Ice Age, Rm 54-425.

nections on Mechanical Engineering (214)** — Peter Griffith, profes of mechanical engineering, Working — What Happens chanical Engineers When They Graduate, 4pm, Rm 3-133. - What Happens to MIT

ications of Operations Research (490)** - Dr Ashok Kalelkar, rations research section, Arthur D. Little, Inc, Risk Measurement as a cision Parameter in the Hazardous Chemicals by Rail, 4pm, Rm 24-

dications of Operations Research (490)** - Prof Paul Berger, of management science, Boston University. Prediction blems with Loss Structure Considerations, 4pm, Rm 24-115.

erial Assay for Environmental Mutagens: Relative Sensitivity of ward and Reverse Mutation Assays* — Howard L. Liber, NIEHS ee. 4pm, Rm 16-310.

im in Perspective (601)* - Dr. Adil Aseer, professor of Arabic and nics, Ohio State University, Concept of God in Islam, 6:30pm, Rm 3-

rtyrs of the Fourth International** - MIT Young Socialists, Thur, 19, 7:30pm.

of the Professional in International Development (602)** - Mary dkowsky, Boston Industrial Mission, Women in Development: Case of dakh Pakistan, 7:30pm, Rm 14E-304.

riday, January 27

vironmental Chemistry (59)** - Ronald A. Hites, associate professor, nical engineering, 10am, Rm 66-110.

earch Seminars (73)** - Prof R. Danheiser, chemistry. Total thesis of Complex Organic Molecules, 10am, Rm 18-290.

perconductivity — Materials Development for Large-Scale Practical plications (297)** — Hitoshi Wada, visiting scientist, materials science ngineering. The Alloy Ti-Nb-Cu: A Candidate for Superconductor plications. Noon-2pm, Rm 4-145.

hlights of Aeronautics and Astronautics (2)** - Manuel Martinezchez, assistant professor, aero/astro. Magneto-Hydrodynamic Power eration, 2pm, Rm 33-206.

rgy Seminar Series (410)** - William Peters, sponsored research Energy Laboratory. Optimized Usage of Coal, 2pm, Rm 66-144.

nsition Metal EPR (76)** - Edward I. Solomon, assistant professor, stry, 2pm, Rm 6-233.

sics Potpourri (293)** - Prof Bernard Feld, physics, Physics and ety: Nulear Energy and Proliferation. 3pm, Rm 4-231.

Non-Expansion of the Universe: Details/Statistics (190)** — Prof Segal, mathematics, 4:30pm, Rm 2-190.

turday, January 28

Four Loves (593)** - Dean V. Shahinian, G. 3:30-5pm: Affection. -8:15pm: Friendship. Tape Recording of C.S. Lewis, late Cambridge ersity professor. Ashdown House, 6th Floor Lounge.

nday, January 29

Four Loves (593)** - Dean Shahinian, G. 2-3:15pm: Eros. 5:30-Charity. Tape Recording of C.S. Lewis, late Cambridge University sor. Ashdown House, 6th Floor Lounge.

Community Meetings

The Tech Lodge** - Regular communication of Richard C. Maclaurin Lodge AF & AM. Wed, Jan 18, Masonic Temple, 1950 Mass Ave, Cambridge, Opening 7pm, Regular meeting, 7:15pm. Master Masons

Mass Transit in Boston (498)* — meet with staff at MBTA, noon-4pm. Rm E53-482.

Women Faculty Luncheon** - Thur, Jan 19, noon-2pm, Rm 8-314. Agenda includes discussion on career opportunity for academic and research staff personnel. By invitation only.

Women's Forum** - Kathleen Maio, MIT libraries. An Overview of Women's Mystery Fiction from the 1860s to the 1970s, Mon, Jan 23, noon-1pm, Rm 10-105.

Skat Tournament (549h)** - Mon-Wed, Jan 23-25, 7:30-11pm. German House, 476 Memorial Drive, Cambridge, Ma.

Understanding The Massachusetts Legislature (498)** - Dr. Herb Bogen Tues, Jan 24, noon-2pm, Rm E53-482.

The Massachusetts Port Authority (498)** - Tues, Jan 24, noon-4pm, Rm E53-460. Meet with staff at Massport. Nutrition During Pregnancy** — Connie Bean, health education, medical department, Tues, Jan 24, noon, Infirmary, 3rd fl Conference Rm.

Several Different Skin Care & Makeup Techniques** Hends, Skin Care Center. Sponsored by the Technology Wives Organiza-

tion, Tues, Jan 24, 8pm, Rm W20-407. Touch for Health Seminar (639)** - Marcel Singleton, certified touch

Policymaking in Action - The Boston Scene (498)** - The Court System, Visit the Quincy District Court, Thur, Jan 26, 9am-1pm, Rm E53-

for health instructor. 2-4pm, Varsity T-Club Lng, duPont.

Ken Rogoff on Chess (545)* - Thurs, Jan 26, 8pm, Stu Ctr Mezzanine Lng. Free. Rogoff, international master of chess, will give a commentary on the Korchnoi-Spasky chess match. Sponsored by the MIT Chess Club. Info: Brad, x5-8156 Dorm.

Tech Organization for Professional Secretaries** - TOPS general discussion meetings Thurs though IAP, noon-1pm, Rm 10-280. Bring lunch.

MIT Employees, Federal Credit Union Annual Business Meeting*** Wed, Jan 25, 5:30pm, Rm 10-340.

Lobby 7 Events

Ken Rogoff on Chess (545)* - Simultaneous chess exhibition. Noon, Fri, Jan 27. Sponsored by the MIT Chess Club. Rogoff, international master of chess, will play 30 players at once. Admission, \$1.50. Tickets & Info: Brad x5-8156 Dorm.

Social Events

Strat's Rat* - Fridays through IAP, 8:30pm-1am, Lobdell (2nd fl, Stu Ctr). Dancing, Live DJ. Beer & Wine: .35/glass, 3/\$1; wine available by bottle. College ID required. Free.

Young Socialist Party** - Mon, Jan 20, Burton Dining Hall, 9pm. Admis-

Faculty Club Special Dinners** - Prime Rib Nite, Tues, Jan 24. Glass of red wine, salad bar, dessert table, \$7.50 inc tax. RSVP x3-4896.

Movies

AIAA Aerospace Movie Series (1)** - Wed, Jan 18: Skylab - The First 40 Days, noon; A Man's Reach Should Exceed His Grasp, 12:30pm. Thur, Jan 19: The Second Manned Mission — A Scientific Harvest, noon; New View of Space, 12:30pm. Fri, Jan 20: Skylab - 4 Rooms, Earth View, noon; The Age Of Space Transportation, 12:30pm. Mon, Jan 23: The Mission of Apollo/Soyuz, noon; History of Flight — The Wright Brothers, Part 1, 12:30pm. Mon, Jan 24: America's Wings, noon; History of Flight The Wright Brothers, Part 2, 12:30pm. Wed, Jan 25; The Dream That Wouldn't Down, noon; History of Flight — The Wright Brothers, Part 3, 12:30pm. Thurs, Jan 26 Doorway to Tomorrow, Kennedy Space Center, noon; History of Flight — The Wright Brothers — Part 4, 12:30pm. Rm 35 - 225.

Feynman Lectures on Physics (284)** - Seeking New Laws, Wed, Jan 18, 1pm, Rm 26-100.

SAA Films/Art Classes (530)** — Wed, Jan 18, 5:15pm, This is Ben Shahn (17 minutes) Marc Chagall (26 minutes). Wed, Jan 25, 7:30pm, Daybooks of Edward Weston: Book I and II. Thur, Jan 26, 5:15pm, Blending of 2 Cultures (46 min), Buddhism, Man & Nature (14 min), Rm W20-429.

Fantastic Planet** - LSC Movie. Wed, Jan 18, 7 & 9:30pm, Rm 10-250. Admission 75¢ w/MIT or Wellesley ID.

ogy Films, Thur, Jan 19, 12-1:30pm Rm 8-105.

Oceanography (96)** - A Collection of Short Films Dealing With Oceanography, Thur, Jan 19, 2-4pm, Rm 54-425.

Dineh - The People (152)** - Native American Film Festival, Thur, Jan 19, 7:30pm, Rm 66-110.

What's Up Doc?** - LSC Movie. Fri, Jan 20, 7 & 9:30pm, Rm 26-100. Admission 75¢ w/MIT or Wellesley ID.

Lawrence of Arabia** - LSC Movie. Sat, Jan 21, 5:30 & 10pm, Rm 26-100. Admission 75¢ w/MIT or Wellesley ID.

Buster Keaton Festival** - LSC Movie. Sun, Jan 22, 7 & 9:30pm, Rm 10-250. Admission 75¢ w/MIT or Wellesley ID.

Key to the Universe (287)** - Tues, Jan 24, 10am-noon, Rm 10-250.

Ecology Films (608)** - Tues, Jan 24, noon-1:30pm, The Flooding River, Thur, Jan 26, noon-1:30pm, Is Your Drinking Water Safe? Rm 8-105.

Understanding China Movies (604)** - Tues, Jan 24, The Barefoot Doctors of Rural China, 7:30pm, Rm 4-270.

Bottle Babies - Malnutrition and the Multinational Corporation; The Role of Nestle's in Africa (602)** - Tues, Jan 24, 7:30pm, Rm 9-150.

Insights in Biochemistry** - Biology Films. Prof A. Rich & V. Ingram, biology, are among the participants. Wed, Jan 25: Amino Acids: Building Blocks of Proteins; Protein Structure & X-ray Crystallography. Noon-1:30pm, Rm 16-134.

Colossus: The Forbin Project** - LSC Movie. Wed, Jan 25, 7 & 9:30pm, Rm 10-250. Admission 75¢ w/MIT or Wellesley ID.

Charlie Chaplin - The Gold Rush* - Thur, Jan 26, Rm 6-120, 7 & 9pm. Admission \$1.00.

Broken Treaty at Battle Mountain (152)** - Native American Film Festival, Thurs, Jan 26, 7:30pm, Rm 66-110. Discussion Following.

The Twelve Chairs** - LSC Movie. Fri, Jan 27, 7 & 9:30pm, Rm 26-100. Admission 75¢ w/MIT or Wellesley ID.

Live and Let Die** - LSC Movie. Sat, Jan 28, 7 & 10pm, Rm 26-100. Admission 75¢ w/MIT or Wellesley ID.

Man of La Mancha** - LSC Movie. Sun, Jan 29, 7 & 10pm, Rm 26-100. Admission 75¢ w/MIT or Wellesley ID.

Music

Recital of Works For Viola D'Amore & Harpsichord, Viola & Piano* -Fri, Jan 20, 8pm, Kresge. Violist, Marcus Thompson; pianist, Seth Carlin, and harpsichordist, Maryse Carlin. Sponsored by MIT Music Section. Free.

Liederkreis, a Vocal Quartet of Distinguished Soloists Who Perform the Rarely Heard Vocal Chamber Repertoire of the Masters* - Liederkreis will sing lieder by Schubert and Brahms, songs by Rossini and Spanisches Liederspiel, Opus 74, by Schumann. Sat, Feb 4, 8pm. Free. Kresge

Exhibitions

Alice Atkinson Lyndon Italian Confrontations and Other Temples: A Sculptor's Notebook* - Sponsored by the MIT Committee on the Visual Arts. Exhibit on view, Sun, Jan 29, through Tues, Feb 28, Hayden Corridor Gallery. Public Preview, Fri, Jan 27, 8-10pm.

The Compton Years* — A photographic essay of the lives of Dr. & Mrs. Karl Taylor Compton. Thru Wed, Feb 8, Mon-Fri, 9am-5pm, Margaret Hutchinson Compton Gallery, Rm 10-150. Designed by Historical Collec-

Vaguely Photographic* — an exhibition of photographic work by five artists: Laura Blacklow, Martha Leinroth, Wendy Richmond, Ruth Schilling, Joel Slayton. Creative Photo Gallery (W31-310), through Thurs, Jan 26.

Merce Cunningham and Dance Company** - Sponsored by MIT Committee on the Visual Arts. Hayden Gallery, Sun, Jan 29-Fri, Feb 24. Public preview: Fri, Jan 27, 8-10pm. Gallery hours: Sun thru Fri, 10am-4pm.

Unfinished Works* — Music Library, Rm 14E-109. Examples of unfinished musical compositions from Bach to Bartok.

MIT Historical Collections* - Permanent exhibition Mon-Fri, 9am-5pm, Bldg N52. 2nd floor. Katharine Dexter McCormick, '04; Vannevar Bush, '16; and 1876 Exhibit, Bldg 4 corridor. The New Technology Exhibit 2nd floor balcony of Lobby 7. Energy Exhibit Bldg E40, 1st floor. Radiation Laboratory Exhibit main corridor, Bldg 8. Center for Space Research, Astrophysics Exhibit main corridor, Bldg 4. Bldg 6 Dedication Exhibit.

Strobe Alley* - High speed photographs by Harold E. Edgerton, Institute Professor and Professor of Electrical Measurement, Emeritus. Bldg 4, 4th fl.

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

Athletics

Home Schedule* — Wed, Jan 18: V Wrestling, Wesleyan, 7pm, Wrestling du Pont gym; M JV Basketball, Exeter, 4pm. Thur, Jan 19: W V Basketball, Eastern Nazarene 7pm, Rockwell Cage. Fri, Jan 20: M V Swimming, Boston College, 6pm; V Track, Lowell 5:30pm. Sat, Jan 21: M V Basketball, Bowdoin 8:15pm. M JV Basketball, Bowdoin, 6:15pm. M V Fencing, Dartmouth 2pm. du Pont Fencing Court. W V Fencing, Dartmouth 1pm. M V Gymnastics, Dartmouth 2pm. W V Gymnastics, 2pm, du Pont. Sat, Jan V Hockey, Maine, Ice Rink 7pm. V Squash, Stonybrook 2pm, V Wrestling, Amherst & Albany State 11am, du Pont Court. Mon, Jan 23: M V Basketball, 8:15pm. M JV Basketball, 6:15pm. Tues, Jan 24: V Hockey, 7pm. Wed, Jan 25: JV Hockey, Thayer Academy 3pm. Fri, Jan 27: M V Basketball, Ursinus College, 8:15pm. Sat, Jan 28: M V Basketball, Coast Guard, 6:15pm. M & W Gymnastics, Yale 2:30pm. V Hockey Plymouth State, 7pm. W V Swimming, Dartmouth, 2pm. V Track, Bowdoin, 1pm. V Wrestling, NY Maritime & Central Conn, 1:30pm.

Martial Arts Demonstration and Movies** — Various Martial Arts Films, Sat. Jan 21. 8pm-9pm, duPont Gym.

Theater and Show

Indonesian Shadow Puppet Play (578)** - Elisabeth Van Paradijs-Soenarjati, Wed, Jan 18, 8pm, Mezzanine Lng, Stu Ctr.

Who's a Lady?** - Gay Warner Memorial Lecture sponsored by MIT Women's Forum. Dramatic presentation performed and selected by Naomi Thornton & Annette Miller. Thurs, Jan 19, 5:30pm, Sala de Puerto Rico, Stu Ctr. Refreshments, 5pm.

Dance

Hatha Yoga** — Classes taught by E.I. Tuchinetz. Over 45 Beginners, Thurs, Jan 19, 10-11am; Intermediate, Tues, Jan 23, 5:45; Beginners, Tues, Jan 23, 7:05; Beginners Intermediate, Tues, Jan 24, 5:45. Bldg 10-

Ballroom Dancing (658)** - Andy Szilagyi, G. Regular meetings, Sun and Tues, 4-6pm, Burton Dining Hall. Introductory and Intermediate.

MIT Folk Dance Club - International: Sun, 7:30-11pm, Sala. Balkan: Tues, 7:30-11pm, Stu Ctr Rm 491. Informal: Fri, 12n-2pm, Kresge Oval (Bldg 7 Lobby in bad weather). Israeli: Wed, 7:30-11pm, Sala.

Hatha Yoga I (625)** - Cynthia Friedman, civil engineering. Tues, 11:30am, Rm 10-340.

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

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

***Open to members only

Send notices for Jan 25 through Feb 5 to Calendar Editor, Rm 7-102, x3-3270, before noon, Friday Jan 20.

CLASSIFIED X3-3270

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 Institute extension. Persons who have no extensions or who wish to list only home telephones may submit ads by coming in person to the *Tech Talk* office, Rm 7-102, and presenting Institute identification. Ads may be telephoned to x3-3270 or mailed to Rm 7-102. Deadline is noon Friday before publication.

For Sale, Etc.

Vivitar bellows w/adptrs for Nikon, used twice, lk nw, orig \$65, sell \$40. Steve x3-7220.

Pr 155-13 radial snows, exc cond \$39; pr F78-14 snows recap, gd cond \$16; set of weights, plastic coated Sears, \$16; lrg white, GE electric stove \$50 or best. Dick x3-7202.

Pro dráfting tbl/desk, white all metal 30x48" linoleum surface w/4 lock drws, v gd cond, nd space \$150. Call x3-6116.

Boat equip: Ray Jef radio direction finder, nw \$110; vector radio direct \$75, Raytheon depth finder \$40; Wilson Crittenbon alcohol stove \$70; Pearce Simpson ship to shore radio \$20. Call 738-

LR fur, all walnut, perfect cond. Jay x5315 Linc.

Wool Karastan rug 3x5 dk gold geo desgn, ex cond, barely used, orig \$45, now \$20; Lightoner high intensity desk lamp compact, contemp desgn, matte blck finish, lk nw, orig \$30, now \$15. Call x2577

Theloes brkts for books: K wall cabs \$15-\$30: Xcountry boots, sz 5-6 \$10; 2 Volvo snows \$7.50 ea; 3 Volvo tires \$5 ea; Hockey game tbl \$10; Creat Playthings build blocks, ½ price; DR wl lamp \$15; ceiling fixture kit \$5, call x3-6085.

Dual 1218 trntbl, base, dustcvr & cartrdg \$75. Call 275-0550 evgs

Delta snows, used once, E78-14, Muriel x3-6065. Compact B/W TV, VHF, UHF, gd cond \$45. JK

Acoustic guitar, Yamaha FG-160 w/ case, mint, best. Dave x3-1637.

Insulation, 10 rolls, 6"x15"x32', fiber glass, foil faced, \$10 ea, Tom x3-2027.

X-country skis C 150 cm \$20; X-country shoes sz 35 & 37, \$15 ea, Jake x478 Draper.

TV, Philco 19" color, nds work. \$45. Pat x3-3329. Conn trumpet, gd cond, ask \$50, Jean x5-8256.

Pr Ohm C spkrs, \$150. Mike x3-7010. SLR 35 mm camera, Zeiss Icarex 35S TM, Tessar lens, perf cond, \$180, Juan 494-8347 aft 6pm.

Canon GIII 35mm, range finder camera w/case & skylite filter, ex cond, \$60. Call x5-7263.

Lv country must sell: full sz matt + box spring, gd

cond, new \$175, now \$85. Call 494-8864.

Nikon Nikkor-S 50mm fl.4 lens, gd cond, \$100; Akai CS-30 stero csstt rcrd w/pr of SW-35 spkrs, \$256 new. Lk new, \$200. Dave Schaller x3-1541, lv msg.

W skates, lk new, sz 41/2. Prem x3-1811.

Fender Rhodes elect Piano; Leslie, mod #16 headless speaker, best offer. Caroline x3-7799.

BSR McDonald 510 trntbl, rarely used, best. Call

GE Deluxe Toast-R-Oven, lk nw, \$20. Warren, x3-

Pr 13" recap snows, \$15; 14" Chevy wheels \$8 ea. Lee x485 Linc.

Welders 4" angle disc grider Makita mod 9501, br door prz, worth \$100, yours for \$69. Rudy

x7214 Line

Royal Danish (5) 4-pc plc settings internl sterl silv, worth \$164 ea, ask \$120. Call 261-2442 eves. W Dolomite ski boots, br new, sz 7 med, \$20 or

Pr tires 6 15/13, slightly used, \$10 ea or best. Chris

Southwest Tech strobelite, exc cond, \$15; pwr supply, 0-35V in 2 ranges w/limiting, 0-2A w/limit, exc cond \$35 or best. Matt 492-4885, lv msg.

Fisher superglass skis RSL 200 cm, hook bindgs, lg pro boots, poles, 15 days use, best. Dave x3-1637. Tires (4) F7814, nw, rims, \$20. John x3-4956.

Folio, black vinyl, fold insd w/check book. Michael

Linton Oboe, perf for student, yr old, exc cond w/ sturdy case \$250. Call 661-8440.

Soligor 70-210mm macro zoom lns & warranty card Konica, barely used, \$200 or nego, Buzz x5-

Vehicles

'56 Buick Special 2 dr, hd top, pwr st & brks, pwr seats, factory A/C, exc shape, best. Call 254-3877. 64 Chevy sch bus, RV, 12K on nw eng, nw trs, grt bdy. \$1,950 or trade. John 235-6579

'67 BMW 1600 runs wl, nds work, \$300 or best. Call

'69 Firebird, V-8, auto, pw br & st, runs wl, exc body, 101K, \$650. x7434 Linc.

'69 Intl Scout, 4 wh drv, dual range, 3 sp manual, V8, runs well, \$1200; also '73 Intl Scout, same specs, \$2500. Ron x2818 Draper.

'70 Buick wagon, A/C, pwr st & br, roofrck, red, exc cond, \$900 or best. Call 861-9027.

'70 Toyota Corolla wagon, lv country, must sell, 60K, gd running cond, \$400, Call 494-8864.

'72 Vega hatchbk, 4 sp, 53K, \$600 or best. 729-9397. '73 Ply Fury III, auto, pw st & brks, exc body & mech cond, \$1,300. Call 494-8877,

'73 Chevy Malibu wagon, AM/FM, lug rack, ex

cond, \$1,500. Bill x7971.

'74 Audi 100LS, 4 dr, 4 spd, A/C, AM/FM, exc running, rec tuned, ask \$2,650. Call x3-2772.

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Employees at the Institute should continue to contact their Personnel Officers to apply for positions for which they feel they qualify.

'75 Saab 99LE, auto, air, AM/FM Stero, pw st, 50K, 25 mpg avg, velour int, great handlg & ride qual. \$4,500 firm, x8-1394.

Mercedes 250 S, blue, gd body, whls, doesn't run, nds new head, \$1,500 or best. June x5-8643.

Burl, 2 BR apt in priv home, park, separate entr, all util, avail Feb 1, \$250/mo. Eric x476 Linc.

Jam Pl, furn rm in priv home, quiet, ww, off-st park, T, \$25 week. Nancy x3-7649.

Orange tiger kitten, cute, affec, nds gd home. Pete x1656 Draper.

Siamese cat, free, because of allergy, v frndly. Gail

Watch, Camy auto w/ golden chain. Amer x5-9610

Found: wool knit scarf, Albany St Garage. Camile

Will swap 2 tickets A Chorus Line, 1st bal seats, Sat mat, Feb 4 for sim any eve. Charlotte x3-3529.

Ceramic tile, any cond, incl broken. Jim x3-2180. 4 tickets to A Chorus Line, any day. Celia x3-4737.

Pr lg Advent spkrs, prefer walnut cab. Call 247-

Find out your own tolerance for milk. Partcpt

nutrition study, simple, fun & interst, will pay. For info: Marianne Unger x3-3101, eves x5-8445.

Inexpensive super 8 XL movie camera, like Kodak XL 330 or sim. Call 494-8845.

Loft or enormous rm w/ K & B. Refer avail. Call

Unimat mini lathe & attachmts, used. Karen x8-

Rug green, blue or gold, reas price 6x8 or lgr.

Need ride from Sloan to Brk Coolidge Corner, 5pm

Malden, nd ride 9am-5pm will help w/expenses. Beany x3-7742.

Cambridge, near Central Sq, rmmt for coop household, \$74/mo + util. Call 667-8447.

Lex, W & 4 yr old need rmmt, 3 BR house, \$175/mo

Burl, M 24 sks rmmt for 2 BR apt by 128 near 93, \$180/mo + util. Ed x7328 Draper.

Camb, near Porter Sq, rm in larg Coop house, share meals & chores \$125+\$25 util max, avail now. Rich x8-4954 Draper.

F 21+ to find, shr 2BR apt in Arl or Camb, Fresh Pond, Rte 2 area. Carol, x7491 Linc.

Winch house to share, laundry, park, \$130 + util.

Nr Central Sq. 10 min walk to MIT, rmmt need to share 3 BR apt, \$95 inc util. Rajan, 492-8943 eves.

Som apt, v nice, share w/3 grads, T, \$62.50/ mo + heat. Steve x3-7268.

Someone to drop a thesis in the Berkeley mails from Jan 28-31. Brian x3-5220.

Knowledge in market value of SS plate coll: 1973/4

Audubon Bird Series (Frank Mint); 1973-present Bicentennial Series (Danbury Mint). Lee x485

Fiber-Optic Borescope, Bausch & Lomb, nw: make offer of cash or research instruments or tools in exchg. David x3-5121.

Heating, air cond, ventilation, insulation work to be done, Arthur Dubois, 891-7499 aft 4:30pm.

Will type theses, resumes, manuscripts, reports, IBM Selectric. Carol x3-4153.

Will type theses, resumes, accurate, IBM correct selec, Susan x3-4701.

Will type manus, theses, resumes, fast & accurate,

correct selec. Debby x1848.

Will do typing, manus, theses, resumes effic, IBM correct selec. Lisa x3-7106.

Miscellaneous

util, nego. Call 862-4295 aft 6pm.

Inswich, seek ride to MIT. Dorothy x3-3604.

Refrig w/ freezer compart. Finely x5-6141.

Refrig 5 cu ft or more, Michael x5-6194.

Piano, upright or spinet. Dave x3-7319.

Lost and Found

Housing

Animals

Wanted

Rosalie x3-6867.

Carpools

Mon-Fri. Marilyn x3-1549.

Roommates

Ross 729-0619.

Pat Williams Carolyn Scheer (Secretary — 7 3-1595 - Tertin Perkins)

Virginia Bishop Ken Hewitt (Secretary — Paulette Chiles) 3-4267

Sally Hansen 3-4275 Lewis Redding Richard Cerrato 3-2928 3-4269 (Secretary — Jenni Leibman)

Technical Asst. in the Biology Dept. to become involved in the isolation and physical characterization of key components of the blood coagulation systems, and studies of the molecular mechanisms by which components interact in fulfilling their physiological roles. A B.S. or B.A. in physical chemistry, or, secondarily, biochemistry, and good laboratory skills required. C78-2 (1/18).

accuaemic Staff, Technical Asst., part-time, in the Biology Dept. to perform isolation and detailed biochemical analysis of chromosomes using various centrifugation and electrophoretic methods. Specific techniques include polyacrylamide gel electrophoresis of DNA and proteins (one and two dimensional). B.S. on M.S. in biochemical and the statement of the statem good laboratory skills required. Half-time app ment. C78-3 (1/18).

Sponsored Research Staff in the Research Lab of Electronics to research the development of technigues for fabricating submicrometer structures.
Will collaborate with faculty, staff and students on application of submicrometer structures in microelectronics, integrated optics, x-ray lenses, liquid-crystal alignment, radiation detectors, thin film growth and superconducting devices. Ph.D. in physics, electrical engineering, materials science or equivalent in applicable experience required. R78-

knowledge of at least some of the following: LOGO, PASCAL, LISP, compiler design, high level language interpreter design, operating systems. (6-8 months) R78-6 (1/18).

Sponsored Research Staff, Medical Technologist, in the Laboratory for Animal Medicine to perform laboratory tests in hematology, chemistry, bacteriology, urinalysis and serology. Will set-up, read and report results of bacteriological cultures; spin down blood, and perform related tasks as necessary. Bachelor's degree in medical technology or a related field, or college-level course work with or a related field, or college-level course work with some professional experience in medical technology required. Applicants must be currently registered as, or eligible for registration as, a medical technologist, or have passed an equivalency exam for medical technologists. R78-4 (1/18).

Academic Staff, Technical Instructor, in Mechanical Engineering to teach drafting including orthographic projections, dimensioning and tolerancing, technical illustration; assist in undergraduate and graduate design courses; maintain design library; prepare illustrations for publications; assist students and faculty with design projects. Applicants must have minimum of 2 years post secondary education and an excellent knowledge of drafting techniques and practice. In-

will have responsibility for Institute's purchasing policies and procedures for the operation of the General Purchasing Office and the Office of Laboratory Supplies, and for general coordination of Institute warehousing and materials handling operations. Specific duties will include negotiating operations. Specific duties will include negotiating major purchases with private vendors or with government agencies for surplus acquisition, and developing programs to achieve affirmative action goals in purchasing areas. Applicants should have a Bachelor's degree, preferably in science or engineering, or the equivalent combination of education and experience. Extensive experience in purchasing, including inventory control, receiving and shipping, warehousing and accounting practice also necessary. An MBA is desirable. A78-1 (1/11).

Academic Staff, Technical Instructor, in the Biology Department Electron Microscope Facility will coordinate all aspects of Facility operation; instruct students and laboratory personnel in of a sparse preparation and in use of electron microscopes. Position requires a minimum of a Bachelor's degree in Biology plus at least 5 years experience in the field of biological research with substantial emphasis on microscopy. Experience in preparation of cell and tissue samples for electron microscopy, fixation, embedding and ultra thin sectioning, EM radiography and histological staining is important. Position begins

Bachelor's degr bactiers a egree in Josses admissistation the latter field preferred. Minimum of 2 years experience preferably in a hospital or related medical facility required. Organizational skills and ability to deal effectively with people also required. E78-1 (1/18).

hearing tests with emphasis on pure tones and speech discrimination; maintain records; par-ticipate occasionally in hearing conservation studies. Bachelor's degree in Audiology required. Experience preferred but not required. 10 hrs./wk E78-2 (1/18).

order supplies and equipment; maintain grade and registration records; advise students on registra tion and progress to degrees. Good office organizational ability and ability to work wit stant interruptions required. B78-20 (1/18).

Secretary IV part-time in the Nutrition and Food Science Dept. to prepare manuscripts for publica-tion; prepare department newsletter; type manuscripts, tables and scientific material. High school graduation with some secretarial background and two years experience required. Good typing skill also required. 20 hrs./wk. B77-761 (1/4).

Materials Science and Engineering Dept. schedule appointments, classes and seminars; arrange travel; prepare class work; maintain files; type and edit correspondence, papers, manuscripts m hand written draft and machine dictation. Will also independently respond to inquiries; prepare reports; assist visitors and researchers with schedules, reports and procedures. Typing skill required. Technical typ-ing skill preferred. B78-19 (1/18).

Secretary IV in the New Office to handle general retarial duties: maintain biweekly payroll; nitor accounts; process bills; handle purchasing and petty cash; file; type. Strong typing skills and organizational ability required. 37.5 hrs./wk. B78-

Secretary IV to perform general secretarial duties for Civil Engineering Division Head and research

staff: type manuscripts, class materials; maintain budget records and process related materials; arrange large meetings and seminars; supervise temporary clerical employees; perform a variety of related duties as necessary. Position includes a large volume of telephone contact, and interaction with students, faculty and visitors. At least 3 years secretarial, spraintenance, or an equivalent combinasecretarial experience, or an equivalent com tion of formal training and experience required. MIT experience desirable. B78-4 (1/11).

Secretary IV to two staff members in the Admissions Office to type correspondence; answer telephones; schedule meetings and appointments; arrange travel; maintain files. Will also share nist work and assist with special protect typing skill and command of E Excellent typing skill and command of English language, as well as organizational ability re-quired. Secretarial experience also required. Knowledge of MIT desirable. Non smoking office. B78-8 (1/11).

Secretary IV to a faculty member in the Biology Dept. to type correspondence, technical reports, proposals; monitor accounts; maintain files; ar-range travel; order supplies. Excellent typing skill, facility with figures, good telephone manner and organizational ability required. Minimum of 5 years experience, technical typing skill and MIT experience preferred. B78-9 (1/11).

Secretary III/IV in the Office of Sponsored Programs to perform secretarial duties for 2 administrators. Will also perform clerical duties as necessary. High school graduation, or equivalent, with 3 and a second program of the second duties as necessary. with 3 years experience, or formal education with 1 year of experience required. Good typing skills es-sential. MIT experience helpful. B78-12 (1/18).

Secretary III/IV in Urban Studies and Planning to type manuscripts, correspondence and reports; maintain files and records; schedule appointments; arrange travel; handle mail. Occasi ments; arrange travel; handle mail. Occasionally help with Dept. typing and telephones. Excellent typing skill, good English grammar, ability to com-pose letters and ability to type from recorded disk or tape required. Prior secretarial experience also required. Shorthand an asset. B78-25 (1/18).

Secretary III/IV to a research group in the Electrical Engineering and Computer Science Dept. to type course material, proposals, reports including technical material; arrange travel; schedule meetings; perform general secretarial duties. Technical typing skill and shorthand or machine transcription skill required. B78-7 (1/11).

Secretary III-IV, part-time in the Office of the Dean for Student Affairs/Preprofessional Office to perform various duties related to the administration of Talbot House: handle reservations; make up schedules; handle publicity; supervise house staff; follow-up payroll; pay bills; maintain supplies and numbers orders; budget and fund acceptable and payroles are orders; budget and fund acceptable and payroles are orders; budget and fund acceptable and payroles are orders. plies and purchase orders; budget and fund ac-counts. Will also be responsible for maintenance of catalogues; maintain mailing lists; assist in report preparation. Familiarity with accounting and ad-ministration of funds necessary. 17.5 hrs./wk. B77-

Secretary III in the Student Office of the Nutrition Secretary III in the Student Office of the Nutrition and Food Science Dept. to type; xerox; file; answer telephone; answer inquiries in person, on the telephone and through written correspondence. Typing skills required. High School graduation also required. B78-17 (1/18).

Secretary/Receptionist III in the Nuclear Reactor Laboratory, operations office, to type reports, cor-respondence, purchase orders and bills; make travel arrangements; answer phones; greet visitors; provide information and referral services; sort and distribute mail; provide back-up secretarial service to department headquarters office. High school graduation, or equivalent, good typing skill and graduation, or equivalent, good typing skill and one year serretarial experience required. Good organizational ability and telephone manner also essary. B78-22 (1/18).

EDP Project Development Librarian V in Administrative Computing Services to provide documentation support to new business project development teams in the design, development development teams in the design, development and implementation of computer systems for the Institute: gather, organize, up-date and maintain all development documentation created by analysts and programmers; assist in testing and compiling program code, flow charts and data element listing via batch or remote terminal facilities. Will also assist in developing and use programmer, operations and user manuals. Experience with EDP operation or programming, (COBOL and/or PL 1) required. Knowledge of MIT preferred. 40 hrs./wk. B78-5 (1/11).

Sr. Library Asst. IV in the Barker Engineering Library to assist in the acquisition of new library materials; check publishers' brochures and ads materials; check publishers' brochures and ads against the card catalogues; type order forms; act as liaison between Collections Department and the Engineering Library; maintain files; perform other-related tasks as required. Previous library experience (preferably bibliographic) required as well as accurate typing ability, organizational skill and ability to work well under pressure. Knowledge of a foreign language (German, Russian o Japanese) helpful. B78-21 (1/18).

Accounting Asst. V in the Comptroller's Benefit Accounting Office to perform several functions related to health care insurance: communicate with Blue Cross/Blue Shield and MIT Health plan offices; verify retirement estimates and termination on retirement plan; prepare various reports. Will also reconcile monthly pension update; post journal entries, cash transactions and general ledger entries; perform monthly trial balances; prepare bi-annual closing schedules. Typing skill, accounting knowledge, accuracy with figures required. Familiarity with computer input and output desirable. B78-13 (1/18).

Sr. Clerk IV in the Admissions Office to process college transfer applications; handle mail in-quiries; answer questions regarding credits, quiries; answer questions regarding credits, evaluations and equivalents; prepare statistical reports. Excellent typing skill and ability to handle detail required. Ability to work well with faculty and students necessary. College background help-ful. B78-14 (1/18).

Clerk-Secretary III/IV in the Center for Cancer Research to prepare invoices; post information from various sources; file; check statements against orders; prepare reports; analyze expen-ditures and commitments. Will also type letters, grants and manuscripts: answer ph records on research grants; order supplies and keep record of pruchase orders. Good typing skill, facility with figures, organizational skill required. Familiarity with chemical and biological terms helpful as well as familiarity with MIT accounting procedures. 40 hrs./wk. B78-2 (1/18).

Clerk III, part-time, in the Laboratory Animal Medicine to perform general clerical duties: type; file; answer telephone; process invoices; prepare billing statements. Typing skill required. Business school training preferred. Book-keeping experience helpful. 20 hrs./wk. B78-16 (1/18). Hourly, Technician C (E-M) in the Energy

Laboratory to perform electromechanical as-sembly, checkout and maintenance work on gas turbine test facilities. Position requires graduation from a 2 year day technical school, or its equivalent in applicable experience, as well as ability in light pipe-fitting, welding and brazing, machining and fabrication, soldering, cable fabrication, as well as basic electronic and instrument hookup ability. 40 hrs./wk. H77-202 (1/18).

Hourly, Electrical Design Drafter in the Physical Plant to prepare new working drawings including field studies and measurements; maintain file of electric system drawings. Must have fundamental technical training and understanding of basic con-trol systems and use of one-line and schematic diagrams. Lay out drafting experience required, as well as some experience with underground primary voltage system and industrial type wiring system A minimum of H77-198 (1/18). um of 5 years experience is nece

Hourly, Technician A, in the National Magnet Laboratory to contruct, test and operate complex, heavy power equipment for the Alcator C ther-monuclear research machine; install large silicon monutear research materials in age smoot controlled rectifier power supplies, high current bus bars, switches, relays and monitoring instruments; set-up and use measuring equipment, including oscilloscopes and high voltage test equipment. Applicants must be graduates of 2 years day testing the property of the propert technical school, or equivalent, and have 2 years of applicable experience. Knowledge of heavy power equipment and control wiring also necessary as well as ability to use common machine and hand tools. H77-201 (1/11).

The following positions were still abailable at Tech Talk deadline. The date following each position is the date of the most recent Tech Talk issue in which the position was described.

ADMINISTRATIVE STAFF:

Systems Programmer, Info. Processing Serv. (2/16) A77-15, Director, MIT Alumni Fund (4/13)

A77-15, Director, M11 Atumn Fund (4/13) A77-62, Industrial Liaison Officer, Inf. Liaison Off. (12/14) A77-73, Sr. Appl. Analyst, Off. of Facilities Mngm't. Syst. (11/16) A77-76, Dir. of Patent Marketing, Vice Pres. for

Res. Off. (11/9) A77-79, Applications Prog., Info. Proc. Serv

A77-80, Manager, Info. Proc. Serv. (12/14) A77-82, Associate Director, Sloan School (12/14) A77-83, Dir. of Personnel Relations, Personnel

Relations (12/14)

A77-84, Admissions Officer, Admissions Off. (12/14) A77-86, Systems Prog. II, Info. Proc. Serv. (1/11)

A77-89, Proj. Architect, Phys. Plant (1/11) A77-91, Sr. Prog. Analyst, Info. Proc. Serv. A77-92, Editor/Writer, News Office (1/11)

BIWEEKLY:

IWEEKLY:
B77-399, Sec. IV, Energy Lab. (11/30)
B77-518, Sec. III-IV, Mech. Eng. (10/5)
B77-590, Sec. IV, Hlth. Sci. & Tech. Div. (1/4)
B77-611, Sec. IV, Elec. Systems Lab. (11/2)
B77-647, Sec. IV, Treasurer of the Corp. (11/16)
B77-665, Sec. IV, Chemical Eng. (11/16)
B77-667, Clk./Typist III, Resource Planning

B77-671, Admin. Asst. V. National Magnet Lab

B77-671, Admin. Asst. V, National Magnet Lab. (12/7)
B77-672, Sec. IV, Nutrition & Food Sci. (12/7)
B77-673, Sec. IV, Nutrition & Food Sci. (12/7)
B77-684, Sec. IV, Nutrition & Food Sci. (12/7)
B77-684, Sec. IV, Nutrition & Food Sci. (12/7)
B77-688, Sr. Clk. V, Account Rep., Computing

(12/7)B77-696, Sec. IV, Personnel Office (12/7) B77-704, Comp. Oper. III-IV, Info. Proc. Serv

(12/14)B77-705, Comp. Oper. III-IV, Info. Proc. Serv (12/14)

B77-708, Sec. IV, Architecture Dept. (12/14) B77-710, Sr. Clk. III, Comptroller's Acc

12/14)
 B77-711, Sec. III-IV, Info. Center, (12/14)
 B77-712, Tech. Asst. V, Alumni Assoc. (12/14)
 B77-713, Sec. IV, Economics Dept. (12/14)
 B77-716, Accounting Asst. V, Comptroller's Asst. V, Comptroller's Accounti

ctg. 0ff. (12/14) B77-719, Accounting Clk. III, Biology (12/14) B77-720, Sec. IV-V, Off. of the Pres. (12/14) B77-721, Tech. Asst. IV, Ctr. for Advanced Eng. Study (1/4)

B77-728, Sec. IV, Alumni Assoc. (1/4) B77-728, Admin. Asst. V, Child Care Off. (1/4) B77-729, Sec. IV, Earth & Planetary Sci. (1/4) B77-730, Sec. III, Architecture Dept. (1/4) B77-731, Account Rep. V, Info. Proc. Serv. (1/4) B77-733, Sec. IV, Political Sci. (1/4)

B77-737, Sec. IV, Ctr. for Trans. Studies (1/11) B77-740, Sr. Clk. III, Comptroller's Acctg. (1/11) B77-741, Tech. Typist III-IV Elec. Syst. Lab.

(1/11)B77-742, Sec. III, Admin. Comp. Serv. (1/11) B77-743, Sec. IV, Earth & Planetary Sci. (1/11) B77-744, Sec. IV, Civil Eng. (1/11) B77-749, Sec. IV, Political Sci. (1/11) B77-749, Clk. Messenger II-III, Energy Lab.

B77-752, Admin. Asst. V, Tech. Adaptation

Prog. (1/11) B77-753, 8 rog. (1/11) B77.-753, Sec. IV, Tech. Adaptation Prog. (1/11) B77.-754, Sec. IV, Ocean Eng. (1/11) B77.-755, Sec. IV, Earth & Planetary Sci. (1/11) B77.-766, Sr. Clk. III, MIT Press. (1/11)

B77-768, Sec. IV, Sloan School (1..11) B77-770, Sec. III-IV, Lab. for Comp. Sci. (1/11) B77-771, Sec./Receptionist III, Graphic Arts

(1/11) B77-772, Sec. IV, Provost's Office (1/11)

ACADEMIC STAFF:

C77-23, Mngr. of Fianncial Serv., Medical Dept. (5/25) C77-36, Social Worker, Medical Dept. (10/5) C77-43, Processing Librarian, Barker Eng. Lib.

(10/26)C77-45, Tech. Asst., Nut. & Food Sci. (12/7) C77-46, Tech. Inst., Aero/Astro. (1/11)

E77-44. Admin. Asst., Nuclear Reactor Lab (1/4)E77-46, Admin. Asst., Comptroller's Acctg. Off.

(10/19) E77-47, Eng. Asst., Aero/Astro. Dept. (10/19) E77-54, Eng. Asst., Ctr. for Mat. Sci. (12/14) E77-56, Estimator/Scheduler, Physical Plant

HOURLY: H77-89, HVAC Designer/Draftperson, Physical Plant (10/5)

H77-137, Tech. National Magnet Lab. (9/14) H77-170, Waiter/Waitress, Endicott House

H77-176, Mech. B, Energy Lab. (11/30) H77-195, Drafter, Physical Plant (1/4)

SPONS. RES. STAFF: R77-51, Figh Energy 1 hysics Sea, Accelerator (3/9) R77-51, Sr. Res. Eng., Energy Lab. (3/22) R77-53, postdoc. res., Physics, Res. of Elec. (4/6) R77-73, Plasma Physicist, National Magnet

Lab. (4/27) Plasma Physicist, National Magnet

R77-79, postdoc. res., Physics, Lab. for Nuclean

R77-80, postdoc. res., Physics, Lab. for Nuclear

cr. (5/4) R77-91, Sr. Accelerator Physicist, Lab. for uclear Sci. (5/18) R77-93, Design Engineer, National Magnet Lab.

R77-94, Design Engineer, National Magnet Lab (11/9) R77-95, Biophysicist, National Magnet Lab.

R77-97, Chemical Eng., Energy Lab. (6/1) R77-105, Managing Dir., Energy Lab. (6/22) R77-112, Spons. Res. Staff, National Magnet

Lab. (6/22) R77-137, Spons. Res. Staff, Bates Linear Accelerator (8/31)

R77-139, Programmer, Res. Lab. of Elec. (8/31) R77-150, Spons. Res. Staff, Res. Lab. of Elec.

R77-153, Reactor Util. And Elec. Sup., Nuc.

Reactor Lab. (9/7) R77-161, Elec. Engineer, Mech. Eng. (9/7) R77-170, Combustion Engineer, Energy Lab. (9/28)

R77-189, Experimental Physicist, National

R77-189, Experimental Physics and Manget Lab. (10/26) Manget Lab. (10/26) R77-192, Comp. Lanaguage Devel., Lab. for Comp. Sci. (10/26) R77-196, Computer Prog., Lab. of Architecture & Planning (10/26) R77-201, Prog./Data Analyst, Earth & Planetary Sci. (11/9)

POSITIONS

IBM

This list includes all non-academic jobs currently available on the MIT campus. Duplicate lists are posted on the Women's Kiosk in Building 7, outside the offices of the Special Assistant for Women and Work (10-215) and Minority Affairs (10-211), and in the Personnel Office, (E19-239).

AVAILABLE

Personnel Interviewers will refer any qualified applications on all biweekly jobs as after, their receipt in Personnel. Persons who are NOT MIT employees should call

the Personnel Office on extension 3-4251. Information on openings at Lincoln Laborato (Lexington, Ma.) is available in the Personn

proposals and reports fro

Academic Staff, Technical Asst., part-time, in the ional). B.S. or M.S. in biochemistry and

Sponsored Research Staff, Programmer, temporary, in the Division for Study and Research in Education to implement the language LOGO in PASCAL for the TI 990 series of computers. Bachelor's degree in computer science or mathematics desirable. Must have experience or hearth earth of the low-inc. LOGO

dustrial design experience preferred. Position is for academic year (Sept.-May). C78-1 (1/11). Admin. Staff, Director of Purchasing and Stores,

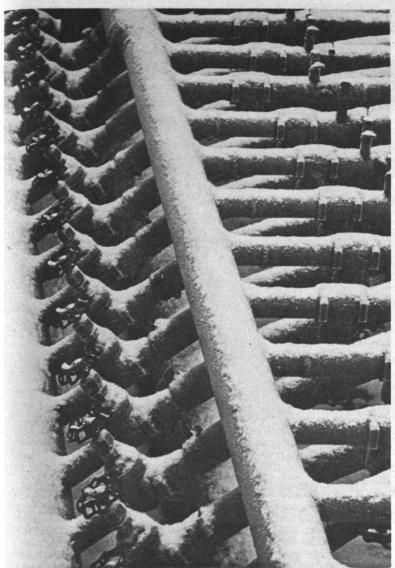
biological sample preparation and in use of 3/1/78. C77-47 (1/11).

Exempt, Unit Coordinator, in the Medical Dept.'s Exempt, Unit Coordinator, in the Medical Dept.'s Infirmary to coordinate and manage ad-ministrative functions. Will be responsible for purchasing; petty cash fund; telecommunications systems; telephone listing preparation; statistical records; billing; liaison with various Depts. in business administration or

Exempt, Audiologist, part-time, in the Medical Dept.'s Ear, Nose and Throat Clinic to administer

Secretary V in the Economics Dept. to perform general secretarial skills: schedule appointments; arrange travel; file; type correspondence. Will also answer questions in person and over the telephone;

Secretary IV to work with 2 faculty members in the



Valves regulating refrigeration of the ice rink surface make an interesting pattern when dusted with fresh snow. -Photo by Calvin Campbell

Regulations May Curtail Power, Rasmussen Warns

An MIT engineer has warned that the nation may become dangerously short of electric power-generating capacity by 1984 if present practices used to regulate and license the power industry are continued.

"If we are short of electric generating power by then," Pro-fessor Norman C. Rasmussen, head of the Department of Nuclear Engineering, said, "the result will be a crash program to replace the. capacity. The danger in that is that safety and concern for the environment may be forgotten in a crash program.

He spoke January 10 at the first of a series of lectures arranged by the department for MIT's betweensemesters Independent Activities Period. The lectures honor the

R77-209, Res. Scientist, Energy Lab. (11/30)
R77-210, postdoc. res., Plasma Physics, Res.
Lab. of Elec. (12/7)
R77-211, Spons. Res. Staff, Comp. Syst. Design,
Lab. for Comp. Sci. (12/7)
R77-212, Spons. Res. Staff, Prog. Lang. Design,
Lab. for Comp. Sci. (12/7)
R77-213, Spons. Res. Staff, Comp. Software
Design, Lab. for Comp. Sci. (12/7)
R77-221, Neurochemist Res., Earth &
Planetary Sci. (12/14)
R77-221, Neurochemist Res., Nutrition & Food
Sci. (12/14)

R77-227, Plasma Physicist, Res. Lab. of Elec. (1/4) R77-228, Plasma Physicist, Res. Lab. of Elec.

(1/4) R77-230, Computer Syst. Designer, Lab. for Comp. Sci. (1/11)
R77-231, Computer Syst. Designer, Lab. for Comp. Sci. (1/11)
R77-235, Programmer, Earth & Planetary Sci.

The following positions are on HOLD pending final

decision: B77-712 Tech. Asst. IV Lib. Asst. IV B77-764 Spons. Res. Staff Spons. Res. Staff Sec. IV Admin. Staff R77-218 B77-517 A77-72 A77-57 H77-196 Acad. Staff Patrolman H77-197 Patrolman Sr. Clk. Lib. Asst. Sec. IV Clerk B77-745 B77-610 Acctg. Clk. B77-697

The following positions have been FILLED since the last issue of TECH TALK: E77-59 Exempt Exempt Sec. V Sec. IV Sec. IV Sec, IV E77-63 B77679 B77-748 B77-717 Sec. IV Sr. Clk. III Spons. Res. Staff Acad. Staff Tech. Asst. Sec. IV Comp. Oper. III Sec. III Editorial Sec. V Lib. Asst R77-214 C77-29 C77-44 B77-736 Staff B77-703 B77-760 B77-727 B77-745 Lib. Asst. Clk. III B78-3 B77-517 Sec. IV Tech. C Sec. IV Sec. IV H77-186 B77-738 B77-739

widely respected nuclear engineer Irving Kaplan who will retire in June as a full-time professor in the MIT Department of Nuclear Engineering.

Professor Rasmussen said the use of electricity grew by 6.3 per cent in 1976 and by 6.5 per cent in

"This implies that before 1985 we will need about 200 more 1,000-megawatt plants, either coal or nuclear, which will cost about \$220 billion.

"Based on this nation's historic capital formation rate of \$400 billion a year, we've got the money. Those who argue against nuclear power plants as being too costly are wrong. The capital is

But whether those who control the capital will be willing to lend it, is a serious question, Professor Rasmussen said. Lenders appear to be growing more reluctant to fund power plant projects because of an aura of uncertainty and difficulty with the process of licensing plant construction and regulating the industry, he said.

As an example of the uncertainty, Professor Rasmussen said a Massachusetts utility company is required to obtain 14 permits-five federal, six state and three local-in order to build the cooling system for a power plant.

For an entire plant 40 to 50 such licensing procedures are required, stretching out the time it takes to bring a plant on line to 121/2 years, he said.

"That's 121/2 years from the date the company commits itself to the project and only six of those years are required for actual construction," he said.

"I believe the pendulum has swung too far in regulation and licensing and has done so at the expense of the public," Professor Rasmussen said.

Also speaking at the lecture was Dr. Herbert Kouts, chairman of the Brookhaven National Laboratory's Department of Nuclear Engineering.

The future of nuclear power, he said, can be summed up by the question: Can we do without it now? "The answer is absolutely no. The commitment to nuclear power in much of the world is largely a commitment to an industrialized society, since the rest of the world has no alternative to nuclear energy.'

Ensemble Plans 'Love's Labor's Lost' Tour

The MIT Shakespeare Ensemble will stage its production of Shakespeare's early comedy, Love's Labor's Lost, at a halfdozen major sites between New York and Washington, DC, during a 12-day tour beginning on January

The Ensemble will also give scene performances at three high schools in Madison, NJ, Philadelphia, Penn., and New York City.

Twenty-two people will make the tour, including 16 actors, five crew members and Ensemble director Murray Biggs. Of these, 18 are MIT students, one is a Wellesley College student, and two are MIT alumni who are working at the Institute.

The Ensemble will present Love's Labor's Lost at Bowne Theatre, Drew University, Madison, NJ, on January 19; Theatre Intime, Princeton University, Princeton, NJ, on January 20; Annenberg School Theatre, Uni-

Foreign Language **Exchange Offered**

The MIT Wives' Group has compiled a list of international women interested in exchanging foreign language conversation for English conversation with members of the MIT community.

The new exchange program offers the opportunity to converse in more than a half-dozen languages with native speakers. Conversation in Italian, Japanese, German, Portuguese, Farsi and Chinese are among those avail-

Participants should have some fluency in the foreign language they choose and be willing to exchange instruction as well as conversation. For further information contact Karen Devine, x3-2916.

The Wives' Group was organized five years ago by the MIT Medical Department as one means of helping newcomers familiarize themselves with the resources available at MIT and become acquainted with others in the MIT community who share their interests. The Group is composed of wives of American and foreign students, staff, faculty and visiting scien-

Forum Sponsors Cultural Series

Women in the Cultural Professions (No. 612), an IAP activity sponsored by the MIT Women's Forum, will begin Monday, Jan. 23, with a talk on women mystery fiction writers from noon-1pm in the Bush Room (10-105).

The Seminar, co-sponsored by the MIT Libraries, will be led by Kathleen Maio, a member of the Libraries staff. All members of the community are welcome to attend.

Ms. Maio, a graduate of the University of Maryland, received the master's degree in the women's studies program at the Goddard Cambridge Center for Social Change. She will give a general overview of women writers in the 19th and 20th centuries, concentrating on the development of the mystery fiction genre. Discussion will follow.

The second meeting of Women in the Cultural Professions will be held on January 30. Juli Ince, choreographer, dancer, teacher and currently co-director of the intensive program for dancers in training at the Joy of Movement Center in Cambridge, will lead the

versity of Pennsylvania, Philadelphia, Penn., on January 21; T.C. Williams High School, Alexandria, Va., on January 24; Stephens Hall, Towson State University, near Baltimore, Md., on January 25, and the School of Inter-national Affairs, Columbia Uni-versity, New York City, on January 27. Actors Robert Hull, a junior in humanities and science from Broomall, Penn., and James Walker, a junior in mathematics from Wilmington, NC, will perform on the same stage in Madison, NJ, that they used last summer while members of the New Jersey Shakespeare Festival.

When the troupe is in Washington, DC, it plans to visit the Folger Library, one of the greatest libraries devoted to Shakespeare.

"During the tour we will be playing on a wide variety of stages, Mr. Biggs said, "just as we did during the 1977 tour. It's a challenge for the actors and technical staff to adapt on such short notice to different facilities.'

Scene performances will be given on January 19 for a school assembly at Madison High School in Madison, NJ; on January 23 for Shakespeare and drama classes at William Penn Charter School in Philadelphia, and on January 27 at a high school in New York City. The Ensemble will perform a variety of scenes requested by each school. An informal discussion will follow each presentation.

The performances were arranged by Donald Lampe, a senior in humanities and science from St. Petersburg, Fla., on behalf of the Ensemble in conjunction with MIT Alumni Clubs who are also providing housing accommodations. MIT alumni who once belonged to the Shakespeare Ensemble helped with arrangements in Washington and New York.

Tour sponors are the MIT Alumni Association, Educational Council, Admissions Office, Office of the Dean for Student Affairs, Secretary of the Institute and the Quarter Century Club.

CAES Inaugurates New Conference Program

How can on-the-job engineers keep themselves up-to-the-minute on technological developments affecting their profession?

One way is to take advantage of a new program developed by the MIT School of Engineering through its Center for Advanced Engineering Study (CAES).

The CAES Conference Program, established to support continuing education, gives practicing en-gineers an opportunity to acquire in an academic setting information on recent technological advances, on the social consequences of those advances, and on current perspectives on marketplace issues and trends that affect engineering.

The program also provides ample opportunity for another activity essential in keeping up with recent developments-shop talk.

"We see this as an urgent need in the profession," Dr. Myron Tribus, CAES director and professor of engineering at MIT, said of the new program.

"One of the most meaningful ways for MIT to meet the increasing need for continuing professional education of engineers is through short-duration, special conferences," Dr. Tribus said.

"Such conferences do not require participants to be away from their places of employment for extended lengths of time, can easily be designed around timely topics, can be tailored to meet the needs of specific groups, and can accommodate special needs on a relatively short notice."

Two conferences have already been held under the new program, which will be reviewed after a twoyear experimental period by a committee appointed by the Dean of Engineering. They are Substitution Strategies for the Textile Industry in the 1980s, now underway at MIT, and Computer-Aided Manufacture, held at MIT last

The self-supporting conferences will be held both at MIT and at other places in the world. Plans are currently under study for conferences in The Netherlands and in the Rocky Mountains.

Also being planned is an international conference on how large disasters can be managed, said John E. Newcomb, Jr., associate director of CAES. Disaster in this context, Mr. Newcomb said, means an occurrence that destroys the ability of an area to cope with the results of the disaster. For example, a devastating tidal wave.

The CAES Conference Program is organized to assist faculty interested in offering conferences. CAES will provide services necessary to manage the finances, arrange for meeting rooms, housing, meal services, publicity, printing of programs and reprints. Paige Farley, formerly conference coordinator at Tufts University, has been retained by CAES as a consultant for the new program. Professor Tribus urges those faculty interested in having CAES assist them in presenting a conference contact Ms. Farley, x3-7411, at the Center.

James P. Barber, **Grad Student**

James P. Barber, a doctoral candidate in the Department of Political Science admired by fellow students and teachers for his courage and accomplishments while severely handicapped physically, died January 10 in Children's Hospital at the age of 27.

According to his family, he had the flu and developed pneumonia. His diminished breathing capacity resulting from his disability apparently was a factor in his death, the family said.

Rabbi Roland E. Gittelsohn of Temple Israel, Boston, conducted services on January 11. Interment was in Sharon Memorial Park in Sharon. Barber is survived by his parents, Mr. and Mrs. Arthur Barber of Newton Center, and a brother, George A. Barber of Potomac, Md.

Barber received a BA from Harvard University in 1972 and had been a graduate student at since September of that year. He had completed substantial work on his PhD dissertation, which was a comparison of the implementation of vocational rehabilitation policies in the United States and the Soviet Union.

He had gone to the Soviet Union two years ago, accompanied and assisted by his mother, to do research. In 1976 he delivered a paper on his work to an international political science group meeting in Edinburgh, Scotland.

His thesis supervisor, Dr. Michael Lipsky, professor of political science, said that Barber had "tremendous courage" and was an inspiration to all who knew him. "He liked living a lot," Professor Lipsky said. "He was optimistic and positive and enthusiastic in everything he did."

Contributions may be made to Children's Hospital.

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253 - 4895

4 from MIT Named To Astronaut Corps

(Continued from page 1)

stationed at Whitby Sound, Wash., and makes his home in Oak Harbor, Wash.

Harbor, Wash.

The 35 newly-selected astronauts—the first to be picked since 1969—were chosen from a field of 8,000 applicants. Twenty of them—including Dr. Hoffman, Dr. McNair and Mr. Hart—were designated mission scientists and, on space shuttle flights, will serve as flight engineers as well as being in charge of on-board space experiments. The remaining 15—including Commander Hauck—were designated space shuttle pilots. The first space shuttle is scheduled for 1980.

The group includes six women the first ever chosen for the US space program—three black males and one male of Oriental descent. An earlier black astronaut was killed in a training accident in 1967.

The entire group is to report for the start of training at NASA's Johnson Spacecraft Center, Houston, Tex., July 1.

Dr. Hoffman was on a family skiing vacation at Sun Valley, Ida., with his wife, Barbara, when astronaut selections were announced in Washington. Their son, Samuel, 2½, was being kept, Dr. Hoffman said in a telephone interview, by neighbors in Weston who promptly taught the youngster to refer to his father as "a spaceman."

A native of Scarsdale, NY, and a 1962 graduate of the high school there, Dr. Hoffman was graduated summa cum laude in astronomy and physics from Amherst College in 1966 and received the PhD degree in astrophysics from Harvard University in 1971 where he studied under Professor Henry Helmkin. He was a post-doctoral fellow at the Smithsonian Astrophysical Observatory 1971-72 and from 1972 to 1976 was a research scientist in x-ray astronomy with Professor Kenneth Pounds at the University of Leicester, Leicester, England. Mrs. Hoffman is the former Barbara Attridge of Greenwich, England.

Dr. Hoffman became associated with MIT's Center for Space Research in July, 1975, working with Professor Walter H.G. Lewin of the Center's Cosmic Ray Group, one of the leaders in the developing field of x-ray astronomy. Professor Lewin and Professor Lawrence Peterson of the University of California at San Diego are coprincipal investigators for the particular HEAO experiment for which Dr. Hoffman is project scientist. The experiment measures x-ray emissions in the 10 to 200 keV energy range.

(Dr. Hale Bradt of CSR's Cosmic Ray Group and Dr. Herbert Gursky of the Harvard College Observatory are co-principal investigators for a second of the four HEAO experiments, this one measuring x-ray emissions in the 1,000 to 15,000 electron volt range. Dr. Rodger E. Doxsey of CSR is project scientist for this experiment.)

With Dr. Hoffman in Sun Valley, besides his wife, when news came of his selection were his father and mother, Dr. and Mrs. Burton P. Hoffman of Scarsdale, and two younger brothers, Dr. Robert P. Hoffman, a San Francisco physician, and David L. Hoffman, a graduate student in music at Brandeis University in Waltham, Mass. The elder Dr. Hoffman is also a physician.

"We had a family celebration," Dr. Hoffman said. "My mother isn't too enthusiastic about it, but she is happy for me."

Dr. McNair, while a graduate student at MIT, became celebrated at the Institute through his interest in karate and it was Dr. McNair who interested Professor Feld and his family in the sport. In fact, Professor Feld and Dr. McNair, as an avocation, have become interested over the years in the physics of karate and, together with Professor Feld's two small sons, have

given demonstrations on it before professional groups. They are scheduled to give a similar lecturedemonstration at the annual meeting of the American Association for the Advancement of Science in Washington, DC, next month.

Dr. McNair, while an undergraduate student at North Carolina Agricultural and Technical University, Greensboro, NC, was one of the first persons to participate in a faculty-student exchange program between MIT and a consortium of predominantly black schools in the south. Under that program, Dr. McNair spent two semesters as an undergraduate at MIT studying physics.

Dr. McNair received his bachelor's degree in physics from North Carolina in 1971 and came to MIT as a graduate student that fall under a fellowship from the Ford Foundation. He worked for several years as a research assistant under Professor Feld in the Spectroscopy Laboratory and did his doctoral thesis on "Energy Absorption and Vibrational Heating in Molecules Following Intense Laser Excitation." He received the PhD degree last February. While at MIT, Dr. McNair and his wife, Cheryl, made their home in Boston.

A year ago, Dr. McNair was honored when he was selected to go to an international meeting in The Netherlands to present a paper on his thesis topic.

Mr. Hart received his SB degree from Lehigh University, Bethlehem, Pa., in 1968. He came to MIT under a fellowship from the Bell Laboratories. His adviser in the Department of Mechanical Engineering was Professor David Wormley.

Commander Hauck is a 1962 graduate of Tufts University and joined the Navy immediately upon graduation there. He came to MIT in March, 1965, following study at the Naval Postgraduate School at Monterey, Calif. His advisers were Professor Frank Clikeman, now at Purdue University, and Professor Michael Driscoll. He is married and has two children. His brother, Roger Hauck, is associated with the Harvard/Smithsonian Center for Astrophysics.

The new selections bring to 12 the number of MIT people who, over the years, have been included in the nation's corps of astronauts.

Edwin E. Aldrin, Jr., who received the ScD degree from MIT in 1963, was in the Gemini 12 crew and was lunar module pilot on Apollo 11, the first to land on the moon

Russell L. Schweickart, SB and SM aeronautics and astronautics in 1956 and a former staff member at MIT's Measurement Systems Laboratory, together with David R. Scott, SM and Engineering degrees in aeronautics and astronautics in 1962, were in the orbiting Apollo 9 crew. Astronaut Scott also was in the Gemini 8 and Apollo 15 crews, the latter a mission to the moon.

Two others from MIT who went to the moon were Edgar D. Mitchell, Apollo 14, ScD in aeronautics and astronautics in 1964, and Charles M. Duke, Apollo 16, SM in aeronautics and astronautics in 1964.

Scientist-astronauts selected in 1967 included three from MIT. They were Dr. Philip K. Chapman, SM 1964 and ScD 1966 in aeronautics and astronautics and a former staff physicist in the MIT Experimental Astronomy Laboratory at the time of his selection; Anthony W. England, SB and SM degrees in 1965 and PhD degree in 1967, all in geology, a graduate student at MIT at the time of his selection; and Dr. William B. Lenoir, SB and SM in 1962 and ScD in 1965, all in electrical engineering and an assistant professor of electrical engineering at MIT at the time of his selection. Dr. Lenoir remains on flight status, but Dr. Chapman and Dr. England have

left the astronaut corps.



SO POPULAR were classes in Cardio-Pulmonary Resuscitation (CPR) offered by the Safety Office, that it was necessary to split the course into two sections. Working with the mannequin "Resusci-Annie" is Jordin Kare, a senior from Philadelphia, under tutelage of Joseph Kuchta, safety engineer.

Welfare Class' Is Small, Study Finds

(Continued from page 1)

more assistance to the working poor rather than the creation of elaborate incentives to look for work.

Their study of how families put their income together is one phase of a broader comparative study of family income in Britain, Sweden and the United States. A more extended analysis, soon to be published, will describe those social and economic characteristics which determine the likelihood of families going on, staying and cycling on and off welfare.

In this current report, Professors Rein and Rainwater attempt to make an estimate of the size of the welfare class. In order to do so, they defined the so-called welfare class as people who rely on welfare

for more than 50 per cent of their income for at least nine out of 10 years.

In estimating the size of this group, the researchers used as a data base information collected in a seven-year national survey carried out by the University of Michigan. Because the data contains information for each year on how the families derived their incomes, the researchers were able to calculate how many families had gone on welfare, how long they stayed on, and how dependent they were on welfare for their total income.

Professors Rein and Rainwater chose women aged 18 to 54 to study in depth because they, together with their children, form the welfare group that is allegedly the most dependent upon welfare payments. From their experience a model was developed which could be projected over a 10-year period. These projections indicated that, during the period from 1968 to the present, the probability a woman has of going on welfare in a given year is about 1.5 per cent.

Once on welfare the probability of staying on welfare another year is 60 per cent, a third year 70 per cent and a fifth year or longer, 80 per cent.

The researchers then calculated the number who are likely to receive welfare payments for a certain number of years out of a hypothetical population of 50 million women. According to their definition, 616,000 of these women belong to the welfare class.

In this hypothetical world, some 2.7 million women are likely to be on welfare in any given year. This means that only about 20 per cent of women on welfare at a particular time are members of the welfare class, definitely a minority among welfare recipients.

"One could draw the conclusion," Professor Rein said, "that although 20 per cent of welfare recipients in a given year consume as much as 60 per cent of the welfare dollars, it might be more useful to concentrate policy-making efforts on the 80 per cent who use welfare only part of the time."

Committee to Plan Computer Growth over Coming Decade

(Continued from page 1) uses of computers in education.

'Here, the committee will focus good deal of its attention," Professor Dertouzos said, "since there are many avenues we could follow from our current unstructured educational use of computers. For example, it would be nice if students could learn one or two programming languages when they enter the Institute, and could then count on using them for many of their courses throughout their stay at MIT, from a variety of easily accessible terminals in MIT buildings and in student residences.

The Committee may also wish to explore the possibility of computer networks outside MIT to link the Institute with other educational institutions and research facilities.

The Committee's members, in addition to Professor Dertouzos and Mr. Burner, are: Dr. Fernando J. Corbato, associate head of the Department of Electrical Engineering and Computer Science; Dr. Edwin Kuh, professor of finance and economics in the Alfred P. Sloan School of Management; Dr. Joel Moses, associate director of the Laboratory for Computer Science; Dr. Nicholas P. Negroponte, associate professor of architecture; Dr. Steven A. Orszag, professor of applied mathematics; Dr. Michael S. Scott-Morton, associate dean of the Alfred P. Sloan School of Management; and Mr. Joseph R. Steinberg, associate director of Information Processing Services.

The Committee is scheduled to report to the Provost and Chancellor by September, 1978.

Film on Navajo Nation To Have N.E. Premiere

Dineh—The People, a film portraying life on the Navajo Nation, will have its New England premiere tomorrow night, Thursday, Jan. 19, at 7:30pm in Rm 66-110. The film's title is taken from the Navajo's own name for themselves

The color documentary focuses on two generations of the Zah family, with Henry Zah and his son Peterson serving as the main narrators. Henry and his wife continue to live as sheepherders—caring for their sheep, carding and spinning wool, weaving rugs. Peterson was educated outside the reservation and after law school returned to be director of the only legal services for native Americans in the south-

After portraying a number of issues on the reservation, the film turns to a land dispute which threatens to dislocate the Zah family and 5,000 other Navajo families, depriving them of their land, homes, and livestock. Since 1882, the Navajos have shared a strip of land with 6,000 Hopi Indians who have a reservation inside the vast Navajo reservation, which has a population of 130,000.

The two tribes shared the land peacefully until it was found to contain the second largest coal deposit in the United States.

A bill has passed Congress to move all Navajos off the land and give it to the Hopis. Then, according to Peterson Zah and others, power companies will find it easier to obtain rights to strip-mine the

Dineh—The People was produced by Steven Hornick, who won a Venice Film Festival prize for an earlier film, Twilight of the Mayans, and Jonathan Reinis, a Berkeley graduate in anthropology. In making the film, they and two other members of their crew lived on the Navajo Nation for almost a year.

Dineh is being shown as part of a Native American Film Festival organized for Independent Activities Period by Shelton Davis, visiting assistant professor of humanities, and Jean E. Jackson, associate professor of humanities. The last film in the series, on January 26, will be Broken Treaty at Battle Mountain, about Western Shoshoni Indians who have filed a land claim for the entire state of Nevada.

Solow Appointed To Arts Council

Dr. Robert M. Solow, Institute Professor and professor of economics, has been appointed to the Massachusetts Council on the Arts and Humanities by Governor Michael S. Dukakis.

The Council is a body of 15 private citizens appointed by the governor to encourage the practice, study and appreciation of the arts and humanities. The Council works with organizations, artists, educators and community groups to make cultural resources more accessible to everyone in Massachusetts

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