Massachusetts Institute of Technology

TECH TALK

January 23, 1974
Volume 18
Number 27

Music Notes

Symphony In Special Performance

By WILLIAM T. STRUBLE
Staff Writer

The MIT Symphony Orchestra next month will play a special concert—by invitation—for assembled music educators from 12 eastern states.

The orchestra, under the direction of David Epstein, will give a full 90-minute performance Feb. 2 for delegates attending a conference of the Eastern Division of the Music Teachers National Association (MTNA).

The invitation came from Dr. Donald R. Chittum, president of the MTNA Eastern Division and coordinator of the division of composition and theory of the Philadelphia Musical Academy.

Dr. Chittum said he acted on the suggestion of Mr. Ludwig Sheffield, president of the New York State Music Educators Association, who had heard the MIT Symphony in a concert carried last September by the Public Broadcasting System (PBS). Dr. Chittum said Mr. Sheffield had been very impressed by the perform-

(Continued on page 2)

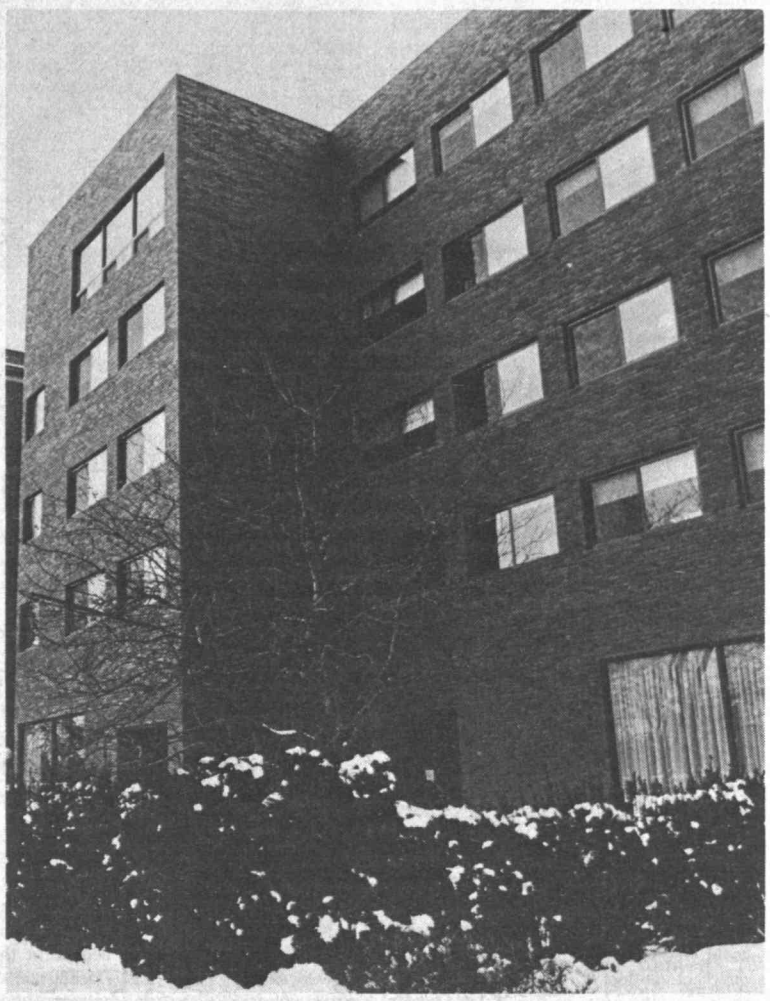
Erdely Concert Friday Night

A concert of classical and contemporary sonatas for violin and piano will be given by violinist Stephen Erdely of the MIT music faculty and his wife, Beatrice, in their first Boston area concert at 8pm Friday, Jan. 25, in Kresge Auditorium.

Professor Erdely, who joined MIT last fall, was violinist with the Cleveland Orchestra for 16 years under the late George Szell.

The concert, sponsored by the MIT Music Section and open to the public free of charge, will include the Boston premiere of Istvan Anhalt's Sonata 1954, Beethoven's Sonata in A Major, Op. 30, No. 1, Mozart's Sonata in B Flat, K. 454, and Bartok's Second Sonata.

100 Move into New Homes



MEMBERS OF ALPHA TAU OMEGA and Kappa Sigma fraternities are now occupying new houses on Memorial Drive. —Photo by Margo Foote

A new $1.4 million building to house two MIT fraternities—Alpha Tau Omega and Kappa Sigma—has just been opened on Memorial Dr. adjacent to the west campus.

Major funding for the building was provided by low-cost, long-term loans from MIT's Independent Residence Development Fund, raised mainly by alumni to help finance improved housing for non-dormitory residence groups. Additional support was provided through direct gifts from alumni of the fraternities and income from sales of their former houses.

It was the first joint private effort for independent residences at MIT.

The addition of the two houses brings to seven the number of fraternity houses adjacent to the MIT campus. Another 23 are in Brookline or Boston, primarily in the Back Bay. Together the 28 Fraternities and two independent houses accommodate 1,300 undergraduates. Another 1,850 of MIT's 4,000 undergraduates live in MIT residence halls.

Some 100 members of ATO and KS are now moving into the new houses, vacating former houses on Bay State Road by Jan. 31.

The new houses share a mechanical system but otherwise are separate. The building is a five-story contemporary brick structure employing a stepped-back design on the side walls so that each room has a view of either the Charles River or the MIT athletic fields.

Architect for the project was Harry Ellenzweig of the Cambridge firm of Wallace, Floyd Ellenzweig. Construction manager was Barr and Barr of Boston.

A dedication ceremony was held at the new ATO house Saturday, Jan. 19. Howard W. Johnson, chairman of the MIT Corporation, spoke, paying tribute to the major role the fraternities continue to play in development of MIT's residence system. He also paid tribute to James H. Eacker, '55, president of ATO's Technology Building Corporation, who provided major leadership in bringing the fraternity complex into being.

MIT Oil Cost Hiked Again, Conservation Still A Must

Just as it has for many homeowners, the energy shortage is proving costly to MIT.

The Institute was notified this week by one of its two fuel oil suppliers, the Metropolitan Petroleum Co., of a price increase of $2.95 a barrel effective Jan. 15.

"This represents a cost increase of more than $32,000 just for the last 15 days in January," William R. Dickson, director of Physical Plant, said.

"The price of oil is now so high that even if we could get all the oil we wanted, there is just no way that we could back off from our energy conservation program.

"We are going to have to keep up the struggle to save fuel and hold down these costs as best we can."

Dickson said last week's cold snap provided an example of savings that are possible.

He said that last Friday was a 56 fuel degree day, meaning that the average temperature that day of nine degrees was 56 degrees lower than 65 degrees, which for heating calculations is known as a zero fuel degree day.

"We compared this with a 56 fuel degree day that we had last year on Jan. 8," Mr. Dickson said.

"Last year, we produced some 5,330,000 pounds of steam on that day, but this year only about 3,490,000.

"In other words, comparing the same fuel degree days, we produced about 35 percent less steam this year, due largely, we assume, to the energy conservation measures in effect."

Dickson said this doesn't mean that MIT will have a 35 percent reduction in energy consumption for the entire winter season.

But it shows that significant reductions in fuel use are possible, he said. MIT's energy saving program, which is still being developed, thus far has relied largely on reductions in heating, ventilation and lighting.

On the subject of the most recent increase in the cost of oil, Dickson said the Metropolitan price had gone from $9.42 to $12.37 a barrel.

"Our allocation by contract for half a month is 13,500 barrels," he said, "and our quota for the last half of January is 80 percent of that, or 10,800 barrels. So we are talking about an increase in cost of some $32,400."

Dickson said that Metropolitan supplies oil to the Institute the last 15 days of each month, and the White Fuel Corp. the first 15 days. He said the Institute is anticipating a similar increase from White in line with higher posted prices for No. 6 heating oil.

MIT Telecommunications Services has published a 50-page booklet describing the voice and data communications services—and their costs—that are available to the MIT community.

Job Survey Forms Due Soon

Members of the administrative, academic administrative and library staffs will receive position description questionnaires shortly as the first phase of the new classification and compensation program gets under way.

The individually-labeled questionnaires will be given to department heads or their designated representatives at meetings scheduled for Thursday at 9:30am and noon in Bldg. 37-212. They will then be distributed to the approximately 450 affected staff members, who will have about two weeks to complete them.

The timetable calls for staff members to return the completed questionnaires to their supervisors by Friday, Feb. 8. Supervisors will review the questionnaires of employes reporting to them and return them to their department heads by Friday, Feb. 15.

After further review, department heads will submit the questionnaires to their vice presidents or deans by Wednesday, Feb. 20.

Anonymous opinion questionnaires are currently under development for distribution to staff members at a later date.

Personnel's GED Program Opening Soon

The General Education Development program for MIT employees, which begins Feb. 4, is geared to fit an individual's needs, according to Bernard A. Morris.

Morris is head of the Training Section of the Office of Personnel Development, which is now registering employees for the GED program and two others, the Clerical Skills Training program and the English as a Second Language program.

"MIT employees have wide differences in individual levels of skill," Morris said. "The Training Section takes this into account and adjusts the GED program to fit the individual's needs."

"Employees at the early high school level need special attention to begin to develop and reach the average high school level," he said, "and employees already at the average level need to work toward passing the GED examination, which is the high school equivalency certificate."

Morris said that the Training Section staff and resources "are dedicated to helping Institute employees attain these goals."

Information on registering for the training programs can be obtained at the Training Section in Bldg. E19-734 or by calling x3-1912. The programs are described in the booklet, "Training and Education Programs for MIT Employees."

31 Are Enrolled For Spring ADP

Thirty-one members of the MIT community will participate in the third session of the Administrative Development Program (ADP III) that begins Tuesday, Feb. 12. The session will concentrate on organizational behavior.

ADP sessions will run from 9am to 12:30pm each Tuesday for approximately eight weeks.

Dr. David E. Berlew, senior lecturer in organization studies at the Alfred P. Sloan School of Management, will lead the spring session of the course.

The fall session, also eight weeks, will concentrate on financial administration and control.

Participants in the current session are:

Jurate Barnes, Resource Development; Virginia Bishop, Personnel Services; Daniel Bloom, Campus Housing; Richard Cerrato, Information Processing; Raymond Diffley, Safety Office; Robert Durland, Purchasing; Jacquelyn Findlay, Alumni Association; Frederick Finneran, OAIS; Patricia Gavagan, Metallurgy; Lillian Giuliana, Office of the Chancellor; John Goodwin, Lincoln Lab Property; Ann Gordon, School of Architecture.

Joyce Graham, Lincoln Group 73; Sally Hansen, Personnel Services; Douglas Johnston, Rehab. Eng'g Center; Philip Knight, Personnel Services; Winifred McDonough, Treasurer's Office; James Maclary, Fiscal Planning & Budget; Jane McNabb, Meteorology; John Mims, Admissions; Joseph Moscillo, Lincoln Group 15; Suanne Muehlner, Libraries.

Elizabeth O'Brien, Medical Department; Richard Queenan, Lab for Nuclear Science; Frederick Quivey, Harvard-MIT HST; Jutta Reed, Humanities Library; Stanley Roach, Lab Supplies; Lyman Stinson, LNS Bate's Accelerator; Elizabeth Terlingen, Political Science; Deborah Weinstein, MIT Press; William Westcott, Electrical Engineering.

Symphony Invited to Play

(Continued from page 1)

ance of the MIT musicians.

Yasuo Watanabe, a young pianist who has previously appeared with the MIT Symphony, will be soloist for the MTNA concert in a performance of Prokofiev's Piano Concerto No. 3. The program will include Mozart's Overture to the Marriage of Figaro and Symphony No. 2 of Sibelius.

The concert is scheduled for 9pm in the concert hall of the Boston University School of Fine and Applied Arts, 855 Commonwealth Ave., Boston. A limited number of seats will be available for members of the MIT community who wish to attend.

The performance for the music educators is only one outcome of a crescendo of acclaim that followed the symphony's PBS broadcast, which was carried by about 200 stations across the country.

In addition to general words of praise via mail and telephone, Professor Epstein said, the response included invitations (since accepted) to give concerts at the State University of New York at Buffalo and at the University of Western Ontario, London, Ontario, an encomium in the *Yale Daily News*, and a $10 check from a young music enthusiast in North Carolina.

Professor Epstein said the orchestra will play the Buffalo and Ontario concerts during a tour at the end of March.

* * *

MIT violinist Stephen Erdely, who will present a concert Friday with his wife, Beatrice, (see story Page 1), was introduced to Boston music audiences yesterday as a guest of Robert J. Lurtsema, host of the *Morning Pro Musica* program on WGBH-FM.

* * *

Professor Epstein and one other member of the MIT music faculty have received commissions to compose new works under a matching funds program of the New York State Council on the Arts.

Professor Epstein and John Harbison were among nine Boston area composers to receive commissions.

Professor Epstein has a joint commission from the New York council and the Eastman School of Music, Rochester, N.Y., to write a work for solo instrument and orchestra.

Under his commission from the council and the Schola Sanctorum, New York, Professor Harbison will compose a large-scale choral work written to a poetic text on "public themes" and using an instrumental ensemble of pianos, percussion, and contrabass.

* * *

And a new recording of music of Professor Harbison has been issued by Composers Recordings, Inc. The release (CRI SD-313) includes Five Songs of Experience, set to texts by William Blake, which are performed by the Cantata Singers and Ensemble under Professor Harbison's direction; Bermuda Triangle, for tenor saxophone, amplified cello and electric organ; and Trio, performed by the Wheaton Trio.

In addition, a recording of music by Professor Epstein will be issued next month by Desto records under a Ford Foundation recording grant. The disc includes a song cycle, "The Seasons," sung by Jan de Gaetani accompanied by Robert Freeman, a former member of the MIT music faculty and now director of the Eastman School of Music; String Quartet 1971, performed by the Philadelphia Quartet; a string trio, performed by the Pacific String Trio; and "Vent-ures," three pieces for symphonic wind ensemble performed by the Eastman Wind Ensemble.

* * *

In other music activities, Professor Epstein has been appointed by the Harrisburg (Pa.) Symphony Association as music advisor to the Harrisburg Symphony for the 1974-75 season. Professor Epstein, who has been guest conductor with major orchestras in the US and abroad, was guest conductor last month of the Vienna Tonkünstlerorchester.

Resident Aliens File

All resident aliens must file address reports with the Immigration and Naturalization Service during January.

Address forms are available at MIT in the Registry of Guests, Rm 7-121, and the Foreign Student Office, Rm 3-111. Completed forms may be returned to either office or mailed directly to the Immigration and Naturalization Service.

Tax forms for aliens are not available at MIT this year. They may be obtained at supply desks in the federal and state office buildings in Government Center, Boston.

Dial FIXIT

June Williams, front, and Fran Hastings are the voices behind FIXIT—otherwise known as the work control center of Physical Plant. The center has evolved over the last year as the "nerve center" of Physical Plant, according to Charles Milano, right, coordinator. All calls—whether for venetian blind repair, plumbing leaks, broken keys, carpentry or painting—are handled more efficiently and effectively if you dial FIXIT(x3-4948).

—Photo by Margo Foote

HSSP Briefs 60 High School Reps

Sixty high school students representing nearly as many area schools spent last Friday at MIT familiarizing themselves with courses that will be offered by MIT students through the MIT High School Studies Program this spring.

Registration for the Saturday morning courses will be held Saturday, Feb. 23. The high school students here Friday serve as liaison with their fellow students.

More than 600 are expected to enroll this spring.

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 or 3-4849. Undergraduates are also urged to check with the UROP bulletin board in the main corridor of the Institute.

Attention Undergraduates!

The 1974 Spring MIT Undergraduate Research Opportunities Directory is available in the Information Office, Room 7-111 or at the UROP Office, Room 20B-141.

Western Electric Company North Andover

The Merrimack Valley Division of Western Electric has suggested a number of potential projects for MIT undergraduates and faculty (some of the research might be possible on campus). The suggested topics are: (1) Temperature profiles in large sealed vessels would involve determination of temperature profiles in large sealed vessels whose internal environment includes high temperature, high pressure, and potentially corrosive chemicals; (2) Stress determination in moderately thin quartz plates would involve developing techniques and equipment necessary to measure the stresses present in large moderately thin plates from cultured quartz material; (3) Frequency shift during manufacture of sealed crystal devices would involve investigation and determinaion of the many factors that result in frequency shifts during the manufacture of sealed crystal devices; (4) Evaluation of plating waveforms for electrodeposition of gold and copper in thin film circuit applications; (5) Computeraided fault diagnostics for repair of hybrid integrated circuits; and (6) Effectiveness of Sn-Ni electroplated alloy as a diffusion barrier between Cu and Au.

New England Nuclear Corp. Watertown

The Pilot Chemicals Division of NEN manufactures and sells low-volume, high-value specialty chemicals for primary use in biological and biomedical research. Two suggested topics are: (1) A small batch of chemical production operation generates a fluid waste material containing organic and inorganic salts and aromatic compounds. The waste separates into two phases, and NEN is interested in a more detailed analysis of both. Suggested background– analytical chemistry, wet chemical analysis and instrumentation. (2) The chemical hood exhausts contain small amounts of unknown air contaminants. The project would entail air velocity checks and gas sampling at the stacks and analysis of effluent samples.

Mechanical Engineering Department

This project will involve experiments at the Polaroid Corporation using an electronic feedback system to help groups of people get at issues efficiently, to develop consensus, and to participate effectively in establishing goals and priorities in an industrial environment. The experiments may be extended outside of the industrial setting to include groups in a suburban town working on educational policies and other community issues. Questions to be explored in these experiments are: does the electronic feedback apparatus help or hinder group dialogue?; if it does help, in what special ways does it help? what are the techniques of successfully making use of this apparatus (special techniques of discussion leadership, etc)?; what modifications to the apparatus are suggested from the experiments?; and does the work with small groups of six to 20 people give any indications of the value that this apparatus might have in getting feedback from substantially larger numbers of people in an industrial situtation? Contact Professor Thomas B. Sheridan, Room 1-108, Ext. 3-2228

Howe Press of the Perkins School for the Blind Watertown

The Howe Press designs, manufactures and markets worldwide braille typewriters, books, maps and mathematical aids for the visually impaired. A project has been suggested in which an undergraduate or group of undergraduates would develop techniques for reproducing diagrams and pictures for a book for visually impaired children. A book has been selected by the library of Congress for special reproduction with the print in braille and illustrations represented by the medium to be developed.

Massachusetts Forest and Park Association(MFPA) Boston

The MFPA has lobbied for environmental legislation for almost 75 years and is the only conservation organization in Massachusetts which devotes substantially all of its time to the legislative process. The MFPA is interested in having undergraduates assist in research in the following areas: (1) Energy conservation research and evaluation of offshore oil and onshore facilities; (2) Land use planning; (3) Solid waste in communities; (4) Opportunities with the Bicentennial Commission; and (5) Opening of a highway trust fund for use in mass transit.

Decision Technology Incorporated Cambridge

DTI is a management consulting firm with considerable experience in designing and building computerized information systems for both operational control purposes, management decision making, marketing and sales information. A number of projects have been suggested: (1) Performance analysis of a multi-computer system which simultaneously supports conventional time-sharing; several different on-line query, on-line message switching and conventional batch processing; (2) Development of graphics packages; (3) Planning studies of various alternate communication network configurations; and (4) Marketing studies of possible new services and/or Network configurations. Strong computer background desirable.

Boston University Medical Center Boston

A physician at the BUMC has suggested a research opportunity for a student interested in investigating the synthesis, release, uptake and metabolism of catecholamines and prostaglandin in rat lungs. Research techniques include nerve stimulation, thin layer chromatography, fluorescent assays and bioassays.

Applicon, Inc. Burlington

Applicon designs, develops, manufactures and sells a minicomputer-based (PDP-11) turnkey system for manipulating graphics, providing graphical input of data, and for displaying results of computations as graphical output. A large, in-house PDP-11 system is dedicated to the use of software development, and several project topics are open there. Applicon also has a large hardware development program in electromechanical graphics devices such as digitizers and plotters. Their fully equipped hardware labs can be used for hardware projects and for combined hardware/software projects. Shuttle bus to Lincoln Laboratory, or public transportation to Burlington Mall, or car required.

Equipment Available

UROP will make available on a full-use basis the following equipment to the author(s) of a suitable proposal. (1) Signal Galazies 4k x 16 bit solid state memory card. Dynamic-MOS storage elements are TTL compatible Read cycle = 550 nano seconds. (2) Electron wire wrap tool, with bit, sleeve, and unwrapping tool. If you are interested in using this equipment in your project, please send UROP a proposal. For complete technical specifications, or more information, call UROP, Room 20B-141, Ext. 3-4849.

Foreign Studies

Graduate

Churchill College, University of Cambridge, Research Studentships 1974-75

—Studentships are for qualified candidates from the U.K. and overseas: A) One Gulbenkian Studentship for research in any subject for a candidate who intends to proceed to the degree of PhD of the University of Cambridge, and who is a graduate of a university other than those in the U.K.; a graduate of such a university who has subsequently taken a degree in the U.K. is also eligible. B) One Pochobradsky Studentship in Engineering for a candidate who intends to follow an approved course of advance study or research in the Department of Engineering of the University of Cambridge. Preference will be given to candidates who wish to work in the field mechanical engineering.

Tenure of the Gulbenkian Studentship is conditional upon the selected student being granted the status of Research Student by the Board of Graduate Studies with effect from Oct. 1, 1974, and will normally be tenable for three years, subject to satisfactory progress. Tenure of the Pochobradsky Studentship will be decided at the time of selection and is also conditional upon the student being granted the above status. The College Council will determine the value of both Studentships for each student selected after considering any income from other sources. Maximum value of studentships will not exceed approximately US $1,623 a year, plus certain allowances for dependents, and the payment of University and college fees. The minimum will be not less than $136 a year.

Application forms may be obtained from the Tutor for Advanced Students, Churchill College, Cambridge, CB3 0DS. Completed forms together with any evidence of aptitude for research that the candidate wishes to submit, must reach the tutor no later than Apr. 1, 1974. Further information may be obtained at the Foreign Study Office, Room 10-303, Ext. 3-5243.

Gonville and Caius College, University of Cambridge, Research Studentships 1974-75

— Studentships are open to candidates who are not already members of the College. A) Gonville Research Studentship; and B) Tapp Research Studentship in Law. Candidates must be male, and graduates of the University of Cambridge or any other university in the U.K., or elsewhere, or be about to graduate not later than August, 1974. They must be prospective candidates for a research degree in the University of Cambridge, and tenure of a Studentship is conditional upon the student selected being accepted by the Board of Graduate Studies. (Application to the Baord is made through the Cambridge Intercollegiate Graduate Application Scheme, C.I.G.A.S. Forms may be obtained from the Secretary, Board of Graduate Studies, Cambridge.)

Application forms for the Studentships may be obtained from the Senior Tutor, Gonville and Caius College, Cambridge, CB 21TA. Aplications should reach the Senior Tutor no later than Apr. 1, 1974. In awarding Studentships, first consideration will be given to candidates who nominate Gonville and Caius College as their College of first preference under the C.I.G.A.S. The value of the Studentship will be determined after considering successful candidates' income from other sources. Successful candidates will receive up to approximately US $1,804 a year if they are from the U.K., and approximately US $1,918 if they are from outside the U.K. Further information may be obtained from the Foreign Study Office, Room 10-303, Ext. 3-5243.

Graduate Studies

Graduate Studies

The following brief description of selected graduate fellowships have been received recently by the Graduate School Office. More complete descriptions are available in the Office, Room 3-136.

American Iron and Steel Institute

The American Iron and Steel Institute announces the availability of fellowships for advanced graduate study in economics, management, and related disciplines. They have a basic value of $6,500 to cover stipend, tuition and fees. To be eligible, candidates must have completed all requirements for the doctorate degree except for the dissertation by September 1974. Candidates must have a well-defined research proposal dealing with a substantive topic affecting, or affected by, the steel industry of the US and Canada. Candidates must be recommended and nominated by their graduate institution. Deadline: February 1, 1974.

New Subject

2.863 THE MANUFACTURING ENVIRONMENT
Prereq: None
Year: U

An introduction to the array of concepts and functions present in the manufacturing environment. Intended for engineering and science students who are interested in careers related manufacturing, but who do not intend to pursue management courses at the undergraduate level. Topics covered will include industrial organization, types of productive systems, workforce management, capacity planning, scheduling, use and control of inventories, product quality control, technological innovation and project planning. The case method of instruction, which emphasizes student participation in class discussion, will be used. Supplementary readings and field visits to manufacturing plants. Robert T. Lund

Obituaries

J. W. Chamberlain, Surgeon-in-Chief

Services will be held at 1 p.m. Thursday (Jan. 24) at Trinity Church, Boston, for Dr. John W. Chamberlain, former Surgeon-in-Chief in the MIT Medical Department and Associate in Surgery Emeritus at Children's Hospital Medical Center in Boston.

Dr. Chamberlain, 68, died suddenly Sunday (Jan. 20) at his home in Duxbury, where he was recovering from heart surgery.

Dr. Chamberlain

Dr. Chamberlain was born in Charlestown in 1905. He received the SB degree in management in 1928 from MIT and MD from Harvard University Medical School in 1932. He held internships at Strong Memorial Hospital, Rochester, N.Y., and at Boston Children's Hospital, and was resident in surgery at Long Island Hospital, Boston.

In 1935 he was appointed Assistant Surgeon at Children's Hospital, where he continued to practice throughout his career. Most recently he was director of ambulatory and emergency surgery there.

Dr. Chamberlain began his medical association with MIT in 1937 and was appointed to the MIT medical staff in 1940. From 1940 to 1946 he was a medical officer with the U.S. Navy. He became Surgeon-in-Chief at MIT in 1947 and served for a year in the early 1950's as acting director of the Medical Department. He retired from MIT in 1968, but continued as a consultant in surgery.

Dr. Chamberlain was a member of the American Medical Association, the Massachusetts Medical Society, the American College of Surgeons, the American Academy of Pediatrics and the Boston Surgical Society. He was the author or co-author of numerous articles in medical journals and was editor of *The Massachusetts Physician*.

Survivors include his wife, the former Janet Wilson; a daughter, Mrs. Jeanne Watson of Lexington; a sister, Mrs. C. Roger Lappin of Lexington; his mother, Mrs. Milford Chamberlain of Chocorua, N.H.; and a half-sister, Mrs. John Chase of Tacoma, Wash.

In lieu of flowers, the family has requested that contributions be made to the Children's Hospital Medical Center Library Fund.

M. MacCready, 82

Mabel MacCready, 82, of Braintree, who retired in 1961 after 28 years as matron in the MIT Medical Department, died on Monday, Jan. 14. Mrs. MacCready leaves her daughter Mrs. Daniel Baker of Braintree and a sister, Mrs. George White of Ontario.

W. Laswell, 67

William Laswell, 67, of Waltham, who retired last year as project technician at Lincoln Laboratory, died Saturday, Jan. 19. Mr. Laswell came to the Institute in 1955. He is survived by his wife Lillian, a son William, Jr. and a daughter Mrs. Mary Joanne Magliarditi.

E. G. Arnold, 79

Evans G. Arnold, 79, of Braintree, retired technical instructor in the Department of Mechanical Engineering, died on Wednesday, Jan. 16. Mr. Arnold taught at the Institute for 14 years and after retiring in 1961 taught part-time until 1964. He leaves his wife Gladys and a son-in-law Warren A. Schwab and two grandchildren.

Electronic Board Tested

Six year old patient at Kennedy Memorial Hospital,Brighton, works at the Auto-Com board being evaluated by MIT Sensory Aids Evaluation and Development Center and KMH as communication aid. Child places hand slide over letters, which appear on TV screen in rear, to spell out works.

—Photo by Margo Foote

By DAMON P. WRIGHT
Staff Writer

The Sensory Aids Evaluation and Development Center is working with the Kennedy Memorial Hospital for Children in Brighton to assess an experimental device —called Auto-Com—designed to provide cerebral palsy victims, and similarly handicapped people, a new way to communicate via a video screen.

The Auto-Com, developed at the University of Wisconsin College of Engineering, came to the attention of Dr. Robert W. Mann, professor of engineering at MIT and program director of the Harvard-MIT Rehabilitation Engineering Center (REC), at a professional meeting. Professor Mann arranged to have an Auto-Com installed at KMH in Brighton where cerebral palsy children are involved in long-term rehabilitation programs.

The Auto-Com is a smooth, flat board with letters of the alphabet, numbers and punctuation printed on it. Beneath the board's surface is an electronic sensing system that is triggered by a magnet contained in a sliding handpiece or, if necessary, on the tip of a head stick. When the magnet is held in place over a character on the Auto-Com board, the character is reproduced on a portable TV screen. The time lag between placing the magnet over the character and its appearance on the TV screen can be varied.

There are also symbols which represent movement of the cursor—a line on the television screen which indicates where the next letter will appear. A mistake can be erased by moving the cursor under the error and "writing" over it.

Evaluation of the board is being monitored by George F. Dalrymple, acting director of the MIT Sensory Aids Center. Two children—a six-year-old named Kathy and a nine-year-old named Laura —have been using the board as a communication and learning device—spelling, sequencing, questions and answers—since September.

J. Travassos, 64

Julian Travassos, 64, of Somerville, who had been on long-term disability retirement from the maintenance crew at Draper Laboratory since 1972, died on Wednesday, Dec. 26. Mr. Travassos worked at the Institute for 15 years and leaves his wife Irene, and three daughters, Mary Gallant, Dorothy Mahoney and Margaret Cerullo.

Chinese New Year

The MIT Chinese Students Club will celebrate the Chinese New Year—the Year of the Tiger—Saturday, Jan. 26, with a banquet and dance open to all members of the MIT community and starting at 6pm in Lobdell Dining Hall.

Ten dishes, cooked by students and students' wives, will be served, including lion's head meatballs, shrimp balls and beef in soy sauce. There will be a half hour movie on Taiwan followed by Mah Jong and Chinese games.

Cost is $2 for members, $4 for non-members (50 cents for dance only). Deadline for reservations is Friday and can be made by calling Les Tung at DL 9592, or Yak Cheung at x3-1807.

The Year of the Tiger officially begins Jan. 23.

NSF Grant to MIT

MIT topped the list of grants awarded by the National Science Foundation under its "Grants for Science" Program this year.

MIT was awarded $67,100 in an overall program which will dispense $6.9 million to 675 US colleges and universities to help strengthen science programs. Amounts of awards, which schools use at their discretion, were based on federal science research awards granted to the institutions during 1972.

TECH TALK
Volume 18, Number 27
January 23, 1974

Tech Talk is published 50 times a year by the News Office, Massachusetts Institute of Technology. Director: **Robert M. Byers**; Managing Director, News Office Publications: **William T. Struble**; Assistant Directors: **Joanne Miller, Margo Foote (Photojournalist); Charles H. Ball, Dennis L. Meredith, Robert C. DiIorio**; Business Manager: **Paul E. Johnson**; Reporters: **Sally M. Hamilton; Damon P. Wright**; Calendar of Events Want Ads: **Susan E. Walker.**

Address news and editorial comment to MIT News Office, Room 5-111, Massachusetts Institute of Technology, Cambridge, Ma. 02139. Telephone Ext. 3-2701.

Mail subscriptions are $5 per year. Checks should be made payable to MIT and mailed to Business Manager, Room 5-111, Cambridge. Telephone Ext. 3-2701.

EEO Workshops Attended By 100 at Sloan School

A two-day research workshop on equal employment opportunity, conducted by the Industrial Relations Section of the Alfred P. Sloan School of Management, drew more than 100 participants from business, industry, the public sector and education to the MIT campus Monday and Tuesday.

The workshop, arranged by Dr. Phyllis A. Wallace, visiting professor at the Sloan School, is one of three to be presented by the Industrial Relations Section.

The workshops are funded by the National Science Foundation under the Research Applied to National Needs (RANN) program.

Aims of the workshops are:

—To evaluate the status of research and to review literature in the field.

—To define research needs and to assess its scope and nature.

—To develop a comprehensive research agenda specifying the kinds of research required if appropriate strategies to reduce job discrimination are to be developed.

—To expand the number of persons and organizations who use equal employment opportunity research results.

Recommendations from the first workshop will be used to define and shape the scope of the second workshop and to identify its priorities.

Dr. Wallace, who served as deputy director of research at the US Equal Employment Opportunity Commission from 1966-69, has been a visiting professor at the Sloan School since 1973.

The speaker at the dinner that concluded the first session of the workshop was George B. Rockwell, president and chief executive officer of the State Street Bank and Trust Co. in Boston.

Nominations From Recent Classes Sought

Letters soliciting nominations for election as a Representative from Recent Classes on the MIT Corporation were mailed last week by the Alumni Association.

They will go to nearly 6,000 alumni who received degrees in 1972 and 1973 or who will receive degrees in 1974.

Nominations will be reviewed by a screening committee composed of the five youngest Corporation members available to serve. The screening committee this year includes: Ralph M. Davison, '66, Rebecca A. Donnellan, '72, Sekazi Kauze Mtingwa, '71, Laurence Storch, '71, and Pamela T. Whitman, '70.

"Young alumni can make an important contribution by bringing their perspective to the Corporation," Richard A. Knight, secretary of the Alumni Association, said. "We hope for many suggestions of nominees so that we can present a broad selection of candidates on the ballot."

After screening, ballots listing the candidates will be circulated to the same alumni group for preferential voting. Names of the successful candidate(s) will be submitted to the Corporation for election.

The Representatives from Recent Classes category of Corporation membership was established in 1971 to provide representation on the governing board from among younger alumni. There are five such members, with one elected each year to a five-year term. The term expiring this year is held by Dr. Christina H. Jansen, '63.

Women's Forum Plans Roles Panels

The last two in a series of three panel discussions on secretarial and supervisory roles will be held at noon, Thursday, (Jan. 24) and at noon Tuesday (Jan. 29) in Rm 10-105, sponsored by the MIT Women's Forum.

Participants will be: Charles Barringer, assistant dean of engineering; Dr. Mildred Dresselhaus, Abby Rockefeller Mauze Professor of Electrical Engineering; Ms. Carol Grossman, a secretary in Chemistry; Ms. Jane Howard, a secretary in Mechanical Engineering; Louis Kampf, professor of literature; Ms. Roberta Kurland, administrative assistant in Architecture; Dr. Mary P. Rowe, Assistant to the President and Chancellor for Women and Work; and Robert Weatherall, director of placement.

Visiting Professors Named

Four appointments as visiting professor, one as visiting associate professor and one as visiting assistant professor have been announced at MIT.

The appointments were made during recent meetings of the executive committee of the MIT Corporation. They are:

Dr. Leif M. Hambraeus appointed visiting professor in the Department of Nutrition and Food Science for 10 months, effective Sept. 1, 1973. Dr. Hambraeus received the MD degree from the Caroline Institute of Stockholm and is professor of human nutrition at the University of Upsala and executive officer of the Swedish Nutrition Foundation.

Dr. Christian Norbert-Schulz appointed visiting professor in the Department of Architecture for four and one half months, effective Jan. 15, 1974. Dr. Norbert-Schulz received the diplom architekt in 1949 from Eidgenossische Technische Hochschule if Zurich and the doctor technicae in 1964 from the Technical University of Norway at Trondheim. He is professor of architectural history at the State School of Oslo.

Dr. Helmut Schnelle appointed visiting professor in the Department of Foreign Literatures and Linguistics for one year, effective Feb. 1, 1974. Professor Schnelle received the diploma in physics in 1957 and the PhD in communications sciences and linguistics in 1961, both from the University of Bonn. He is professor of linguistics at the Technical University of Berlin.

Dr. George L. Siscoe, a specialist in astrophysics and atmospheric electric fields, appointed visiting professor in the Department of Physics for four and one half months, effective Sept. 1, 1973. He received the SB and PhD degrees from MIT in 1960 and 1964 respectively and is now professor of physics at UCLA.

Dr. Julius Kuti appointed visiting associate professor in the Department of Physics for one year, effective July 1. Professor Kuti received the MS degree in 1963 and the PhD in 1968, both from Eotvos University in Hungary, where he is now associate professor of physics.

Dr. Ronald P. McCaffrey appointed visiting assistant professor, part time, in the Department of Biology for 10 months, effective Sept. 1, 1973. Dr. McCaffrey received the BA degree from Boston College in 1960 and the MD degree from Tufts University School of Medicine in 1964. He has been a visiting research associate at MIT since 1971.

THE INSTITUTE CALENDAR

January 23 through February 1

Events of Special Interest

Chinese New Year Dinner* – Many specialty dishes for all gourmets, sponsored by the Chinese Students Club. Sat, Jan 26, cocktails 6pm, dinner 7pm, program 8pm, Lobdell. $2 members, $4 non-members. Info, Leslie Tung, 494-8201.

Seminars and Lectures

Wednesday, January 23

Prospective Thesis Topics in Sedimentology and Sediment Movement – John B. Southard, earth & planetary sciences. Earth & Planetary Sciences Lecture (74). 11am, Rm 54-425.

How an Employer Evaluates You* – Dr. David Parker, '63, D.P. Parker Associates, Inc, personnel consultants. Placement Office Seminar. 1-3pm, Rm 10-105.

Prospective Thesis Topics in Geochemistry – Frederick A. Frey, earth & planetary sciences. Earth & Planetary Sciences Lecture (74). 3pm, Rm 54-425.

Special Biological Fluids: Part II – Some Special Effects – Edward W. Merrill, Carbon P. Dubbs Professor of Chemical Engineering. Chemical Engineering Special Polymer Lecture Series. 3pm, Rm 12-102.

Role of the ATCC in Biotechnology and Bioanalysis* – Dr. Richard Donovick, director, American Type Culture Collection, Rockville, Md. Nutrition & Food Science, Microbiology & Biochemical Engineering Seminar. 3pm, Rm 16-310.

Magnetic Bubbles – Derreck Scovil, Bell Labs. Science in Industry Seminar (258). 3:30pm, Rm 9-150.

Infrared Observations of Very Young Stars – Susan Kleinmann, physics. Physics Potpourri (259). 3:30pm, Rm 37-212.

Excitation of the Chandler Wobble: Progress & Controversy* – Dr. Michael Chinnery, Lincoln Lab. Earth & Planetary Sciences Seminar. 4pm, Rm 54-100. Tea, 3:30pm, Rm 54-923.

Urban Public Safety Systems: Organizational and Technological Innovations* – Richard C. Larson, electrical engineering, urban studies. Telecommunications Planning and Research Seminar Series. 4-6pm, Rm 9-450. Coffee.

By-Product Use in Sugarcane Agriculture for Developing Countries – Syed Masood Ahmed will lead discussion. Program on the Third World: Seminar on Foreign Students and Participation in Development (345). 7pm, International Student Lge, 2nd fl, Walker Memorial.

Thursday, January 24

Cancer is the Next Frontier – Dr. David Baltimore, American Cancer Society Professor of Microbiology; **Dr. Ronald McCaffrey,** research associate. Innovations in Medicine Seminar (266). Film of same title will be shown. 10am, Rm 16-134.

Ethical Issues Raised by Our Political lsystem – Part II: Beyond Watergate – Rev. Tony Mullaney, Packard Manse Commune. Ethics: Sources and Applications Seminar (343a). 10:30am-12n, Rm 1-134.

Exploration of Distant Planetary Surfaces (Without Leaving Earth) – Gordon Pettengill, earth & planetary sciences. Earth & Planetary Sciences Lecture (74). 11am, Rm 54-425.

Soviet Jews Recently Sentenced to Prison and What We Can Do About It* – Eugene Stanley, physics. Hillel Faculty-Student Luncheon Seminar. 12n, Stu Ctr Rm 473.

Development of New Enterprises – Warren M. Rohsenow & J.P. Barger, Dynatech. IAP Innovation Seminar Series. 12n-1pm, Rm 3-270.

Coal Gasification as a Means of Providing Clean Fuel to Electric Power Cycles* – James H. Porter, chemical engineering. Chemical Engineering Seminar. 1pm, Rm 12-102.

The Astronomy and Cosmology of Copernicus* – Owen Gingerich, astronomy & history of science, Harvard. Physics Seminar. 2pm, Rm 26-100.

Dynamics of Aging* – Social workers from Boston City Hospital will provide feedback on Hillel's recent trip to Mattapan. Future plans will be discussed. 2:30pm, 312 Memorial Drive.

Some Unsolved Problems in Optimization – Thomas Magnanti, management; **Synchronization of Traffic Signals – John Little,** director, Operations Research Center. Operations Research Center Seminar Series. 2:30pm, Rm 24-121. Refreshments.

Employment Opportunities Arising From the Energy Crisis –Peter Griffith,** mechanical engineering. ASME-MIT Student Section Seminar. 3pm, Rm 3-133. Refreshments.

Quebec: Separate but Equal? – Rosemary Rogers, political science; **William Griffith & Martin Jankowski,** political science; **Francois Martin,** MIT; **Al Hero,** World Peace Foundation. Political Science Seminar (261g). 3-5pm, Rm 1-190.

The Russian Icon – Dr. Bayara Aroutunova, Harvard. Foreign Literature & Linguistics Seminar. 3-4:30pm, Rm 14N-225.

Current Research in Computer Science and Medicine – G. Anthony Gorry, Jr., electrical engineering. Health Careers and Currents in Medicine Seminar (124). 3-4:30pm, Rm 9-150.

Astronomical Masers – Bernard Burke, physics. Physics Potpourri (259). 3:30pm, Rm 37-212.

The Graded Enzymic Immaturity of Rodent Cancers* – W. Eugene Knox, M.D., biochemistry, Harvard University Medical School. Nutrition & Food Sciences Seminar. 4:15pm, Rm 6-120. Coffee 4pm.

Sahara Desert Solar Eclipse Expedition of June, 1973* – Kenneth King, student. Earth Sciences Lecture Series (74). 8pm, Rm 54-100.

Friday, January 25

Prospective Thesis Topics in the Properties of Geophysical Materials – M. Gene Simmons, earth & planetary sciences. Earth & Planetary Sciences Lecture (74). 11am, Rm 54-425.

Readings – Tillie Olsen,** writer-in-residence. 12n-1pm, Rm 5-234.

Health Careers – Dr. Howard H. Hyatt,** Dean of Harvard School of Public Health. Health Careers Seminar & Discussion (347). 2-3:30pm, Rm 7-133.

Prospective Thesis Topics in Planetary Physics – Gordon Pettengill, earth & planetary sciences. Earth & Planetary Sciences Lecture (74).3pm, Rm 54-425.

Breathe In! – Edward W. Merrill, Carbon P. Dubbs Professor of Chemical Engineering. Chemical Engineering Special Polymer Lecture Series. 3pm, Rm 12-102.

Research Needs in the Automotive Industry in the Next Decade – Dale Compton, Ford. Science in Industry Seminar (258). 3:30pm, Rm 9-150.

Monday, January 28

Research in Terrestrial, Lunar and Meteoric Paleomagnetism at MIT – Dr. Aviva Brecher, research associate, earth & planetary sciences. Earth & Planetary Sciences Lecture (74). 11am, Rm 54-425.

Men and Women: A Discussion of Some Life Styles – Margaret Adams, consultant in social work in the interdisciplinary training program. Association of Women Students Seminar. 3pm, Stu Ctr Mezzanine Lge.

Prospective Thesis Titles in Seismology – Keiiti Aki, earth & planetary sciences. Earth & Planetary Sciences Lecture (74). 3pm, Rm 54-425.

A Review of Electrophotography – Mike Shahin, Xerox Corp. Science in Industry Seminar (258). 3:30pm, Rm 9-150.

Evaluating the Kansas City Preventive Patrol Experiment* – Dr. George L. Kelling, Police Foundation. Innovative Resource Planning Project Seminar. 3:30-5pm, Rm 3-133.

A Biochemist's Visit to China* – Alexander Rich, biology. Special Seminar. 4:30pm, Rm 6-120.

Tuesday, January 29

Women's Liberation and Ethics: A Feminist Critique of Contemporary Ethics – Dr. Janice Raymond, Boston Theological Institute. Ethics: Sources and Applications Seminar (343a). 10:30am, Rm 1-134.

Earth, Moon, Planets, Sun, Galaxies and Quasars Examined by Radio Interferometry – Charles C. Counselman, earth & planetary sciences. Earth & Planetary Sciences Lecture (74). 11am, Rm 54-425.

Development of New Enterprises – Discussion and summary. IAP Innovation Seminar Series. 12n, Rm 3-270.

Topics in Biological Physics: I-Feedback Control and Instability in Respiration; II-Transparency and Diseases of the Eye – George B. Benedek, physics. Health Careers and Currents in Medicine Seminar (124). 3-4:30pm, Rm 9-150.

Sleeping With the Elephant: US Canadian Relations and the Problem of Anti-Americanism – Raisa Deber, political science; **Ted Greenwood,** Harvard, MIT; **Alan Hendrikson,** Tufts. Political Science Seminar (261g). 3-5pm, Rm 1-190.

Studying, Teaching, Living in a Foreign Country: France – Panel and discussion. Foreign Study Office (122). 4pm, Rm 10-280. Refreshments.

Adenine Nucleotides and Biochemical Homeostasis* – Dr. Daniel E. Atkinson, chemistry, UCLA. Biology Colloquium 4:30pm, Rm 6-120. Coffee 4pm, Rm 56-520.

The Possible Worlds of Art: Deviant Perspectives and How to Get Away With Them* – Marx Wartofsky, chairman, philosophy, Boston University. Philosophy, Architecture, Physics, Technology & Culture Seminar. 5:15pm, Rm 1-190. 6:45pm, buffet, Stu Ctr Mezzanine Lge. 7:30-9pm open discussion.

Wednesday, January 30

Preview of Spring Recruiting at MIT* – Robert K. Weatherall, director, career planning & placement. Placement Office Seminar. 1-3pm, Rm 10-105.

Finding Economic Methods for Global Transport of Natural Gas* – Dr. Elizabeth M. Drake, chemical engineering. Chemical Engineering Seminar. 1pm, Rm 12-102.

User's Forum on the Dataset Security Enhancement – Use and effects of this new feature, scheduled for installation Feb 4, will be explained. Questions welcome. Information Processing Center Seminar. 2pm, Rm 39-530.

What Can Economists Say About Rationing – Martin L. Weitzman, Economics Lecture (77). 2pm, Rm E52-394.

The Future of Canada? – John Porter, Harvard, University of Toronto, author of *The Vertical Mosaic*. Political Science Seminar (261g). 3-5pm, Rm 1-190.

Exploration of Mars – Dr. Harold Masursky, visiting professor, US Geological Survey. Earth & Planetary Sciences Lecture (74). 4pm Rm 54-100.

Community Meetings

Open Forum on the Role of the Arts at MIT (348) – Harold Hanham, chairman, Dean of the School of Humanities and Social Sciencce. Wed, Jan 23, 2-4pm, Rm E14-109.

Law Students Talk About Law School – Five former MIT students, now attending law school, will speak on their experiences and feelings. Wed, Jan 23, 3:30pm, Rm 3-133.

Student Committee on Educational Policy (325) – Wed, 7:30pm, Stu Ctr Rm 353.

Women's Forum – Assault and Rape.** Participants include Drs. Merton Kahne, psychiatrist; Mary Rowe, Special Assistant to the President and Chancellor for Women and Work; Chief James Olivieri, Campus Patrol; and others from outside MIT. Mon, Jan 28, 12n, Rm 10-105.

US Culture and Family Life – Discussion group for American and foreign student wives. Wed, Jan 30, 3:30-5pm, Medical Department (Bldg 11) 3rd fl conference rm. Info, x3-4912.

Technology Matrons' English Conversation Classes for Foreign Wives – Beginner, intermediate and advanced classes will meet for 18 sessions on Tues & Thurs morn. Registration: Fri, Feb 8, 10am-12n, Rm 10-340. Fee: $20. Pre-school care will be provided for $5. Info, Mrs. J. F. Reintjes, x3-3656 or 484-3595.

MIT Club Notes and Meetings

Bridge Club* – ACBL Duplicate Bridge. Matchpoint pairs Thurs, 7-10:30pm; beginners Fri, 10pm-12m; small IMP-scored team of 4 events (advance registration required) Fri, 8pm & Sat, 2pm; Sectional rated open pairs, 8:15pm, Tues Jan 22 & 7pm. Thurs Jan 31; all Stu Ctr Rm 407. Jeff, x3-5285 or 864-5571.

Chamber Music Society – Meeting Mon, Jan 28, 7:30pm, Stu Ctr Rm 407.

Chinese Choral Society – Singing Sun, 3pm, Stu Ctr 473.

Mathematics Club (169a) – Edward Fredkin, electrical engineering, director, Project MAC, will speak on "The World Without Real Numbers." Mon, Jan 28, 3pm, Rm 2-390.

MIT/DL Bridge** – Tues, 6pm, Stu Ctr Rm 491.

MIT Kung Fu Club* – Chinese Boxing, northern praying mantis. Meetings Tues, Thurs, 7:30-9pm. Call, 876-5071 or 661-8765.

MIT Outing Club* – Meetings Mon, Thurs, 5-6pm, Stu Ctr Rm 461.

MIT Scuba Club** – Compressor hours: Mon, Fri, 4-6pm, Alumni Pool.

Strategic Games Society* – Offers opponents and discounts on merchandise to members plus gaming and periodical library. Sat, 1pm-1am, Walker Rm 318. Info, Kevin Slimak, x0389 Dorm.

Student Information Processing Board Meeting* – Mon, 7:30pm, Rm 39-200.

White Water Club** – Pool session. Tues, Jan 29, 8-10pm, Alumni Pool.

Social Events

Hillel Coffeehouse* – Fri. 8pm. 312 Memorial Dr, basement. Refreshments. Fri, Jan 30, film "Different Path" will be shown.

Movies

The Days of Dylan Thomas and A Child's Christmas in Wales – Humanities Film Festival (154). Wed, Jan 23, 12:10pm, Rm 14-0615. Coffee, bring lunch.

The Drifting Continents and Legacies of the Ice Age – Earth Sciences Theatre (63a). Wed, Jan 23, 2pm, 8pm, Rm 54-100.

Predicting at Random – Math Films (163). Wed, Jan 23, 4pm, Rm 2-190.

Sergeant York – World War I: Film and History Series (143). Wed, Jan 23, 7-10pm, Rm 10-250.

Nuclear Power: Fusion – Film Series on the Energy Crisis (153) – Thurs, Jan 24, 5pm, Rm 10-400.

Nuclear Power: Fusion – Film Series on the Energy Crisis (153) – Fri, Jan 25, 12n, Rm 10-400.

Cromwell – LSC. With **Lone Ranger Serial.** Fri, Jan 25, 7:30pm, 10pm, Rm 10-250. Admission 50 cents, ID required.

Pather Panchali (Satyajit Ray) – MIT Film Society. Fri, Jan 25, 7:30pm, 9:30pm, Rm 6-120. Donation $1.

DHUND* – Indian film with English subtitles, sponsored by SANGAM. Sun, Jan 27, 3:30pm, Kresge Auditorium. Admission 50 cents with ID.

Non-Standard Analysis – Math Films (163). Mon, Jan 28, 4pm, Rm 2-190.

Alternatives – Film Series on the Energy Crisis. Mon, Jan 28, 5pm, Rm 10-400.

Alternatives – Film Series on the Energy Crisis. Tues, Jan 29, 12n, Rm 10-400.

Allen Ginsberg and Lawrence Ferlinghetti, Anne Sexton. Humanities Film Festival (154). Wed, Jan 30, 12:10pm, Rm 14-0615. Coffee, bring lunch.

Measure and Set Theory – Math Films (163). Wed, Jan 30, 4pm, Rm 2-190.

The Battle of Algiers* – Sponsored by the Seminar for Foreign Students and Participation in Development. Wed, Jan 30, 7pm, Rm 10-105. Admission $1.

The Madwoman of Chaillot – LSC. Fri, Feb 1, 7pm, 10pm, Rm 10-250. Admission 50 cents, ID required.

Aparajito (Satyajit Ray) – MIT Film Society. Fri, Feb 1, 7:30pm, 9:30pm, Rm 6-120. Donation $1.

MIT's Woman Varsity Skier Featured in Sports Column

(Deborah Stein, a chemical engineering sophomore from Burlington, Vt., and number two person on MIT's varsity ski team, was the subject of a recent column on the sports pages of the Boston Herald American. *The column follows.)*

BY DICK DEW
Sports Columnist
Boston Herald American

Coach Bill Morrison used to make out his MIT ski team lineup as: I.J. Navelek, 2. D. Stein, 3. G. Ruf..."

But that doesn't fool anybody any more so Morrison uses the full names: "1. John Navelek, 2. Deborah Stein, 3. Gary Ruf..."

"I really only did that the first time Debbie raced against the men," the walrus-mustached Morrison admits of the precendent-breaking inclusion of a female in men's intercollegiate ski competition.

"I just wanted to make sure she raced that first time. But everyone knows about her now so I don't worry about it any more."

The Massachusetts Institute of Technology coach really had no choice but to consider Miss Stein for his lineup for Eastern Intercollegiate Ski Association Division II meets last winter.

The NCAA, ECAC and EISA had all accepted rule changes stemming from the liberation movement that women were eligible to compete with men in non-contact sports if there weren't separate women's teams available to them.

But prior to actual competition, Morrison wasn't sure that Debbie, a sophomore majoring in chemical engineering, could win her way in the several ski meets MIT engages in each year.

He knew she was as good or better than some of his other candidates. But how does a 5-foot-2, 118-pounder fare in head-to-head competion with men from other colleges throughout the east?

Debbie answered Morrison's questions with positive emphasis during her freshman season and there was absolutely no doubt about ranking her second on the MIT lineup card this time and by her full name.

Morrison had heard of Debbie as "a good Class B women's skier" before she was accepted at MIT. But the first official word that she would be a candidate for his team came from assistant Athletic Director John Barry.

I was conducting a briefing for parents of incoming freshmen, lecturing on the MIT athletic program. Debbie's father came up afterwards and asked if I thought she could compete.

"I questioned her ability to make the team but he seemed quite confident that she'd be able to compete successfully — and he was right.

"Debbie was the first girl to compete in the EISA," Morrison said, noting that MIT might have had a second candidate before junior Anne McKinnon of Wayland was sidelined by injury.

"We run a series of competitions to determine the lineup as we go and Debbie's consitancy kept moving her up last season. She ended the year as our number two Alpine skier.

"I think she'll get better against the men as time goes on, too," he said, citing the Division II final statistics from last spring showing her 19th in the grand slalom and tied for 14th in the slalom.

"I really don't think she can do much better than a 10th place because of her size and strength. But she's very consistent, she's always in there.

"Where some of the guys either win or get disqualified, she's a good, solid team member, a good skier who wants to race," Morrison said.

Therewere some objections by rival coaches and skiers when Debbie, a resident of Burlington and Waitsfield, Vt., first broke in. And there's still a little fuss around the scoreboard after many of the competitions.

"About the only thing we hear any more is a little rumbling around the scoreboards. It seems that some of the men skiers look for her name first, to see whether they beat her or she beat them.

"But there's no static from the other schools or the other coaches about her competing. How can they argue if she's finishing so well? They can't object to keeping it a men's sport if a girl is beating their guys."

Mrs. Serena Modigliani Serving On State Privacy Commission

A third member of the MIT community will serve on a blue-ribbon state Commission on Privacy and Personal Data along with President Jerome B. Wiesner and Professor Robert M. Fano.

She is Mrs. Serena Modigliani, wife of Dr. Franco Modigliani, Institute Professor, professor of finance and professor of economics at the Alfred P. Sloan School of Management.

Mrs. Modigliani said she has no particular expertise on the subject, but was happy to serve when asked because of her concern about the individual's right to privacy.

"It is a fascinating subject," she said. "We are being surrounded by intrusions from every side."

Mrs. Modigliani said she was a public member of the commission, representing the average citizen.

It is important, she said, to spread the word on the right of privacy and other individual rights to the general public.

The commission appointed by the governor will examine the privacy and confidentiality implications of the state's computerized record-keeping and information gathering systems. It also will study statutes, regulations and administrative practices and recommend changes when necessary to insure the confidentiality of the data stored in them.

Dr. Austin Elected

Dr. Pauline M. Austin, Senior Research Associate in the Department of Meteorology, has been elected a Councilor of the American Meteorological Society.

Dr. Trump Elected

Dr. John G. Trump, Emeritus Professor of Electrical Engineering, has been elected chairman of the board of trustees of the Lahey Clinic Foundation.

Broadway Plays For Children

MIT is playing host to Boston area school children this year for a special winter season of live, professional Broadway theater.

Depending on gasoline supplies for school buses and family autos, thousands of elementary and secondary school students are expected to attend about 10 performances in Kresge Auditorium by the New York Theater Festival, a non-profit touring company specializing in children's shows.

As host, MIT has made Kresge Auditorium available and the MIT Council for the Arts has made a grant of $500 to the Cambridge school system to help some children attend the performances. Members of the service fraternity Alpha Phi Omega are providing free usher service.

The series opened Jan. 15-18 with eight performances of "Young Abe Lincoln." A cast of professional school-age actors will present "The Me Nobody Knows" from Jan. 29 to Feb. 1. A rock version of "Tom Sawyer" and a musical version of "Swiss Family Robinson" and "The Age of Shaw are scheduled to be given in May.

Ramnath Wins Faculty Staff Tennis Title

"Rah, Rah Ramnath."

That isn't yet an official cheer at MIT, but Dr. Rudrapatna Ramnath's exploits on the tennis courts seem to call for at least some small song of praise.

Dr. Ramnath, a staff member at the Draper Laboratory, Inc., recently came out on top in the MIT Faculty and Staff Tennis Tournament—in both singles and doubles—for the third straight year.

He won the singles championship by defeating James E. Evans of Lincoln Laboratory, 6-2, 6-4. And he joined with Hyman A. Greenbaum to win the doubles title. They defeated Joseph M. Patten, director of the Office of Administrative Information Systems, and Leonard I. Gershon, a research associate, 6-3, 6-4.

Dr. Ramnath has had three different partners in his successive doubles triumphs. Greenbaum, who received a master's degree in mathematics last June, is coach of the women's tennis team.

The 34-year-old Dr. Ramnath, a Lexington resident, started playing tennis in college in India about 12 years ago. This was at the University of Mysore in Bangalore, and he became captain of the varsity team.

He has been playing quite steadily since then, except for occasional breaks, and is a regular at the MIT outdoor and indoor courts.

What is the best part of his game?

"My friends say that my forehand is good," he said. "My backhand isn't as strong, but it's sliced and stays low and they say it gives them trouble."

And his serve?

"It's quite good. I don't try to hit it as hard as I used to, but it's reasonably strong at our level of the game."

Dr. Ramnath is known by those who have competed against him not only as a fine player, but as a gentleman as well.

It should be noted, too, that he has been playing squash for the past few years after having stayed away from the game to guard against any change in his tennis stroke.

It would seem safe to say that the tennis stroke has survived.

Music

Concert By Erdely Duo* – Violinist, Stephen Erdely of the music faculty, and his wife Beatrice, noted pianist, will give their first Boston performance, featuring classical and contemporary sonatas. Sponsored by the MIT Music Section. Fri, Jan 25, 8pm, Kresge Auditorium. Free.

Theatre

The Clouds – by Aristophanes. Fri, Jan 25 & Sat, Jan 26, Stu Ctr Mezzanine Lge. Free. Call Richard Koffler, x3-2644, for times.

Exhibitions

Creative Photography Gallery* – Presenting an exhibition of the works of four young Boston photographers: Dennis Barna, Tom Fiorelli, Andrew Gordon and Steve Halpern. Thru Fri, Feb 8, 1-6pm, closed Sun.

The Diaghilev Era* – Watercolors of costumes and stage designs organized by the International Exhibitions Foundation, Washington, DC and sponsored by the Committee on the Visual Arts. Thru Sat, Feb 16, 10am-4pm, closed Sun, Hayden Gallery.

Heroines and Coquettes* – Photographs of women performers, 1875-1925, from the Harvard Theatre Collection, sponsored by the Committee on the Visual Arts. Through Sat, Feb 16 10am-4pm, closed Sun, Hayden Gallery.

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.

Music Library Exhibit – Persian musical instruments.

Athletics

Friday, January 25 – Indoor Track. Coast Guard, 6pm, Rockwell Cage.

Saturday, January 26 – W Fencing. Concord, 4pm, duPont Fencing Rm. **JV/F Basketball.** Huntington School, 6:15pm, Rockwell Cage. **V Basketball.** Queens College, 8:15pm, Rockwell Cage. **V Fencing.** Dartmouth, 2pm, duPont Fencing Rm. **JV/F Fencing.** Concord High, 4pm, duPont Fencing Rm. **Gymnastics.** Yale, 2pm, duPont Gym. **V Hockey.** Holy Cross, 7pm, ice rink. **JV/F Hockey.** Emerson, 2pm, ice rink.

Wednesday, January 30 – V Hockey. Nichols, 7pm, ice rink. **Indoor Track.** Colby, 6pm, Rockwell Cage.

Friday, February 1 – JV/F Basketball. St. Anselms, 6:15pm, Rockwell Cage. **V Basketball.** Coast Guard, 8:15pm, Rockwell Cage.

Religious Services and Activities

The Chapel is open for private meditation 7am-11pm daily.

Campus Crusade for Christ/College Life* – Family time, singing, prayer, teaching from God's word. Fri, 7pm, Rm 1-132.

Celebration of Holy Communion* – The Revs John Crocker, Episcopal Chaplain; Peter Johnson, Boston/Cambridge Ministries; and Constance Parvey, Lutheran Chaplain. Wed, 5:05, Chapel. Supper following, 312 Memorial Drive.

Hillel:* Services – Mon-Fri, 8am, Rm 7-102; Fri, Traditional 5:30pm, Kosher Kitchen, Non-Traditional 8:30pm, Chapel; Sat, 9am, Chapel. **Classes** – many interesting classes offered, for full schedule call Hillel office, x3-2982. **Shabbos Meal** – enjoy a traditional Fri evening meal at Kosher Kitchen, must order by Tues each week. Info and to order, Herbie Levine, x8403 Dorm.

Islamic Society* – Juma prayers. Fri, 12:15pm, Kresge Rehearsal Rm B. Discussion on the Qur'anic Interpretations, Sat, 5pm, ISC Lge, 2nd fl Walker.

Protestant Worship Services* – Sun, 11am, Chapel. Sunday school for children 3 years and up during service in Stu Ctr Mezzanine Lge.

Roman Catholic Masses* – Sun, 9:15am, 12:15pm, 5:15pm; Tues, 5:05pm; Thurs, 5:05pm; Fri, 12:15pm. Chapel.

United Christian Fellowship* – Meet for dinner Thurs, 5pm, Walker; singing, sharing, praying meeting, 6pm, Rm 6-321.

Westgate Bible Study* – Covering the gospel of Mark. Wed, 8pm, Westgate. apt 1202. Info, 494-8778.

Announcements

February Degree Recipients – Post cards must be returned to E19-335 no later than Fri, Jan 25, 1974 to indicate whether diploma is to be mailed, picked up or if June attendence is planned.

1973-74 Directory of Foreign Staff Members – Now available in Rm 7-121. Please call x3-2851 if you wish to have a copy mailed.

MIT Opera Workshop – Directed by John Cook, is recruiting for the upcoming production of "Orpheus and Euridice," an Italian opera composed by Christopher W. Gluck. The Workshop needs a large chorus, soloists, dancers, production crew, set & costume designers, and someone proficient in Italian to help with revisions. If interested, call John Cook, x3-6961, or leave message at x3-3210.

BSU Tutorial Program – Black Student Union offers a full program of assistance to minority undergraduates for second semester. Teaching assistants available Mon-Thurs, 7:30-10:30pm, Rm 4-145, 146, 148 & 149 by appointment. Info, Karen Scott, x0351 Dorm.

Additional IAP Information

The following are changes, corrections and additions to the information which appeared in the Final Guide to IAP. The bold numbers correspond to the numerical listings in the Guide.

How to Find Out in Engineering (157) – Literature specialists will be on hand to discuss the abstracts, indexes and other reference services available for civil, electrical, mechanical and ocean engineering. Wed, Jan 30, 3pm, Barker Engineering Library Orientation Rm, 5th fl Bldg 10.

Legal Aspects of Ocean Resource Management (279B & 266D) – Will meet Thurs, Jan 24 (not Jan 17), 3-5pm, Rm E52-461 (Shell Rm).

Recorder Playing – Meetings now scheduled Mon, Wed, Fri, 9-11. More music available, come as often and whenever you like.

NASIC Demonstrations (158) – CHEMCON data base, covering chemistry and chemical engineering, will be demonstrated Fri, Jan 25, 11:15am, Barker Engineering Library. Call, x3-7746 to sign up.

New IAP Listings

Man-Powered Flight – An examination of the problems of man-powered flight. A detailed look at the design and construction of the MIT BURD provides an example of some possible solutions. Tues & Thurs, thru Jan 31, 5pm, Rm 33-319. Paul Hooper or Ed Uchno, Bldg 17, x3-2270.

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

Send notices for January 30 through February 8 to the Calendar Editor, Room 5-111, Ext 3-3279, before noon Friday, January 25.

CLASSIFIED ADS

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. Only Institute extensions may be listed. Members of the community who have no extensions may submit ads by coming in person to the Tech Talk office, Room 5-111, and presenting Institute identification. Ads may be telephoned to **Ext. 3-3270** or mailed to room 5-105. **Please submit all ads before noon, Friday, January 25.**

For Sale, Etc.

Goose down parka, m, sz lg, gold, exc cond, used 1 seas, orig $100, now $50. Darlene, x3-6171.

Blaupunkt amfm car radio w/spkr, nds work, best. Bill, x3-2701.

Ski jckt, exc cond, v warm, med-lg, $25 or best. Guy, x8647 Dorm, evgs.

Matt & bx spr, free; skis, Reiker sz 9 boots, poles, $35. Mark, x8-1585 Draper.

Welbilt refrig, 2 cu ft, 3 mos, $50; study lamp, $3. Yaw, x0684 Dorm.

GE TV, 19", exc cond, $55. x3-7235.

Boy sz 13 Bauer skates, lk nw, $6.50; boy X C ski boots, sz 13, 1; 2 snows, Volvo or compact, $5 ea; baby carriage, $25; cpt chr, $8. Mrs. Gundersen, x3-6085, pm.

Sgl beds, 2 spr matt, $10/ea; red carpet, 8x4, $8; nw b&w TV, 12", $60; vac clnr, $15; misc K & tbl ware, bedlinen. John, x3-2223.

Wh gas stove, 40", 5 brnr, elec outlet, timer, gd cond, cln. Lee Medeiros, x3-6278.

Hart King skis, 195 cm, w/Salomon 444 bkdgs, exc cond, $110; asst wd storm wndws, $1/ea; Hyde sz 7 hcky skates, $14. R. Strong, x8-1416 Draper.

Wdn Tempest 185 cm skis, w/boots, poles, gloves, $55 or best. Zakaria, x3-3191, lve msg.

Sherwood 7100-A rcrvr, TEAC 1230, Sony TC280 r-r tape deck, w/wrnty cards, v low price ea. Vernon, x9244 Dorm.

Brass rod 180"; drapes: gold lines 14'; grn foam back, 45"w, 124"w, 84"l; wht wide sheers. Call, 325-2813.

Dbl bed & frame, $20. Lori, x3-6742.

Dynaco stereo 120 amp, PAT-4 preamp, Scott 312 D-1 stereo fm tuner, Sony TTS 1000 trntbl, PUA 237 arm, Shure V15-II crtrdg, AR3 spkrs, all exc cond, best. David, x3-4157.

Sears Dynaglas belted G78-13 stud snows, mtd, balanced, Opel 4 bolt, best. Mike, x3-6122.

Falcon parts, incl gd motor, (5) 6.50x13 compact sz tires, v cheap or free. Stev, x3-4820.

Nw pr Clark Wallabees, worn once, brn leath, too sm, sz 11, $28 or best. Paul, x3-5483.

Fender Bassman, gd cond, sounds gd even tho post-CBS, $225 or best. Andy, 899-9389.

Crib, sturdy birch, incl Kantwet matt, $30; bike, boy, 20" 2whl, $15. Larry, x3-7810.

Lg writing desk, $50; coffee tbl, $15; Plymouth Baracuda, gd run cond, snows, $200. Hilda, x3-2370.

Philco refrig, 20 yrs old, $30. Ed, x7452 Linc.

Hcky skates, sz 5, exc cond, $10. Alan, x3-5058.

Old Gould oil brnr w/controls, $275 gal tank, $125; Yamaha 100A clas guitar w/case, 1½ yr, gd cond, $50. Audrey, x3-4837.

Ski equip, nrly nw, 170 cm Tyrolia step-in bndgs, f sz 5N boots, bootholder, 45" poles, $50 set or sep. Iain, x3-1761.

Refrig, 4½'x2½', old but works, ask $20. Asako, x3-5996.

Koflach 5 bckl ski boots, f sz 5, nw, w/tree, $18. Aldrich, x3-5360.

Oriental 9x12 rug; console sew mach; ornate wall mirror, 44x16. Glen x8-3584 Draper.

Pr Rectilinear Mini III spkrs, exc cond, nw $200, $100. Call, 494-8725.

Pioneer SX-727 stereo rcrvr, exc cond, $320; Dual 1219 auto trntbl. Rich, 247-7775.

Auto spd-radar detector, sounds when police spd-meter waves intercepted, $20. Joel, 494-9142.

Head GK03 skis, 170 cm, $30. Debbie, x3-7720.

Mamiyaflex twin lens, 2¼", w/telephoto, wide angle addit lenses, exc cond. x3-1876.

Henke Intersport ski boots, sz 10m (fit sz 9), gd cond, orig $60, now $25. x8333 Dorm, pref bef 10am.

Sofa, gd cond, $30; coffee tbl, $15. Call, 494-9098.

Sony TC 366 tape deck, exc cond, best. Steve, x3-5525.

Used Maple Leaf hcky skates, sz 11, ask $9. Steve x0164 Dorm.

Cave reflector, 10", f/7, w/guide scope, clock drive, setting crcls, 2 cameras; compl drkrm w/Bessler 23C enlarger; approx 60-70% orig price. Nelson, x0163 Dorm.

Snows, mtd, 7.35x14, fit Ford Mav, $20/pr. x3-2671.

MAC 1700 rcrvr, ask $475; MAC C22 preamp, ask $200, both w/wlnt case, recent check MAC clinic; Metretec equalizer, $50. Yale, x3-1623.

Viscount Deluxe 3 channel 6 jnput amp, stand, cover, nrly nw. x3-4797.

Wedding gown, sz 9/10, nvr worn or altered, was $250, $125 or best. x5734 Linc.

Fan, 20", 3 spd, nrly nw, $10; port hrdry, Lady Sunbeam, $8. Yveline, x3-3929.

Dynaco PAT-4 preamp, $75; BSR 810X w/Shure V-15 type III, $160; power amp, 80+80 W RMS, $130; Dynaco FM-5, $125; 901's w/equalizer, $300. John, x0247 Dorm.

Elec calculators, 40% off, below wholesale, memory, AC adapter/charger, float/fix decimal, all nw, orig packing, wrnty. Phil, 354-1638, evgs.

Sony amfm port radio, ac/batt, gd sound, perf cond, cost $45, $30 or best; fan-forced space heater, 1250 $10. Raphael, x9330 Dorm.

Lk nw 91" contemp sofa, brn/grn print, $110 or best. x8-4061 Draper.

Clairol Kindness 20 hairset, $8; Bell & Howell 172A reg 8 movie cam w/3 lens, $20; Keystone reg 8 proj, $20; all exc cond. Ray, x3-1928.

Solid rock mpl chrs, 4; 5 pr mach wash drapes, b nw, 63"; 5 arm colonial brass hanging light fix; steel storage cab; Sawyer hand viewer; misc. Call, 395-8751.

Frigidaire refrig, 14 cu ft, top freezer, frost-free; elec cab sew mach; Philco ac; misc tbls & chrs. Call, 444-9290.

Stud snows, 2, F70x14, 30 K left, $85 pr when nw. Myron Silver, x3-2636.

Record player, British Connoisseur by Sugden, w/Audax arm & base, wired for stereo, no crtrdg, exc quality, $20. Hardy Prince, x5526 Linc.

Used furn, MIT Stu Furn Exch, 25 Windsor St. 10am-2pm, Tues & Thurs, x3-4293.

Fish tanks & fish. Call, 864-0556.

Olympus 35RC, EE, full frame, ask $70. Yui, x3-7114.

Bike, 4 mos, perf cond, sgl spd Columbia, nw $60, $40 incl lock, chn, bskt. Call, 494-8942.

Seas oak $60/cord, $30½ cord, $10/2 rows to top (sta wgn), $8 lg trunk, $5 sm trunk, both closed. Ed or Don, 1-655-5125, evgs.

Mink cape, $50; tux 42L, 2 shirts, 2 jckts, nvr worn, $50; child bureau, $20; child X C skis, Ems 140 cm, boots, poles, lk nw, Ben Hutchinson, x5451 Linc.

Remington man typwrtr, gd cond, $45; Kenmore buttonholer, $5; wd pack rack, $2; old IBM typwrtr, nds adjust, $5. Call, 643-4283, aft 6.

Down parka, f, sm-med, brn, w/belt, down hood, perf cond, $20. Frederick, x3-1445.

Revox A77 tape deck, nrly nw, 10" reels, solenoid operation, $475 nego. Andy, x3-2540.

Kenwood 2000 amp, 40 W, easily drive any spkr, exc cond, ask '75. Viki, x3-5049.

Collaps playpen, $9; gerry baby carrier, bl, $9. Tony, x3-5783.

Gas stoves, 2, $15, $125 (cpprtone). x8-1345 Draper.

Bauer Blk Panther skates, $25; CCM tacks, b nw; hcky equip incl pants, shingrds elbow pads, helmet, etc. Rob, 536-3723, evgs.

Desk, $20; typing tbl, $5. Jim, x3-3876.

Molitor ski boots, m, gift, nvr used too small, best. Kevin, x3-5900.

Water bed, 5x7 w/heater, thermostat, finished frame, liner, $75 or best. Paul, x3-2270.

Flexible Flyer baby sled w/whls & runners, used 2x, $13. x3-4580.

Snows, 2 ww, mtd, 7.35x14. Odien, x8-4505 Draper.

V compact 750/1500 w Braun thermostatically controlled forced-air space heater, $30 nw, $10. Bill Ladd, x3-4157.

Garrard auto trntbl, exc cond, $30; Superex stereo hdphones, lk nw, $15. x3-2934.

Vehicles

'62 Ford Gal, runs gd, nds work, $100 or best. Bob, x3-2255.

'64 XKE coupe, '67 trans, nw clutch, some body damage, $1,700. Frank, x3-2091.

'65 Mercedes Benz 220SE clas, maroon, fuel inj, exc cond, Pirelli tires, 25 mpg, $1,200 or best. Lun, x8739 Dorm.

'66 Alfa Romeo GT, must sell now, best. Rick, x3-7001.

'67 Plymouth Fury 3 sta wgn, p st, auto, r, 17 mpg reg interurban, 13 avg, 2 nw snows, 5 gd reg tires, 77 K, reliable, best. Uri, x3-4854.

'68 VW fstbk, exc cond, 40 K, 25 mpg, $1,350. Les, x8-1434 Draper.

'68 Ford cntry sed wgn, nw snows, disc br, ac, heavy duty susp, gd gas mileage. dependable, $500 or best. x3-1787.

'69 Chrysler, 4 dr, must sell immed, $900. Rezende, x3-6853.

'69 Dodge Dart, 6 cyl, 4 dr, nw front tires, snows, nw br, tune-up month ago, exc cond, $850. Call, 924-6191.

'70 AMC Hornet, red, 20-25 mpg, 6 cyl, 232, positraction, std, r, lux grp, gd cond, $1,000 or best. Bob Sweeney, x3-1955.

'70 Ford Mav, exc cond, $900 or best. Chris, x3-5520, lve name.

'72 Plymouth Val, 4 dr, 225 cu in 6 cyl, v gd cond. x3-7709.

'73 Ford Torino, sm eco V8, p st, disc br, r, only 13 K, best. Bill, x366 Linc.

'72 Snow Prince XL340, gd cond, dependable, used 1 seas, gd for beg, was $900, ask $450. x3-6101.

Housing

Acton, BR, unfurn, sub thru July, $210 incl h. x7347 Linc.

Back Bay, stu w/k, B, view Fens, cln, quanit, nr shops, Pru, T, unfurn, working person, $140 incl h & hot water. Call, 232-4750, days.

Back Bay, 2 BR, furn, K, avail 2/1; also BR w/Kette, avail now. Mitch, 266-6576.

Bos, Fenway, lg BR apt, sub w/June opt, move-in-cond, $165 incl util. Call, 262-5338, evgs.

Bkln, Comm Ave, effic apt, sub 2/1-8/31, nr T, parking 1 car, well heated, $163 + sec. Dave, x7689 Linc.

Camb, bet Harvard & MIT, exc loc, 2 lg BR, LR, K, nw bldg, avail 6/1, $310. Arturo, 547-4343.

Camb, Centre St, mod 2 BR, LR, lg K, parking, lndry, nr T & shops, gd for kids, $275 incl h. Call, 494-0366.

N Camb, Sherman St, BR, $152. Michelle, x3-7753.

Northgate, MIT affil, 3 rm apt, 1-2 BR, avail 2/1, lse till 8/31, $185 incl h. Call, 864-5336, before 4.

Vt, Ludlow, rms in ski hse, by mo, wk or day, gourmet cooking, sauna, nr Okemo, express bus. Freeman, x3-4771.

Vt, Weston, ski hse, from $30/day, slps 8, 3 BR, all elec, frpl, ski Bromley, Magic, Okemo, Stratton. x477 Linc.

Ski Jay, 4 BR, slps 8, fully equip, fam pref. x3-3127.

Mtn ski hse, nr jay Peak, spectacular view, slps 16, central h, 2 frpl, plenty gas 24 hr serv sta. Chris, x3-2743.

Animals

Doberman cross pups, 14 wks, 1st shots, $10. x3-5758.

Yg guinea pig w/cage, water bottle, litter, food, $10. x8984 Dorm.

Free 7 mos old dog, mix, shots, Rhoda, x3-5763.

Free to gd home: f samoyed shep, spayed, 2 yrs, v gentle & affec. Fred, x8-4533 Draper.

F cats, 2, spayed, free to gd home, sl-pt siamese, tortshell. Doug, x3-4170.

Siamese kittens, blue pt, 10 wks, CFA, w/shots. Karen, x9884 Dorm.

Lost and Found

Found: f wedding band, Main St nr E19. Pauline, x3-2766.

Found: dog, nds home w/chldrn, 6 mos, trained, terrier/setter, f, blk. x3-3646.

Lost: keys, Albany St, Fri morn, Jan 11. x8-3494 Draper.

Wanted

Subjects for psych-acoustics exper, $2/hr. Bob, x3-2575.

To share Camb apt w/2-3 f, now-mid June. Melissa, x3-4771.

'71 Hummel annual plate. Tom, x8-1510 Draper.

Rmmate, 23+, 2nd fl Bri hse, own rm, b & fr porch, b yrd, free parking, nr T, $83 + util. Rhonda, x3-7271.

Rmmate, m, find or share apt & expenses, stu or grad stu. Sandy, x3-2036.

Hsemate(s), share w/4, Jam Pl, sgl or cpl, own lg BR, 2 LR, K, 1½B, 3 blks T, carpool avail to MIT, $450 split among. 522-5179.

F, 2, 23+, seek f for apt in hse, nr Porter Sq, pref working, $75 + util. Rochelle, x3-6164.

Used flute, wl pay reas price. Frank, x8-2865 Draper.

Motorcycle helmet, any color. x8-2004 Draper.

Arl residents to join food co-op, must have sta wgn or larger. Steve or Judy Sadow, 646-7762.

Fig skts: m sz 9-9½, f sz 7½-8. Barbara, x3-1952.

Rmmate, off Cent Sq, own rm, $98 incl util. Ron, x8-1241 Draper.

Used spinet piano, reas. Call, 643-8079.

Tbl-type desk, wd, at least 48". Lily, x3-7335.

Rmmate, Nahant hse on ocean, quiet, own rm, frpl, priv beach, 25 min MIT, incl h & util, phone, $130. Jeff or John, 581-1249.

Lg, mod style sofa, wl pay well if have what want. Roy, 484-3281.

Whl fittings & fork, 5 or 10 spd bike, not frame. Karin, x3-3769.

Used furn for MIT Stu Frun Exch, 25 Windsor St Tues & Thurs, 10am-2pm, wl pay, donations welcome. x3-4293.

Carpool or ride, Natick-MIT daily. Eva, x3-5742.

Carpool: 3 going from Lex/Waltham brdr (Concord Ave) to MIT daily want to contact more people interested in efficient carpooling. Call, 861-9027.

Daily ride, Stoughton-Draper. Dotty, x8-3501 Draper.

Native Eng spkrs for 45 min psych experiment, wl pay $1.60. Martin, x3-5797.

Upright freezer, gd cond; 2 pr ski poles, inexp; 1½ books plaid stamps, wl buy or trade grn stamps. Call, 227-8510.

Miscellaneous

Wl do theses, gen typing, fast, IBM selec. Maureen, x3-7062.

Piano tchr, licentiate of Royal Schools of Music, Eng, interested in elementary & intermed stu. Deborah, x3-6925, day.

Gen typing, manu, thesis, IBM selec, no tech. Wendy or Ann, x3-5115.

Exp mother wl babysit in her Wstgte apt. Call, 494-8697.

Resp grad stu wl housesit, now til June, wl care for plants, pets, heirlooms, ref on request. Barrett, x3-1513.

Wl trade Vassar & Main sticker for Windsor garage (note from ed: notify supervisor & campus patrol of change). Bob, x3-4319.

Typing, great rates, elec. Stan, x3-6765, or drop line NE43-915.

Positions Available

This list includes all non-academic jobs currently available on the MIT campus. Duplicate lists are posted each Tuesday preceding Tech Talk *publication date on the Women's Kiosk in Building 7, outside the Office of Minority Affairs, 4-144, and in the Personnel Office E19-239, on the day of* Tech Talk *publication. Personnel interviewers will refer any qualified applicants on all biweekly jobs Grades I-IV as soon as possible after their receipt in Personnel. Employees at the Institute should continue to contact their Personnel Officers to apply for positions for which they feel they qualify.*

Virginia Bishop	*3-1591*
Mike Parr	*3-4266*
Philip Knight	*3-4267*
(secretary – Joy Dukowitz)	
Sally Hansen	*3-4275*
Jack Newcomb	*3-4269*
Evelyn Perez	*3-2928*
(secretary – Mary Ann Foti)	
Dick Higham	*3-4278*
Pat Williams	*3-1594*
Claudie Liebsny	*3-1595*
(secretary – Dixie Chin)	

New applicants should call the Personnel Office on extension 3-4251.

The following positions have been filled since the last issue of *Tech Talk* and are no longer available:

73-1353-R	DSR Staff Resrch
73-1335-R	Sr Secretary V
74-28-R	Sr Libr Asst IV
74-10-R	Salesperson
73-1312-R	Secretary IV
73-1166-R	DSR Staff
73-1285-R	Secretary IV
74-6-R	Secretary III-IV
73-1359-R	Secretary III
73-1328-R	Secretary III
73-1329-R	Libr Gen Asst III
73-1352-R	Sr Clerk III
74-17	Secretary III
73-1267-R	Secretary IV
73-1259-R	INSITE Sys Prog
73-1318-R	Secretary III
73-1368-R	DSR Staff
73-1170-R	Secretary IV
73-1198-R	Secretary III (P-T)
73-1240-R	Painter
73-1107-R	Electrician

The following positions are on HOLD pending final decision:

73-1342-R	Clerk II (Part-time)
74-7-R	Secretary IV
73-1366-R	Sr Clerk III
73-1325-A	Sr Clerk IV
74-2	Appl Prog Trainee
73-1367-A	Dir Cell Culture Fac
74-57	Secretary III
73-1182-A	Jr Prog V

DSR Staff – General Manager of Innovation Co-op will be responsible for the organization and operation; supervise support staff of engineers, marketing experts and technicians; make negotiations in legal matters pertaining to the commercialization of the products developed in the Co-op; serve as clearing house for invention proposals originating from outside the Center; carry out business plans for each product. Degree in engineering, preferably electrical or mechanical (advanced degree preferred) and 5 years experience in engineering management required. Experience in small industry as an entrepreneur or marketing experience desirable. Applicants should show evidence of innovative talents; leadership qualities, inspiration to others. 74-68-A (1/23).

DSR Staff – Junior Electronics Engineer in the Center for Space Research will design, test and checkout scientific experiments for space satellites; assist in system design; test and integrate the developed experiment in the spacecraft and participate with prelaunch support. Emphasis is placed on low noise, low level analog circuitry but thorough familiarity with digital electronics and logic design of the experiment is required. B.S. degree in EE with experience in the design, development and testing of solid state low level analog systems; familiarity with modern semiconductors in space applications and modern signal detection theory and applications required. 73-1241-A (11/28).

Project Administrator – Administrative Staff in the Office of Sponsored Programs will provide interim administrative services to new research activities. Initial assignments will involve energy research programs. Experience in an academic department or research lab working directly with faculty on sponsored programs essential; technical background and interest in energy problems preferred. Experience in MIT financial and business administration valuable. 74-36-R (1/6).

DSR Research Staff at the Center for Cancer Research will work with mouse leukemia viruses, including sterile passaging of cells and general tissue culture techniques, with a variety of biochemical extraction and purification techniques. B.S. in Biology or Chemistry desirable. 73-1344-A (1/9).

Assistant to the Accounts Payable

Supervisor (Exempt) in the Accounts Payable Section of the Comptroller's Accounting Office will process post-doctorate, grad awards and rent accounts; assist in the processing of foreign invoices, stop payments, and change order areas; responsible for past due transactions and correspondence with vendors and departments. Accounting degree is desired; accounting course work plus 2-5 years work experience acceptable. Good accounting and communication skills important. 73-1358-R (1/9).

DSR Staff Researcher in Health Sciences and Technology will carry on a program of membrane research that is supported by the National Heart and Lung Institute of NIH. Candidate must have the ability to creatively propose new experiments utilizing cation- specific antibodies; skill in handling the preparation of materials for Raman spectroscopy; skill in using a dye laser and Raman spectrometer; competency in the interdiciplinary field of biological physics. Recent Ph.D. required. 74-12-A (1/9).

Environmental Engineer – Administrative Staff in Physical Plant will organize and direct an Institute-wide energy conservation program. Survey campus buildings to determine areas of possible energy economy; plan procedures; maintain the Institute's compliance with environmental requirements. BS in Electrical Engineering with a basic knowledge of building Mechanical systems for heating, ventilating, and air conditioning. Experience in engineering design or operation of buildings. Experience in energy conservation helpful. 73-875-R (9/5).

DSR Staff in Metallurgy will perform scanning transmission electron microscopy and high spatial resolution electron probe microanalysis of biological specimens; prepare thin films to use as microanalysis standards; technical subjects. BS with experience in the resolution and physical constants of thin film, or MS degree required. 73-1127-R (10/24).

DSR Staff in the Energy Lab will design, build, and operate a high performance combustion facility for fluid mechanics and materials research directed toward the development of electrodes for a high power energy conversion device. Will also handle the instrumentation of a shock tunnel driven MHD generator. Ph.D. and minimum 5 years experience in experiment and engineering hardware. Interest and ability in dealing with MIT, local and U.S. research and engineering communities desired. 73-47-A (1/23).

DSR Staff – (Temporary) in Physics will work on the scattering theory related to energy transfer problems. The problems require understanding the physics as well as computational procedures involved; special emphasis placed on time saving devices. Familiarity with computer programming necessary. Ph.D. in Physics required. 74-59-A (1/23).

System Programmer – Administrative Staff in the Programming Development Office will work as a Multics System Maintenance Programmer. Duties include crash/problem analysis and possible correction, generation of new systems, and other support tasks. Minimum 3 yr. experience on PL/1 or other high level programming languages. 74-62-R (1/23).

Systems Programmer – Administrative Staff will provide technical expertise; develop and implement methods of improving computer performance. Minimum of two years S/360 or S/370 Programming experience. Knowledge of teleprocessing, and COBOL or PL/1. 73-265-R (4/73).

DSR Staff – Systems Programmer at Project MAC will perform system analysis and system programming on a research version of the Multics operating system. SM or EE degree experience in the Supervisor of some advanced operating system required. Ability to contribute to research and work with students important. 73-1234-A (10/24).

Project Manager – Administrative Staff in the Office of Administrative Information Systems will develop major systems; perform feasibility studies; prepare budgets; work with clients in the evolution of each new development project. Applicants should have a strong background in the management area of administrative data processing. 73-1327-A (12/19).

Systems Analyst – Administrative Staff in the Office of Administrative Information System will develop, under direct supervision, solutions to business problems; prepare, design, and program specifications for new programs and for modifications to existing systems. Applicants should have business and administrative experience, analytical ability and familiarity with computers. 73-1315-R (12/19).

DSR Staff Programmer in the Laboratory for Nuclear Science will do all the design and programming for the laboratory management information and accounting system and work with the systems group on other special projects on the IBM 360-65. BS degree with background in Math and EE required. Minimum one year assembly language and PL/1 programming experience required. Familiarity with management information systems and MIT account methods preferred. 73-1339-R (1/9).

Junior Programmer V – (Temporary) at Cambridge Project will code interface procedures between existing computational routines and the projects consistent system. May also modify or translate existing routines. Previous experience with PL/1 applications programming, or Fortran applications programming and knowledge of PL/1 required. Knowledge of social or behavioral science techniques helpful. Position 3-6 month duration. 74-56-A (1/23).

Programming Analyst for the MIT Information Processing Center must have experience and thorough knowledge of large-scale, time-sharing computer systems. PL/1 and FORTRAN language. documentation and communication skills are necessary qualifications. The User Services Group requires an individual who understands and is responsive to the needs of the Center's users.

User Assistance – assisting users by providing programming information and debugging help and tracking down special problems.

User Information – Instructional documentation and conducting seminars, workshops, and short courses. 73-1294-R (12/12).

DSR Staff Systems Programmer at Project MAC will perform system analysis and system programming on a research version of the Multics operating system. S.M. or EE degree required; 2-3 years programming experience in the Supervisor of some advanced operating system required. Ability to contribute to research and work with students important. 73-1137-A (10/24).

DSR Staff Programmer in the Research Laboratory of Electronics will be responsible for the implementation of a multi tasking picture processing system, integrating existing software modules into the final system, and for total system documentation. Will also write diagnostic software and assist in the diagnosis of computer failures. Bachelor's degree in EE or Computer Science (Master's preferred). Two years experience in programming small computers in Assembly Language and Fortran; PDP-11 and in programming and digital hardware experience required. 73-1349-A (1/9).

Computer Operator IV will operate IBM Model 135 and all peripheral disk drives, tape units, card reader/punch, printers. Must have a good knowledge of DOS job control, multi-programming experience and capable of understanding operating instructions. 4-12pm shift. 73-1221-R (1/21).

Senior Keypunch Operator III for the Alumni Association will operate IBM 029 keypunch and 059 verifier units. Punch into and verify computer input cards from previously formated documents relating to the conversion of manual alumni records to a data processing system. Some experience on the IBM 029 and IBM 059 or comparable equipment preferred. 74-32-A (1/16).

Keypunch Operator II in Medical Department will provide support to information processing of patients contacts. One year experience of IBM 129 keypuncher and verifier preferred. Ability to work independently important. 74-29-A (1/16).

Planner/Architect – Administrative Staff in Planning Office will concentrate on long-range planning for existing environmental conditions, define problems, develop plans and design concepts; degree in Architecture required; degree in Planning preferred. Minimum of 5 yrs experience and the ability to work independently important. 73-880-R (9/15).

Administrative Staff Planner will direct long-range physical planning for the various efforts of the planning team; develop budgets and schedule of government agencies and community groups. Must have a Masters degree in Planning and a minimum of 5 yrs experience. 73-535-R (6/13).

DSR Staff at the Center for Space Research will carry major responsibility for the analysis of data from the MIT X-ray observatory on the Third Small Astronomy Satellite. The work will include the pre-launch, post-launch organization of operation and data management; development of the data system; analyze and publish results. Ph.D. in Physics required. Extensive experience with computer programming for data and analysis on a systems level. Knowledge of astronomy and astrophysics absolutely essential. 73-1310-R (12/19).

Infirmary Nurse – (Exempt Staff) will do bedside nursing at the Infirmary. Assist surgeons in the operating room administer first aid and emergency treatment. Individual must be a Mass. Registered Nurse with minimum one year nursing experience. 40 hour work week; 11pm-7am; weekend rotation. 73-1348-R (1/9).

Night Manager – Exempt will be responsible for overseeing the operations of the Wallace Observatory (Earth and Planetary Science) and assisting observers, primarily at night. Train new observers in the operation of the telescopes, the computer control system and the auxiliary instruments. Familiarity with optical observatory operations and astronomy is highly desirable; experience and facility in handling mechanical and optical instruments, some electronic experience preferred. Ability to make decisions and assume responsibilities important. 3-11pm, 5 day/week. 73-1357-A (1/16).

Nurse Practitioner – Exempt will evaluate and treat assigned patients for minor illnesses; screen patients for clinic physicians and surgeons; handle immunizations and assist with emergency care. Candidate must be a graduate nurse with previous work experience, preferably two years. Ability to handle emergency situations and to deal effectively with patients of diverse backgounds and age groups required. 8-5 Mon-Fri (occasionally weekends and evenings). 74-34 (1/16).

DSR Staff in the Center for Space Research will analyze and interpret plasma data from satellite-borne plasma experiments. Recent Ph.D. in space plasma physics or related area required. Candidate should have had direct experience with the analysis and interpretation of experimental results related to the interplanetary plasma. 73-1184-A (11/14).

DSR Staff – (Temporary) will assist with research at the Center for Cancer Research. Candidate must have a bachelor's degree and experience with growth and assay of temperature-sensitive and lethal mutants of vesicular stomatitis virus. Job ends 6/74. 74-48-A (1/23).

Senior Secretary V in the Arteriosclerosis Center will coordinate the office activities of the Director of a multi-faceted medical research program. Schedule appointments, conferences, lectures, maintain student records and appointments and a variety of office files; periodically prepare reports; type manuscript reviews and other materials. Individual will have extensive telephone contact with other medical areas and patients. Good organizational skills; ability to establish priorities and supervise junior secretaries required. Knowledge of medical terminology and machine transcription helpful. 9:30-5:30. 73-1088-R (10/10).

Secretary IV in Metallurgy will perform general secretarial duties for two professors. Type class material, correspondence from machine records and files; coordinate busy office schedules; handle petty cash fund. Good typing and shorthand skills required; ability to set priorities; familiarity with technical terminology and computer helpful. 73-1220-R (11/21).

Secretary IV in the Development Office will handle general office duties including a large amount of typing; will plan and layout typed material; maintain confidential files. Excellent typing skills needed for IBM Magnetic Card II typewriter. Ability to proofread important, editorial skills helpful. Maturity, tact, strong organizational skills required. 73-1253-R (12/5).

Secretary IV in the Development Office will handle general office duties including a large amount of typing; will plan and layout typed material; maintain confidential files. Excellent typing skills needed for IBM Magnetic Card II typewriter. Ability to proofread important, editorial skills helpful. Maturity, tact, strong organizational skills required. 73-1253-R (12/5).

Secretary IV will handle secretarial duties for the associate director and group of associates of the Joint Center for Urban Studies. Transcribe from tapes; handle reception duties; maintain filing system for a study of a national housing allowance. Excellent typing needed for manuscripts and reports (some technical); previous secretarial training or experience preferred. Job will start 1/14/74. 73-1288-R (12/12).

Secretary IV to two Biology professors will handle all general office duties; type technical material from dictaphone; process invoices; independently perform office functions. Strong typing and dictaphone skills required; some accounting and organizational ability preferred. Previous experience essential. 73-1308-R (12/19).

Secretary IV to a professor in Metallurgy will handle general office functions; take dictation for letters; type correspondence, class materials; assist in preparation of reports; assemble statements of expenditures. Excellent typing and shorthand skills required; previous experience preferred. 73-1316-R (12/19).

Secretary IV in the Laboratory for Nuclear Science will handle all general secretarial duties for an active high energy physics group. Excellent typing needed for memos, reports, correspondence, papers (some technical). Shorthand skills desirable but not essential. Ability to work independently; good organizational skills important. 73-1340-R (1/9).

Secretary III or IV in the Summer Sessions Office will handle general secretarial duties; type letters and memos from hand-written material or dictaphone; process office bills and invoices; assist with registration processes. Excellent typing skills; poise and maturity needed in working with and assisting people. 73-1343-R (1/9).

Secretary IV for a professor in Earth and Planetary Sciences will handle all secretarial functions; perform some administrative chores, some library research and editing. Excellent typing (some technical); shorthand preferred. Editorial and organizational skills important.74-8-R (1/9).

Secretary IV to the Head and Associate Head of the Physics Department. Perform general secretarial duties in the headquarters office; answer questions from students and visitors; type a great deal of correspondence. Excellent typing and shorthand required. 74-5-R (1/9).

Secretary IV to two professors in the Lab for Nuclear Science will handle all general secretarial duties for several small projects. Good shorthand or the ability to take dictation desirable; highly skilled typing required. Initiative and organizational abilities important. 73-1374-R (1/9).

Secretary IV to a group of Nuclear Engineering professors will handle all general secretarial duties; type technical reports and journal articles; maintain student records. Good typing and dictaphone skills required; ability to work independently with good judgment important. 73-1364-R (1/9).

Secretary IV in the Center for Policy Alternatives will work for the Principle Investigator and Project Manager involved in the study of the drought area of Africa. Handle all general office duties; take and transcribe dictation; coordinate office work load. Excellent typing and shorthand; previous secretarial experience essential. MIT experience and knowledge of French helpful. 73-1361-A (1/9).

Secretary IV in the Research Laboratory of Electronics will provide secretarial support for a faculty member and research staff. Type technical manuscripts, set up material from rough data and verify footnotes and references; maintain busy calendar; independently handle other procedures.Excellent typing skills required; technical typing experience preferred. 73-1346-R (1/9).

Secretary III-IV for the Institute Secretary will handle general office duties organize appointment calendar and itineraries; maintain files. Good typing and dictaphone skills required; light shorthand skills helpful. 73-1326-R (12/19).

Secretary IV will handle all secretarial duties for the Institute Secretary. Plan travel schedules, make arrangements; assist in gathering and collating information on Corporations. Previous experience, excellent typing and shorthand skills required. Ability to organize and work independently important. 74-1-R (1/9).

Secretary IV for Institute secretary for Corporations will organize and run the office. Very accurate typing needed for some letter-perfect copy; other typing duties required speed. Preliminary research on corporate prospects; gather backup information for visits; draft not-too-technical correspondence. Work closely with other Institute offices in obtaining pertinent data; receive visitors. Flexible, adaptable, good telephone presence. 73-1091-R (10/10).

Secretary III-IV for one staff member of the MIT Associates Program will be responsible for dictation, transcription, travel arrangements, file maintenance. Shorthand and excellent typing are essential; knowledge of office procedures, previous experience important. 74-25-R (1/16).

Secretary III-IV in Electrical Engineering will handle general secretarial duties for a professor and his support staff. Type class materials, proposals, technical reports. Technical typing, shorthand or dictaphone skills required. Ability to work independently important. 74-24 (1/16).

Secretary III in the Office of Sponsored Programs will type correspondence; maintain records of grants and contracts; answer routine inquiries from project supervisor; perform other general duties. Good typing required; shorthand desirable; ability to organize work and work independently. 74-14 (1/16).

Secretary III to two Professors and senior lecturer in the Sloan School of Management will type correspondence manuscripts and class material; perform other general secretarial duties. Good typing skills required; ability to work with several people important. 74-37-R (1/16).

Secretary III to the Superintendent for Construction and Engineering (Physical Plant) will handle general inquiry telephone calls concerning construction activities; schedule meetings; maintain files; type correspondence and reports. Good typing and shorthand skills essential. Ability to work with individuals from inside and outside the MIT community important. 74-20-R (1/16).

Secretary III to the Vice President of Administration and Personnel and the Administrative Assistant in that Office will handle heavy load of typing, transcribe from dictating equipment maintain active calendar, serve as office receptionist, maintain files and answer phones. Good language skills, ability to take accurate messages are essential. Knowledge of Institute policy and resources is desirable to provide assistance to a large number of callers and visitors. Will use IBM Executive typewriter. 73-1271-R (12/5).

Secretary III to the Faculty Travel-Conference Coordinator of the Industrial Liaison Office will assist with the plans and coordination of faculty travel to large industrial concerns and conferences. Develop itineraries, type correspondence, maintain financial records. Excellent typing skills required; knowledge of travel procedures, agencies; ability to schedule large meetings preferred. 74-21-A (1/16).

Secretary III to three professors in Ocean Engineering will type correspondence, proposals, reports; maintain files and accounts; make travel arrangements and schedule appointments. Good technical typing skills required; some accounting knowledge helpful; previous experience preferred. 73-1333-R (12/19).

Secretary III in the Development Office will handle all general secretarial duties for the Assistant Director. Excellent typing needed for letters, reports, memos; shorthand helpful; general editorial skills useful. Organizational ability and good judgment important. 73-1351-A(1/9).

Secretary III – (Temporary) to one professor and two research associates in Civil Engineering will handle general secretarial duties; type proposals; maintain account records. Good typing required, ability to work with variety of people important. Job ends 9/30/74. 74-39-A (1/23).

Secretary III in the Community Housing Service, Campus Housing will handle all general secretarial duties. Type correspondence, reports, forms from rough copy or dictaphone; answer general questions; maintain lists of rentals and Fair Housing Data file. Minimum one year office experience or secretarial schooling required. Ability to work independently, good skills important. 73-1320-A (1/23); 73-1323-A (1/23).

Accounting Assistant V in the Benefit Accounting Group, Comptroller's Accounting, will handle staff members pension accounts, insurance, tax deferred annuities and payments to retired members. Previous experience with payrolls and input and control aspects of computerized systems is desirable. Accuracy with figures essential; skills on the adding machine, typing calculator, telephone communications required. 74-54-R (1/23).

Technical Assistant IV – (Temporary) in the Research Laboratory of Electronics will assist in testing performance of microwave radiometers for biomedical applications; perform microwave antenna pattern measurements, impedance measurements, and test operation of mechanical and electrical components as necessary. Minimum one year experience in the use of microwave test equipment; microwave anechoic chamber; and in handling of laboratory animals. B.S. degree in Physics or EE required. Job ends 9/1/74. 74-44-A (1/23).

Administrative Assistant V will assist the department Administrative Officer with fiscal responsibilities, supervision of payrolls. Help train new secretaries, serve as liaison with Institute administrative personnel and people outside MIT. Candidate must have strong organizational skills, a sense of priorities; interest in working with figures and accounts; patience to handle details and to work under pressure. 74-9-R (1/9).

Senior Library Assistant IV in the office of Administrative Information Systems will control, store and use data files required for computer processing. Maintain records of all materials stored in, or issued from the library, perform a job set up function. Knowledge of basic data processing concepts; one year minimum data processing experience; ability to work accurately with details important. 37½ hour work week. 74-49-R (1/23).

Library General Assistant IV – (Part-time) in the Physics Department Reading Room will process journals, theses, reports; prepare book orders; maintain catalogue and xerox machine. Good typing skills required. Ability to organize details and to assist users important. 20 hour work week. 74-58-R (1/23).

(Continued on page 8)

Open House Set April 13

A student committee to plan, organize and carry out the 1974 Open House at MIT has been formed.

The 1974 Open House will be held Saturday, April 13, from noon to 5pm. The theme will be "What About Tomorrow?" which was also the general title of a six-part television series featuring MIT on ABC-TV last year.

MIT Open House is a biennial student-organized event in which departments, laboratories and centers present exhibits of their activities. As many as 30,000 have attended previous open houses.

The student committee includes: Charles R. Kenley, junior in management, Noblesville, Ind., chairman; John B. Lundberg, freshman, San Antonio, Tex., treasurer; John F. Peternal, freshman, Kemmerer, Wyo., secretary; E. Martin Davidoff, senior in management, New York City, publicity director.

Members are: Robert H. Colten, sophomore in management, South Bend, Ind.; Edward M. Curtis, Ill, freshman, Annandale, Va.; Michael E. Filosa, senior in chemistry, Denver, Colo.; Frank H. Fuller, freshman, Wilmington, Del.; Mark S. Goldfain, freshman, Denver, Colo.; John D. Landis, freshman, Dobbs Ferry, N.Y.; Jerry D. Metz, sophomore in electrical engineering, Manhassett Hills, N.Y.; William N. Schaffner, freshman, Westminster, Colo.; John M. Sorensen, sophomore in electrical engineering, Raleigh, N.C.; Joseph J. Tavormina, sophomore in mechanical engineering, Bedford, N.Y., and Peter T. Wolczanski, sophomore in chemistry, New Hartford, N.Y.

Arts Council Names Five

Five new members have been appointed to the MIT Council for the Arts.

Announcement of the three-year appointments by MIT President Jerome B. Wiesner was made by Professor Roy Lamson, Special Assistant to the President for the Arts.

The new members are:

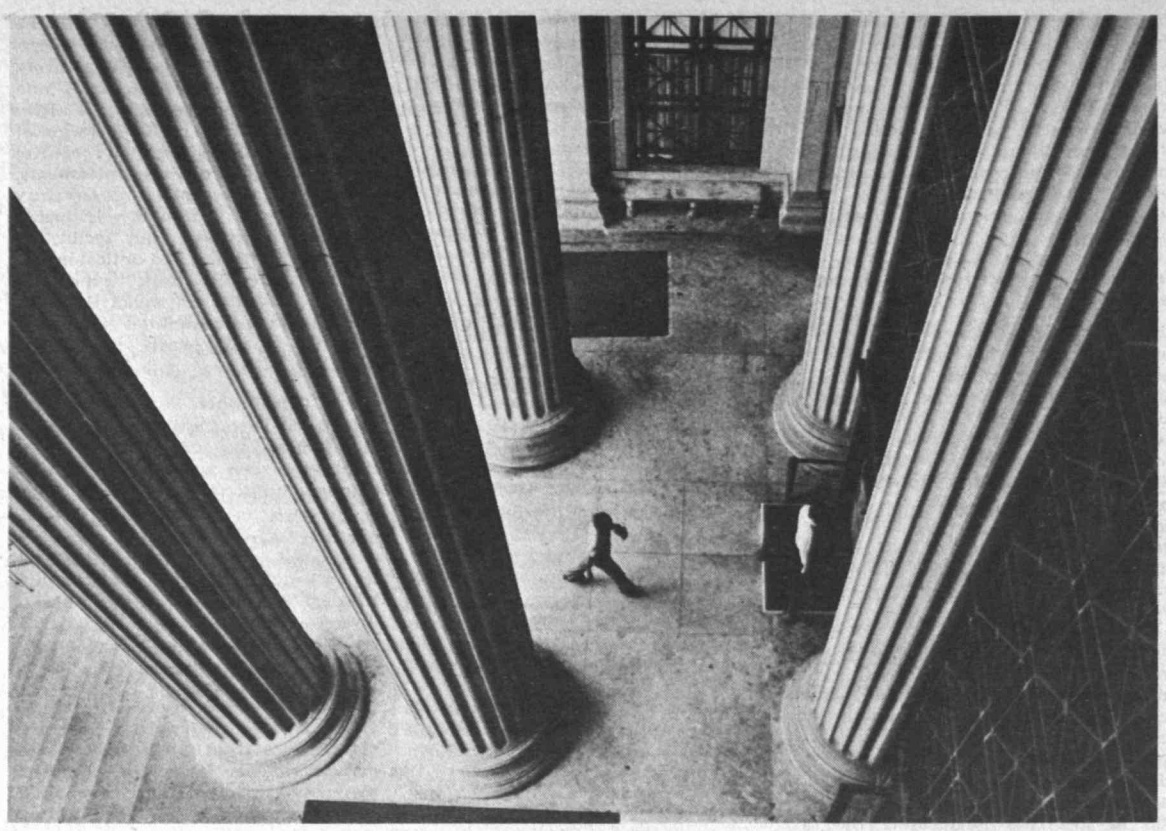
Professor Lawrence B. Anderson, of (Beaver Pond Road) Lincoln, Dean of the MIT School of Architecture and Planning, emeritus.

Ruth Bowman, former curator of the New York University Art Collection and recently appointed as education director of the Los Angeles County Museum.

Helene Rabb Cahners, of Brookline, Overseer of the Boston Symphony Orchestra and trustee of Westbrook College and Mount Holyoke College.

Bartlett Hayes, former director of the American Academy in Rome and former director of the Addison Gallery, Andover, Mass.

Professor Donlyn Lyndon, of (261 Franklin St.) Newton, head of the MIT Department of Architecture and chairman of the faculty arts advisory committee, was appointed to the council's executive committee.



MASSIVE DORIC columns guarding entrance to William Barton Rogers Building on Massachusetts Avenue are given artistic perspective by wide-angle photograph taken from third-floor window. The building was designed in 1938 by architect William Welles Bosworth, who used the colonnade of columns to enhance the classic style of the building and help create a monumental effect.

Solar Energy Potential Outlined in *Review*

The power of the sun could be harnessed to heat homes by 1978 with an intensive solar energy research and development program, according to an electrical engineer at MIT.

Walter E. Morrow, associate director of MIT's Lincoln Laboratory, in an article in the December issue of *Technology Review*, also predicts possible use of solar power in total energy systems for business and industry by 1980, and large-scale power generation using solar energy by 1985.

Mr. Morrow also predicted that solar energy could fill more than 25 percent of all US energy needs by the year 2000 if a vigorous solar energy research and development program were undertaken and substantial investment were made in solar energy systems and manufacturing.

Solar-heated houses would probably be the first large-scale use of solar energy, said Mr. Morrow, because there has already been extensive development of solar energy collectors for this purpose both at MIT and elsewhere over the last two decades.

To provide the needed energy for space and water heating for an average 1500 square foot house would require a collector area of 1300 square feet, said Mr. Morrow.

This could be provided by using somewhat more than half the roof area of a single-floor house, or slightly more than the roof area of a two-story house. The heat collector would consist of a roof-mounted unit possessing a layer of glass or plastic over a black coated layer of energy absorbing material. The usable heat is gathered from the absorbing surface by water flowing through pipes attached to the surface or by air flowing over the surface itself. The heat would be stored in water tanks, bins or rocks, or hydrated chemicals such as sodium sulfate whose solid-liquid phase change adds to the heat energy which could be stored.

The current total system cost for a solar space and water heating system would be between $3500 and $6000, not including the usual heat distribution system. The annual cost of such a system, if financed as part of a house mortgage over a 20 year period at 7 percent interest, would be between $300 and $550.

This cost compares with a typical annual cost of $280 for oil heating, $275 for gas heating, and $500 for electric heating, in middle US latitudes. Wherease Mr. Morrow's assumptions were based on an oil cost of $.22 per gallon, present estimates are that residential users in the Boston area will have to pay considerably more than $.45 per gallon for heating oil this winter because of shortages and the high cost of importation.

cantly faster than the costs of constructing solar heating systems, solar heating could become competitive with gas and oil at some future time," Mr. Morrow said.

Mr. Morrow also analyzed the economic feasibility of using solar energy for heating, cooling, lighting and operations in shopping centers and industrial plants.

"A number of such buildings have recently been constructed with gas- or oil-fueled total-energy systems," he said. "In such a system, electricity is generated by diesel- or gas-turbine-powered generator units. The waste heat from the engines is used for heating in winter and cooling (by means of absorption air conditioners) in summer.

"Such systems have the advantage over central power systems in recovering the waste heat from the electric generating process.

"A similar arrangement using solar energy can be proposed. Parabolic concentrators could provide 550-degree steam for a turbine-alternator plant whose waste heat was used for heating or cooling, depending on the season."

Finally, Mr. Morrow analyzed the feasibility of large-scale solar-powered electric generating systems—either ground-based systems utilizing the heat from the sun, or ground or satellite systems using solar cells which convert light directly to electricity.

He asserted that substantial reductions in solar plant cost and/or increases in the value of electricity costs would be required before large scale thermal solar plants could be justified.

In analyzing the feasibility of using large arrays of solar cells to produce electricity, Mr. Morrow concluded that "cost reductions by a factor of at least 300 are required to achieve reasonable costs, and many years of intensive development will be required to achieve this goal—if in fact it is attainable."

Satellite mounted solar-power plants would require a reduction of satellite launch costs by a factor of 50 to 1 and solar cell costs by 1000 to one to be economically feasible, he said.

If rapid advance in solar energy utilization is to occur, the total yearly investment in solar energy systems and production facilities of $36 billion will be required by the year 2000—a total solar energy investment of $300 billion over the next 27 years.

"The large-scale use of solar energy should have a minimal environmental effect, since such systems operate from an almost inexhaustible energy source external to the earth, produce no pollution products, and can be designed to have minimal effect on the earth's heat balance," said Mr. Morrow.

Khorana To Receive Medal

Dr. Har Gobind Khorana, MIT's Alfred P. Sloan Professor of Biology and Chemistry and co-recipient of the Nobel Prize in Physiology and Chemistry in 1968, has been selected as the 1974 recipient of the prestigious Willard Gibbs Medal of the American Chemical Society.

The Gibbs Medal, to be presented next May 10, has been called this nation's top award in chemistry and, according to an ACS announcement, will be made to Dr. Khorana for his outstanding research in the synthesis of polynucleotides and on the genetic code.

Since 1960, Dr. Khorana has received numerous awards from scientific organizations in several countries, including the US, Canada, India and West Germany. He received the 1968 Nobel Prize along with two other US pioneers in the study of the genetic code—Dr. Marshall W. Nirenberg and Dr. Robert W. Holley.

In recent years, Professor Khorana and his colleagues have devoted special attention to the total chemical synthesis of genes. In 1970 he announced synthesis of the 77-unit gene for yeast alanine transfer RNA.

Last August he and his colleagues announced synthesis of the 126-unit gene for a bacterial tyrosine transfer RNA. This gene is the first one with the potential of functioning detectably within a living cell, principally because start and stop signals for governing the gene's actions can be attached. Professor Khorana and his team are presently at work on determining those start and stop signals.

(Continued from page 7)

Library General Assistant III in the Humanities Library will do bibliographic checking in the catalogue; type book orders; process new monographs; maintain order files; assist at Information Desk. Accuracy in detail and typing required. Ability to organize; college background and library experience preferred. 74-26-R (1/16).

Senior Clerk III-IV in an Administrative Office must type letter-perfectly for all notices of Faculty appointments, letter, etc. File all appointment forms; set up Personnel folders; will learn use of IBM mag card selectric typewriter. Other typing demands accuracy for records and Personnel changes, and for statistical counts and surveys. Discretion, maturity to work with highly sensitive material; liking for detail; ability to follow through. 74-60-R (1/23).

Senior Clerk III in the Student Accounts Office, Comptrollers's Accounting, will verify all bills to be paid against checks issued; protectograph checks; confirm authorized signatures. Individual must be dependable and have accurate typing. 74-53-R (1/23).

Senior Clerk III in the Registrar's Office will need excellent typing skills for work with graduate students records. Post grades from computer output; update and verify files and records. Ability to work with details and figures important; previous office experience helpful. 74-65-R (1/23).

Senior Clerk III in Medical will handle reception duties for the Specialty Clinic. Answer phones, schedule appointments, handle a variety of clerical duties. Knowledgeably to assist patients is required. 37½ hour work week/8:30-5:00. 74-33 (1/16).

Senior Clerk III will take and process orders at Graphic Arts. Price and schedule xerox work, handle requisition details. Knowledge of reproduction processes helpful; previous customer service experience desired. 74-3-R (1/9).

Senior Clerk III for the Institute Information Center will direct people to various locations thorughout the Institute; answer telephone calls for student/faculty addresses and telephone numbers; perform various typing assignments. Candidate must be pleasant, polite, and eager to help people. 73-1366-R (1/9).

Senior Clerk III to the Work Control Coordinator, Physical Plant will receive and dispatch service requests; assist with scheduling; monitor requisitions; perform other clerical assignments. Ability to learn details of procedures; good office skills required. 74-16 (1/16).

Technical Typist III – (Part-time) for a professor in Metallurgy and Materials Science will type technical reports and manuscripts; occasionally do library research; perform other clerical duties; Technical typing experience required. 15 hour work week. 74-30-A (1/16).

Technical Statistical Typist III in the Comptroller's Accounting Office will type a variety of Institute reports including Financial and Treasurer's reports; Professorship, NIH and Research Grant reports, etc; as well as other reports and typing that comes in from various departments. Will operate a 24 inch typewriter; work with A.B. Dick Masters; use the adding machine. Excellent typing skills and a minimum of one year statistical typing necessary. 73-1356-R (1/9).

Technical Typist III in the Research Lab of Electronics will type manuscripts and reports from rough data. Responsible for punctuation and paragraphing, may involve some editing for preparation for publishing. Excellent skills, minimum of one year experience. 73-1266-R (12/5).

Cashier II will work in the Twenty Chimney's (Student Center), responsible for totaling cost of items on tray, take cash and meal tickets. Individual must speak English, have own transportation. Maturity and tact important. 74-51-A (1/23) M-F 4:30pm-1:30am; 74-50-A (1/23) Sat 3pm-1:30am/Sun 4pm-1:30am.

Clerk II (Part-time/Temporary) in the department of economics will transfer numbers from tables to computer coding sheets to be key-punched for an urban economics research project on housing. Some knowledge of economics and how to use the library required. Accuracy with details and numbers important. 20 hour work week; temp through 6/74. 73-1360-R (1/9).

Clerk II (Part-time) in the Medical Department Dental Clinic will process all dental bills; assist in answering phones and scheduling appointments; occasionally perform other billing projects. Accurate typing skill required; previous office experience preferred. 20 hour work week. 9-1. 73-1342-R (1/9).

General Cook at the Faculty Club must be able to read, understand and follow recipes for all types of food preparation. Make sauces, cook meats, vegetables, prepare salad ingredients. Prepare menu items for luncheons and some items for dinner. General knowledge of all types of food preparation; good experience in first class club or restaurant required. Ability to read and understand English important; will generally prepare American-type food. 6am-2pm. 73-1228-R (11/24).

2nd Class Engineer must have a Mass second class Engineer's license or higher. Individual must be willing to work on any shift. 73-182-R (4/73).

Technician B in the Environmental Medical Service will perform general radiation protection technician duties at the MIT reactor. Repair and calibrate instruments; conduct radiation surveys and sample preparation, decontamination and lab clean-up. Package radioactive waste and assist in construction of shields. Training and experience in electronics and radiation protection required. Afternoon shift. 40 hour work week. 73-1227-A (12/15).