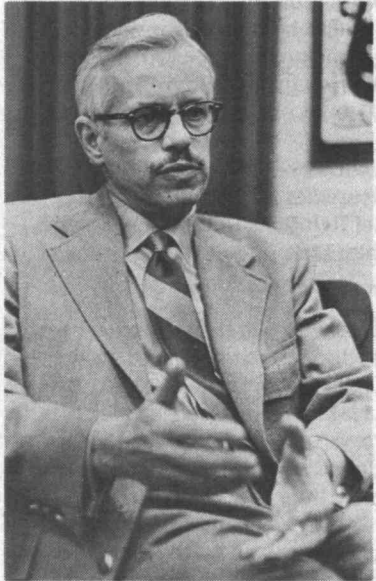


## New Department Heads For EE, Meteorology



Professor Davenport

Professor Wilbur B. Davenport, Jr., director of the MIT Center for Advanced Engineering Study, will be the new head of the Department of Electrical Engineering, the Institute's largest department.

Dr. Davenport's appointment, effective Feb. 1, 1974, was announced Thursday, Dec. 6, by President Jerome B. Wiesner and Dean Alfred H. Keil of the School of Engineering.

Louis D. Smullin, who has been head of the department since 1966, is stepping down to have more time for teaching and research. He was appointed Dugald Caleb Jackson Professor of Electrical Engineering in July, 1973.

Professor Davenport will continue as acting director of the Center for Advanced Engineering Study (CAES) until a new director is named. The Center is concerned with the post-collegiate education of working engineers, scientists and technical managers in industry and government.

Dr. Davenport, a specialist in communications systems, has a dual faculty appointment as professor of engineering and education. He was associate head of the Department of Electrical Engineering from June, 1971, to February, 1972, when he was named director of CAES.

Professor Davenport said his basic objective is to help the department "continue the preeminence of its education and research in electrical engineering and computer science," and that he wants to do "whatever is possible to strengthen the interaction" between electrical engineering and computer science.

(Continued on page 6)

### No Paper

Tech Talk will not be published on Dec. 26, 1973, and Jan. 2, 1974 because of extended weekends over the year-end holidays. In addition to Christmas and New Year's Day, the Institute will be closed on Monday, Dec. 24, and on Monday, Dec. 31. Regular publication will resume on Jan. 9, 1974.



Professor Charney

Professor Norman A. Phillips, head of the MIT Department of Meteorology, will leave MIT next July to become Principal Scientist with the National Meteorological Service in Washington, D.C., and Jule G. Charney, Alfred P. Sloan Professor of Meteorology at MIT, has been appointed to succeed him as department head at that time.

Announcement of the appointment was made by Robert A. Alberty, dean of the MIT School of Science, of which the Department of Meteorology is a part.

Simultaneously, Professor Charney and Frank Press, Robert R. Shrock Professor of Geophysics and head of the MIT Department of Earth and Planetary Sciences, announced formation of a new Earth Science Council to coordinate areas of mutual concern between the Department of Meteorology and the Department of Earth and Planetary Sciences. Both departments are located primarily in MIT's Cecil and Ida Green Building for the Earth Sciences.

"We are sorry to lose Professor Phillips," Dean Alberty said. "He has been a very effective department head and a major contributor to the intellectual environment of the department and the Institute. We wish him the best in his new career."

"We are fortunate, however, that Professor Charney can take administrative responsibility for the department at this time, when his standards and knowledge of the field will be so important for the recruiting of new faculty and the development of new fields."

The Earth Science Council represents a new structure to facilitate cooperation between the two departments. In a letter to Dean Alberty outlining the new Council, Professors Charney, Press and Phillips said:

"Although we have enjoyed informal contacts before, the establishment of the Council represents a more formal mechanism for avoiding duplication, for initiating interdisciplinary projects, and for widening the horizons of students in both departments."

The Council will consist of the two department heads and a small

(Continued on page 2)

### During Fuel Shortage

## MIT Strives to Avoid Closings In Order to Maintain Research

Two MIT officials said this week the Institute will make a "determined effort" to avoid any temporary closings because of the fuel shortage.

Philip A. Stoddard, vice president for operations, and John M. Wynne, vice president for administration and personnel, took note of special closings announced by a few other area universities and colleges to conserve their fuel.

Mr. Wynne said that MIT would put "great emphasis on measures to conserve energy and operate effectively within our fuel allocations." And while not eliminating the possible necessity of temporary closings at MIT, he said the situation at the Institute was "distinctly different" from that at a number of other institutions.

"The most important difference," Mr. Wynne said, "involves the nature of our educational and research programs."

"While undergraduate colleges are primarily engaged in classroom teaching," he said, "we have to take into account our special character—the extensive graduate research activity, undergraduate participation in faculty research, and the major nationally-funded research projects and programs underway at the Institute, many of them increasingly related to the energy fields."

"All this is not as easily deferrable as classroom instruction, which can be interrupted now and made up in the warmer weather," he said. "In fact, any major interruptions could be

(Continued on page 2)

### Special Holiday Schedules:

PAYROLL Office deadlines for holiday closings are on Page 2.

DINING Service hours during the holidays are posted on Page 6.

### Savings Seen Small

## Voltage Cuts Questioned By Power Systems Expert

An MIT expert on electric power systems contends that the 5 percent voltage reductions announced by numerous power companies do very little to save energy. In fact, he says, it is doubtful whether many power companies can even reduce their voltage effectively, and the actual reduction may use up more energy than it saves.

Dr. Gerald L. Wilson, director of MIT's Electric Power Systems Laboratory and the Philip Sporn Associate Professor of Energy Processing, says that tests he and his colleagues performed on a large electric power systems in the eastern US indicate that heating and cooling systems, refrigerators and any other appliances with induction motors will compensate for voltage reductions by running longer or drawing more electricity.

According to Professor Wilson, those electricity-consuming appliances, such as electric lights, that do use less electricity when voltage is reduced constitute only about 10 percent of the energy re-

quirements of the average home.

"In the case of a heating system, for example, the thermostat will simply run the system longer if voltage is reduced, so that the temperature of the room will be maintained. The result is that the pumps or fan motors in the system will still use the same amount of energy, but over a longer time," said Professor Wilson.

"Similarly, refrigerator motors will run longer in order to achieve the required temperature in the food box, and the total amount of electricity used will be the same," he said.

In reaching his conclusions, Professor Wilson has gathered data from numerous tests of the effects of voltage reduction on actual power systems. In one set of experiments, he and his colleagues reduced voltage to a large residential area by 5 percent, and measured an immediate 8.5 percent drop in the power consumed in the area. However, the power usage rose to within 6 percent of

(Continued on page 2)



THE GREENING OF MIT—Record breaking spring-like weather notwithstanding, it's Christmastime. Gardener Tom Baird applied concentration to the trimming of MIT's Christmas tree last week. The tree on the Student Center plaza has glittering tinsel and snowballs—but no lights. But lights will be the focus of the Undergraduate Association's Christmas Convocation Friday, Dec. 14, from 3:30 to 5pm, in

McDermott Court, when the Memorial Drive windows of the Green Building will be transformed for an hour and a half into a giant Christmas tree topped by a flashing red strobe. The students originally planned to have their "tree" gleam into the night, but energy constraints call for the lights in the Green Building to be turned off at the close of day.

—Photo by Margo Foote

# MIT Strives to Avoid Closings

(Continued from page 1)

seriously detrimental to research work and perhaps cause a major setback in some programs."

Mr. Wynne said that the Institute also was concerned with continuity of employment, knowing that its employees may be faced with temporary layoffs if it became necessary later in the winter to close the Institute.

"All this motivates us," Mr. Wynne said, "to put our primary emphasis on conservation of fuel and to avoid any closings."

Mr. Stoddard observed that some other schools in the area had more to gain than MIT from deferring classes, thus enabling students to leave the campus. "Their principal energy demand is to heat dormitories," he said, "whereas at MIT the residence halls are not so large a part of our energy consumption." He said, too, that much of the heat loss at those schools was radiational loss, a situation that is difficult to remedy. "But given the nature of

our ventilation systems, we can control more of our total heat loss and have been better able to reduce our consumption," Mr. Stoddard said.

Mr. Stoddard said that the intensive effort being made at the Institute to conserve fuel may make MIT "better able to live within its reduced fuel allocations." He also noted that the effects of the energy shortage have been different on different parts of MIT.

On the campus, for example, the primary shortage is in the form of fuel oil. Suppliers have cut MIT's supply of Number 6 residual oil for the months of November and December by up to 30 percent of last year's base, and similar cuts are expected through the heating season.

At Lincoln Laboratory, heat for its principal complex of buildings is provided by the Air Force base at the L. G. Hanscom Field in Bedford.

While Lincoln has its own problems with fuel oil, Mr. Wynne added, they are not parallel with MIT campus problems. "It may be anticipated, therefore," Mr. Wynne said, "that measures used by MIT to cope with the fuel shortages on campus may differ markedly from measures used at the air field."

"Measures for the conservation of energy at MIT will be dictated on the campus by local campus energy considerations and at Lincoln Laboratory by the energy situation at the air field," he said.

"In the foregoing circumstances," he said, "pay policies whereunder the entire Institute is treated as a single unit for special or emergency closings shall not apply."

Mr. Wynne added that policy relating to the occasional special holiday closings for the entire Institute, including Lincoln Laboratory, "will continue to be coordinated as in the past."

# Utilities' Voltage Cuts Questioned

(Continued from page 1)

normal after one hour, as the residential appliances and control systems adjusted to the reduced voltage. Similarly, when the engineers made 5 percent voltage cuts in a residential-commercial area and in a commercial area, one-hour power reductions were only 3.9 percent and 1.8 percent lower, respectively.

"In calculating energy savings, we assumed that a voltage reduction of 5 percent was made over the peak-load four-hour period of the day, as is policy in the Boston area where MIT is located. We found that the energy saving for a 5 percent voltage reduction for four hours was 1.3 percent. When considered as a percentage of the total 24-hour energy demand, this is only about a .25 percent savings. In terms of energy saved over one very large four-state system, we studied this means a savings of only about 600 barrels of oil," he said.

Professor Wilson pointed out that many electric power systems

do not have remote control at their power substations to reduce voltage and must dispatch truck crews to throw the switches manually to reduce voltage. In one system studied by Professor Wilson, 1200 such substations would be involved should such a step be contemplated.

"I really wonder how much money and energy is being saved where power companies must manually reduce voltage in a system, consequently using gasoline and manpower to do so," he said.

Professor Wilson also questioned whether many power systems could effectively cut voltage at all. He said that most systems have transformers, and automatically switched capacitors which compensate for reduced voltages.

"Even though a system-wide voltage cut has been announced in the Cambridge area, we have measured only a 1.25 percent cut at MIT," he said.

Professor Wilson warned against any larger voltage cuts.

"If voltage is cut 8 percent, many induction motors which are on-line could burn up. This is because the lower the voltage, the more current the motor draws in order to compensate and remain running. As the current goes up, the resistance heating of the motor goes up, and eventually this heat could destroy the motor," he said.

In view of the lack of savings produced by the voltage cuts, Professor Wilson termed the reasoning behind the reductions "mostly political." Homeowners can be quite effective in reducing energy consumption by instituting their own personal program of energy savings, using suggestions already described in the media," said Professor Wilson. And in the last resort, power companies could institute "rolling blackouts," in which all power is cut to specific regions of the power system for a period.

"That way you can be sure you are saving energy because the compensatory devices will not function to increase power usage," he said.

# Phillips to Be Principal Scientist for National Meteorological Service

(Continued from page 1)

number of faculty from both departments, perhaps totalling six or so. The Council will meet periodically to discuss such matters as the flow of students between the two departments, the joint program in education and research with the Woods Hole Oceanographic Institution, faculty appointments in fields of mutual interest, such as planetary atmospheres, oceanography, paleoclimatology, and environmental quality. Special meetings will be called where joint action is desirable, such as preparation of joint proposals or the initiation of joint facilities.

MIT's Department of Meteorology is the oldest in the nation, established in 1928. Considered one of the best in its field, the department has produced notable achievements including the first system for making five-day weather forecasts, radar methods to track weather disturbances, and the use of computers to solve the equations necessary for predicting atmospheric behavior. The latter was pioneered by Professors Charney and Phillips.

During World War II, the department trained thousands of weather officers for the Air Corps and the Navy. Later, the department trained many of the best-known persons in meteorology today.

Since its beginning, the department has undergone many changes. Notable among them was the expansion of research in physical oceanography. Today about one-third of the department faculty is engaged in this area. Since 1968, the department, the Department of Earth and Planetary Sciences, and the Woods Hole Institution have cooperated in extensive joint research and teaching.

Since Professor Phillips became head of the department in 1970, it has entered several new areas of research. Studies in atmospheric chemistry and in natural and man-

made climate change (e.g., the effects of proposed supersonic transports on atmospheric ozone layers) were instituted. Also, Professor Henry Stommel of the department was principal organizer of the Mid-Ocean Dynamic Experiment, perhaps the most important component of the International Decade of Ocean Exploration.

Professor Phillips received the SB, MS and PhD degrees from the University of Chicago and came to MIT in 1956 as a research associate. He was appointed associate professor and associate supervisor of the Atmospheric and Oceanic Dynamics Project in 1957. He became professor in 1966.

He received the Napier Shaw Prize of the Royal Meteorological Society in 1956 and has received three awards from the American Meteorological Society—the Meisinger Award in 1960, the Editor's Award in 1969, and the Carl-Gustaf Rossby Research Medal in 1971. He makes his home in Lexington, Mass.

At the National Meteorological Service, Professor Phillips will work with the National Meteorological Center on development of numerical weather prediction models.

Professor Charney is a major world figure in dynamic meteorology and oceanography and in

Payroll Office Deadlines		
Payroll	Deadline	Comment
Wednesday, December 26, 1973		
Hourly and Student Payrolls	2pm	Time cards and distribution reports must be delivered to the Cashier's Office (10-180) by 11:30am for messenger pick-up service or hand-delivered to the Payroll Office (E19-515) no later than 2pm.
BiWeekly Payroll	3pm	Adjustment Reports and Distribution Reports must be delivered to the Cashier's Office (10-180) by 2:30pm for messenger pick-up service or hand-delivered to the Payroll Office (E19-515) no later than 3pm.
Voucher Payroll	11am	Vouchers must be hand-delivered to the Office of Personnel Relations (E19-284) no later than 11am.
Wednesday, January 2, 1974		
Hourly and Student Payrolls	2pm	Time cards and distribution reports must be delivered to the Cashier's Office (10-180) by 11:30am for messenger pick-up service or hand-delivered to the Payroll Office (E19-515) no later than 2pm.
Voucher Payroll	11am	Vouchers must be hand-delivered to the Office of Personnel Relations (E19-284) no later than 11am.

## Classical Music For the Guitar

A concert of classical music for the guitar will be presented by Hugh and Thomas Geoghegan at 8:15pm Monday, Dec. 17, in Kresge Little Theatre.

The program will include Thomas Geoghegan's Sonata No. 2 in D Major for solo guitar, the DeVisée Suite in D minor, Sonatina by Lenox Berkeley, Sor's Divertissement, Opus 38, and Allegro, K. 311, by Mozart.

The Geoghegan brothers have played guitar together since their childhood. Born in West Virginia,

they studied in New York under Rodrigo Riera.

Hugh Geoghegan, who is on the teaching faculty of the Longy School of Music, was a pupil of Leonid Bolotine and Julian Bream at the Mannes College of Music in New York.

Thomas Geoghegan, a composer as well as a guitarist, has written numerous works for piano, string quartet and orchestra.

Tickets will be \$2.50 at the Kresge door on the night of the concert.



Professor Phillips

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December 12, 1973  
Volume 18, Number 23

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# Development Starts on New Uniform Salary Program

MIT began this week, with the assistance of a consulting firm, to develop a system of position classification and salary administration for the Institute's approximately 400 administrative staff and academic staff positions.

A primary goal of the program is to group all staff positions into grade levels on the basis of job characteristics, with a range of salaries within each grade, as the basis for a more equitable and consistent system.

The Institute is being assisted in devising and implementing the new salary program, which is expected to be operational in about six months, by the consulting firm of Robert H. Hayes and Associates, Inc., of New York and Chicago.

The consulting firm, which has developed uniform salary programs for a number of major universities and industrial firms, began its work at MIT on Monday.

The first phase of its salary study calls for interviews with senior administrative personnel at the Institute. In announcing plans for the program last month, John M. Wynne, vice president for administration and personnel, said it would be carried out "with extensive involvement of staff members and Institute officials."

Meanwhile, the Institute announced the appointment of an assistant to Kerry B. Wilson, the wage and salary administrator, to

help install and implement the new program. He is Mr. William B. Burford, Jr., who for the past 18 months has developed and administered salary programs at the South Nashua, N.H., division of Sanders Associates, a Route 128 research firm.

Mr. Burford, who is starting Dec. 17, received a bachelor of arts degree in economics from Tufts University in 1953 and master's degree in business administration from the University of Massa-

chusetts in 1954.

He was in the Army from 1954 to 1956, serving with the US military advisory group in Korea. He was with the Schirme, Atherton Co., a securities firm, from 1956 to 1958; the Raytheon Corporation from 1958 to 1962, as an administrative assistant; the AVCO Corporation from 1962 to 1972, as staff specialist in compensation, and Sanders Associates, from 1972 to the present, as a compensation administrator.

## More Than 2 Million Documents Referenced

# Libraries' New Information Service Opens Up Large Data Bases

With terminals available at each of MIT's five divisional libraries—Barker Engineering, Dewey, Humanities, Rotch and Science—the Libraries have launched a new information service that provides rapid and economical access to large bibliographic data bases through computer search techniques.

The service is available through NASIC—Northeast Academic Science Information Center—a National Science Foundation-supported program of the New England Board of Higher Education.

Natalie N. Nicholson, director of libraries, said the three major interdisciplinary data bases initially available through NASIC are:

—CA-Condensates (Chemical Abstracts Condensates) covering chemistry, chemical engineering and related physical sciences.

—ERIC (Education Resources Information Center) covering education, linguistics, and information sciences.

—INFORM, covering selected areas of business, management, economics and related subjects.

In addition, MEDLINE (Medicine, Online) covering biomedical sciences and applications, is being provided through cooperation between MIT and the National Library of Medicine.

Together, the four data bases contain reference to more than two million documents.

The NASIC service will include eventually data for all major fields of research interest at MIT, Miss Nicholson said. New data bases will be added within the next few months to cover interests in government research, engineering and physics.

Search results can be obtained immediately from on-line terminals by using an interactive dialog with the appropriate computer to interrogate the data bases. Users also can have a profile of their research interests filed with the computer. New literature in their

## 4 Data Bases Are Available Through NASIC

Here is a description of the data bases available for search through the Northeast Academic Science Information Center (NASIC) service now available at MIT.

CA-Condensates (for Chemical Abstracts Condensates) is sponsored by the American Chemical Society. About 6,000 articles selected from 10,000 journals are added each week. On-line file dates to 1970, off-line file to 1968.

ERIC (Educational Resources Information Center) is maintained by the US Office of Education. About 1,000 new reports and 1,500 new journal articles dealing with education, linguistics and information sciences are added monthly. On-line and off-line files date to 1966.

INFORM (business, management, economics, marketing) is updated monthly by adding about 900 articles from 280 journals. It is an on-line file dating to August, 1971.

MEDLINE (medicine, biology and related sciences) is operated by the National Library of Medicine and indexes 1,200 leading journals in biomedicine since 1970. Covers about 60 percent of Index Medicus. About 12,000 articles are added monthly to the on-line file.

field will be searched and search results will be mailed to them.

Miss Nicholson said the new service is a national "first" in that it will be a test of the NASIC concept of a regional organization that provides access to a large variety of digital data bases on a fee basis.

Based on the experience gained at MIT, NASIC plans to expand to cover New York, New Jersey, Pennsylvania and Delaware as well as New England.

Since the opening of the service in November, interest in and use of MEDLINE and NASIC by members of the MIT community indicate that they see it as an exciting, new dimension in library service, Miss Nicholson said.

The NASIC program is funded under a three-year grant from the National Science Foundation to the New England Board of Higher Education. MIT currently has a subcontract from the board to set up the experimental NASIC test site here and help evaluate the results.

The libraries, the Electronic Systems Laboratory, and the Information Processing Services are cooperating on the program at the Institute.

Each divisional library has at least one information specialist to assist the user in translating his problem statement into the languages of the particular computer systems that are pertinent to that problem.

Fees vary with the amount of service provided by the information specialist, the data base searched, and the time spent at the terminal.

Since MEDLINE is substantially subsidized by the National Library of Medicine, the cost of searching it is less than for the other data bases.

There is a charge of \$8 per hour for the information specialist's time with a minimum charge of \$5. Additional fee details are explained in separate brochures describing each data base.

Examples of a half-hour computer search costs are: INFORM, \$33.50; MEDLINE, \$9; ERIC, \$22, and CHEMCON, \$27.50.

Information about NASIC appointments and service can be obtained from any specialist or by calling the NASIC coordinator at 3-7746.

"found" on a programmed computer.

The computer serves only as a preliminary tool for Mr. Robertson, whose primary concern is

## RFI Laboratory Lecture Dec. 13

Ralph Burgess, who is in charge of the Radio Frequency Interference (RFI) Laboratory, will give an introductory lecture on the capabilities and problems of the laboratory, Thursday, Dec. 13, at 9am in Room 37-212.

Erroneous input signals can cause malfunction or nonfunction of electronic equipment at MIT. The RFI laboratory was established to eliminate such problems, Mr. Burgess said.

color which he adds in vibrant concentric bands by masking off and spraying the canvases.

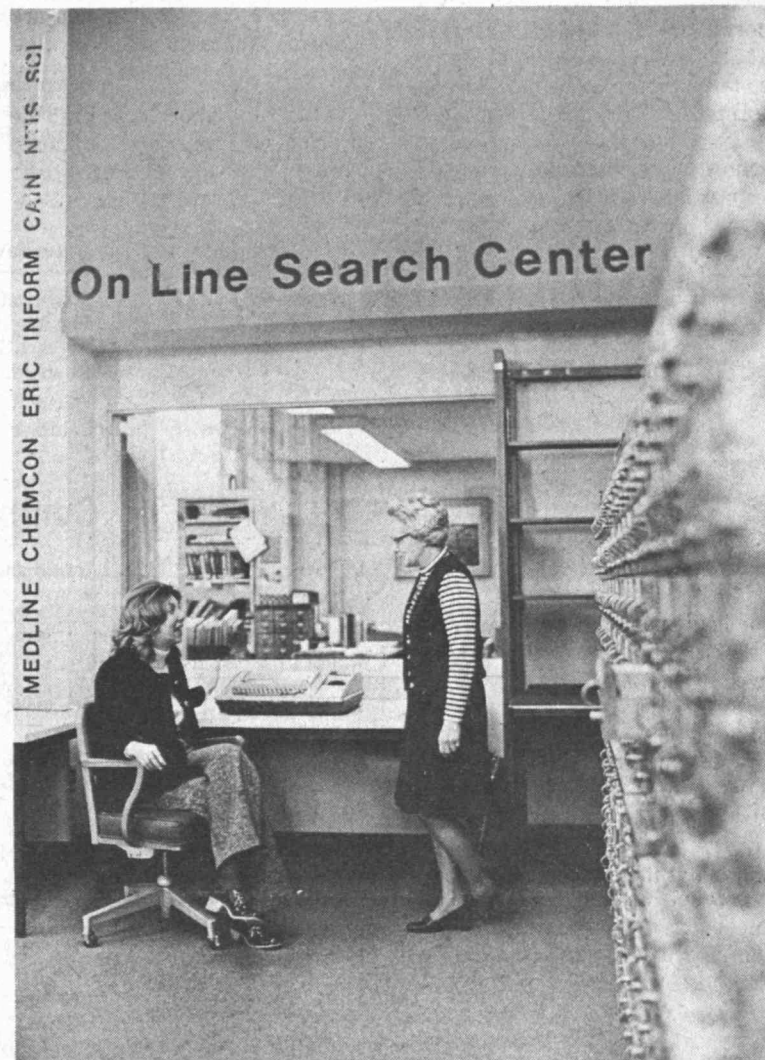
The bands of color progress from edge to center, echoing the canvas shape, with hues changing gradually to achieve illusions of different shapes and colors.

His approach has been described as almost a formula with cool, hard-edge qualities, yet the finished work is a complex visual entity with poetic overtones.

Robertson says of his work, "I'm really after an indelible shape and mood."

## Bridge Charity Game

The MIT Bridge Club has announced a one-session open pairs game, Friday, Dec. 14, to benefit United Cerebral Palsy.



Mary Pensyl, seated, coordinator of the new computer search service being offered by the MIT Libraries, talks with Natalie N. Nicholson, director of libraries. Ms. Pensyl is seated at one of the computer terminals linked to the system.

—Photo by Margo Foote

## Obituary

### George Scatchard, 81

A memorial service for MIT Professor Emeritus George Scatchard of the Department of Chemistry will be held in the Chapel, Thursday, Dec. 13, at 3pm.

Professor Scatchard died Monday, Dec. 10, at Mt. Auburn Hospital following an illness of several weeks. He was 81.

A native of Oneonta, N.Y., Professor Scatchard received the AB degree from Amherst College in 1913 and the PhD in organic and biological chemistry from Columbia University in 1916.

From 1917 to 1919, Professor Scatchard served in the US Army with Professor Victor Grignard in the Defensive Gas Warfare unit at the Sorbonne. From 1919 to 1923 he was associate professor at Amherst College.

Professor Scatchard was appointed assistant professor of physical chemistry at MIT in 1923, became associate professor in 1926 and professor in 1937. From 1943 to 1945 he was acting director of the MIT Research Laboratory of Physical Chemistry. He became emeritus professor upon his retirement in 1957, but continued to be active in teaching and research for several more years.

Professor Scatchard was known for his work in the chemistry of solutions.

## Annual Holiday Convocation Set

'Tis the season for the annual MIT Holiday Convocation which will be held this week, 11:45am, Friday, Dec. 14 in the Building 7 lobby.

This year's program will include remarks by Chancellor Paul E. Gray and music by the Cambridge Symphonic Brass Ensemble, with all assembled invited to join in Christmas carols. The Technology Matrons will serve wassail and cookies.

Department supervisors are encouraged to release employees to attend the convocation if employee work loads permit.

Two other events are scheduled for the Building 7 lobby this week.

An exercise class led by Maggie Lettvin will be held at noon today, Wednesday, Dec. 12. Maggie gives daily exercise classes at duPont Gym and also has her own TV program, "Maggie and the Beautiful Machine" on WGBH-TV.

A concert by members of the MIT Chamber Music Society with William Draper conducting will be given at noon, Thursday, Dec. 13. The program will include the Mozart Serenade No. 11 E Major, the Woodwind Quintet by Franz Danzi, and selections of brass music.

Events in the lobby are sponsored by the Lobby 7 Committee.

## Hayden to Exhibit Don Robertson Paintings

A one-man show of paintings by Don Robertson will open at the Hayden Gallery on Friday, Dec. 14.

The exhibit of Robertson's acrylics on shaped canvases is sponsored by the MIT Committee on the Visual Arts and will have a public opening 8-10pm, Dec. 14, with the artist present. The show will remain on view through Jan. 12, 1974.

Mr. Robertson, 48, who is chairman of the Department of Art at the State University of New York at Buffalo, has had numerous national and international shows.

The individual quality of each of Mr. Robertson's works begins with the canvas shape. His canvases are triangles, parallelograms and double ovals—forms he

# THE INSTITUTE CALENDAR

December 12  
through  
December 21

If your club or other activity is planning to meet during vacation or IAP, please contact the Calendar Editor by 12 noon, Fri, Dec 14. Otherwise, your notice will be removed from the calendar listings and will not be reinstated until a new listing is received.

## Events of Special Interest

**Useful Knowledge and the Community of Yearning\*\*** - Charles Weiner, director, Center for History of Physics, American Institute of Physics. **Dirk J. Struik** Professor Emeritus of Mathematics, will lead discussion. Technology Studies Workshop. Wed, Dec 12, 4:10pm, Rm 10-105. Coffee, 4pm.

## Seminars and Lectures

### Wednesday, December 12

**A Highly Modular Fault Tolerant Computer System\*** - Basil Smith, G. Aero/Astro Doctoral Thesis Seminar. 2pm, Rm 33-206.

**Prospects for Pay Cable\*** - Prof Robert Crandall, economics, Mr. John Ward, Electronic Systems Lab, Carroll Bowen, CAES, & Martin Ewenstein, CBS. NSF Seminar. 4-6pm, Rm 9-450. Coffee.

**Synthetic Oxygen Carriers\*** - Fred Basolo, Arthur D. Little Visiting Professor, Northwestern University. 4pm, Rm 4-270.

**Implementation of a Dynamic Programming Model for Commodity Purchasing\*** - Basil A. Kalymon Harvard University Graduate School of Business Administration, Operations Research Center Seminar. 4pm, Rm 24-121. Coffee & donuts.

**The Communications Convolution\*** - Dr. Kenneth G. McKay, executive vice president, Bell Telephone Labs. Electrical Engineering Colloquium, 8pm, Rm 9-150.

**Energy Crisis and US Foreign Policy in the Middle East\*** - Dr. Arnold Soloway, author of *Truth and Peace in the Middle East*; Dr. Ernst G. Frankel, ocean engineering. American Israeli Dialogue Seminar Series. 8:30pm, Stu Ctr Mezzanine Lge.

### Thursday, December 13

**Introductory Lecture on Interference Problems\*** - Ralph Burgess, electrical engineering. Radio Frequency Interference Lab Seminar. 9am, Rm 37-212.

**Computer Security - Research and Implications\*** - R.H. Scott, R.C. Daley, B.L. Ferriero & S.E. Mednick, MIT. Information Processing Services Seminar. 3:30pm, Stu Ctr Mezzanine Lge. Coffee 3pm.

**The Role of the Analyst in Pharmaceutical Research\*** - Dr. Klaus Florey, Squibb Institute for Medical Research. Analytical Chemistry Seminar. 4pm, Rm 8-105.

**High Resolution Velocity/Depth Spectra Estimation for Seismic Profiling\*** - Arthur B. Baggeroer, electrical engineering, RLE. Electrical Engineering Seminar. 3-4pm, Rm 26-217.

**Closed Cycle Hot Gas Engines\*** - Prof. Joseph L. Smith Jr, mechanical engineering. Thermodynamics Seminar. 4pm, Rm 3-343. Coffee.

**Comets Today\*** - Prof. Fred Whipple, Harvard University. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45pm, Rm 26-110.

**Pharmacologic Studies on the Central Nervous System Regulation of Food and Water Intake\*** - David Lehr, M.D., Prof. chairman of pharmacology, New York Medical College, Nutrition and Food Science Seminar. 4:15pm, Rm 54-100. Coffee 4pm.

**Transfer of Technology: a Disaggregated Model\*** - Dr. Alexander Nowicki, International Bank for Reconstruction and Development Technology Adaptation Program Seminar. 4:30pm, Rm 9-150.

### Friday, December 14

**Electromagnetic Suspensions for Ground Transportation\*** - Marc S. Weinberg, G. Mechanical Engineering Doctoral Thesis Presentation. 9:30am, Rm 1-379.

**Control of a Cement Plant\*** - Prof. M. Vidyasagar, Sir George Williams University. Electrical Engineering Decision and Control Sciences Seminar. 10am, Rm 37-212.

**DOT's Research Role: A Lost Opportunity?\*** - Prof. Martin Wohl, civil engineering, Carnegie-Mellon University. Center for Transportation Studies Luncheon/Seminar. 12n, Stu Ctr Mezzanine Lge. Buffet \$2, lecture free, 12:45pm.

**Underwater Photography\*** - Dr. Kenneth R.H. Read, biology, Boston University. Course 6.163 Lecture. 12n, Rm 10-250.

**Temperature and Concentration Profiles in Laminar Diffusion Flames\*** - R. Mitchell, G. Chemical Engineering Doctoral Thesis Seminar. 2pm, Rm 10-105.

**Kinetics of Fuel Nitrogen Conversion in Combustion Systems\*** - J. Pohl, G. Chemical Engineering Doctoral Thesis Seminar. 3pm, Rm 10-105.

**Confinement and Scaling in Tokamaks\*\*** - Dr. J. Clarke, Oak Ridge National Lab. RLE, Plasma Dynamics Seminar. 4pm, Rm 36-261.

**Mechanism of Substitution Reactions of Metal Carbonyls\*** - Fred Basolo, Arthur D. Little Visiting Professor, Northwestern University. 4pm, Rm 4-270.

**Challenge to Higher Education: A Greater and More Responsible Access?** - Dr. John Monro, Miles College, Birmingham, Alabama. Respondent: Dr. Kenneth B. Clark, Institute Lecturer, MIT; president, Metropolitan Applied Research Center, NYC. Technology and Culture Seminar. 5:30pm, Rm 9-150. Buffet 7pm, Stu Ctr. Open discussion 7:30-9pm.

### Tuesday, December 18

**Coupling of Transcription and Replication in the Lytic Cycle of SV-40\*** - Dr. Marc Girard, Albert Einstein College of Medicine. 4:30pm, Rm 6-120. Coffee, 4pm, Rm 56-520.

**Rehabilitation Engineering Center Seminar\*** - Edmund Y. Chow, bio-mechanics, University of Minnesota; associate consultant, Mayo Clinic. 2pm, Rm 3-133.

### Thursday, December 20

**Statistical Performance of Uncontrolled and Actively Controlled Flexible Skirt Air Cushion Vehicle Suspensions\*** - Ashok B. Boghani, G. Mechanical Engineering Doctoral Thesis Seminar. 10am, Rm 3-343.

## Community Meetings

**Introductory PL/1 for FORTRAN Programmers** - non-credit course, consisting of lectures, exercises & machine problems. Nov 28, 29 Dec 3, 5, 7, 10, 12, 14, 17 & 19, 11am-12:30pm, Rm 39-530. Fee: \$15. Preregister, Lynne Penney, Rm 39-427, x3-6320.

**Preprofessional Meetings\*** - Dr. William Fleeson, associate dean, University of Connecticut Health Center, Wed, Dec 12, 12n-1pm, Rm 4-149.

SCEP - Meeting Wed, Dec 12, has been cancelled.

**MIT Club of Boston Christmas Luncheon Meeting** - Buffet with eggnog, the "MIT Logarithms." Thurs, Dec 13, 12:15-1:30pm, Aquarium Restaurant. Cost \$4, pay at door. Reservations, Leena, x3-3878.

**Christmas Reception** - The Women's Forum is invited to a reception at President Wiesner's house, 111 Memorial Dr, Thurs, Dec 13, 5:30-7pm.

**Family Day Care Program\*\*\*** - Day Care parents will meet Fri, Dec 14, 9:30am, Rm 1-236. Information, x3-1592.

**Christmas Open House** - Matrons and their families (children over 6) are invited by President and Mrs. Jerome B. Wiesner to the President's House, 111 Memorial Dr, Sun, Dec 16, 3-5pm.

**Women's Forum\*** - Open meeting, planning session for spring. Mon, Dec 17, 12n, Bush Rm 10-105.

**Student Art Association\*\*** - Open drawing workshop. Tues, 7:30pm, Stu Ctr Rm 429.

**Urban Action Volunteer & Resource Center** - Volunteer tutors, teachers urgently needed in Cambridge and Boston schools, as well as volunteers for other community agencies. Mon-Fri, 9am-5pm, Stu Ctr Rm 437, or call x3-2894.

**Course Evaluation\*\*** - Sponsored by TCA & SCEP. Come help out. Info, lve msg at TCA, Stu Ctr Rm 450, x3-4885.

## MIT Club Notes and Meetings

**Bridge Club\*** - ACBL Duplicate Bridge. Matchpoint pairs Thurs, 8-11:30pm; beginners Fri, 10pm-12m; small IMP-scored team of 4 events (advance registration required) Fri, 8pm & Sat, 2pm; Charity Game (sectional rating), open pairs, Fri, Dec 14, 8pm; all Stu Ctr Rm 407. Jeff, x3-5285 or 864-5571.

**Chess Club\*\*** - Sat, Sun, 1:30-5pm, Stu Ctr Rm 473.

**Chinese Choral Society\*** - Singing. Sun, 3-6pm, Stu Ctr Rm 473.

**Classical Guitar Society** - Classes, group or private. Mon & Thurs, 5-8pm; Sat, 8am-12n; Rm 4-146, 148, 149. New group class for beginners every month. Vo Ta Han, 494-8353.

**MIT/DL Duplicate Bridge Club\*\*** - Tues, 6pm, Stu Ctr Rm 473. Jeff, x3-5285 or 864-5571. ACBL Membership Game (75% of sectional rating) - Tues, Dec 18.

**Fencing Club\*\*** - Wed & Thurs, 6:30-9:30pm, duPont.

**Figure Skating Club\*\*** - Practice Wed, 11am-12n, Ice Rink. Must have athletic card.

**Goju Karate Club\*** - Mon, Thurs, 7pm, Stu Ctr Rm 407. Beginners enter first week of each month. Info, Terry or Dick, 440-9631.

**Hobby Shop\*\*** - Mon-Fri, 10am-6pm, Rm W31-031. Fees: \$10/term for students, \$15/term for community. x3-4343.

**Judo Club\*\*** - Sport and self defense. Mr. M.H. Yanagi, 5th degree Black Belt, chief instructor. Mon, Wed, Fri, 5pm; Sat 1pm, Exercise

Rm, duPont Gym. Beginners welcome. Info, Mike Portnoff, x3-7319.

**Kung Fu Club\*\*** - Northern Praying Mantis. Tues, 7-9pm, T Club Lge, Thurs, 7-9pm, 4th fl 139 Main St. Info, H.C. Wong, 876-5071.

**MIT Karate Club\*\*** - Evening classes Mon, Wed, 8-10pm, duPont Wrestling Rm. John Miller, x3-1588.

**MIT Magazine: Free Parking** - Weekly meeting. Sun, 8pm, Walker Mem Rm 316.

**MIT Scuba Club\*\*\*** - Pool session Wed, Dec 12, 8-10pm, Alumni Pool.

**MIT Wheelmen\*** - Wholesale parts orders placed, racing & touring events planned, informal discussion of everything about bicycling. Wed, 7:30pm, Rm 1-203.

**Outing Club\*** - Mon & Thurs, 5-6pm, Stu Ctr Rm 461.

**Science Fiction Society\*** - Fri, 5pm, Rm 1-236.

**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. Call Kevin Slimak.

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

**Tech Engineering News\*\*** - General staff meeting. Sun, 5pm, Stu Ctr Rm 453.

**Technique\*\*\*** - Yearbook staff meetings. Sat, 11am & Wed, 7:30pm, Stu Ctr Rm 451.

**Tech Squares\*\*\*** - Western style square dancing. Tues. 8-11pm, Sala. Admission \$1, first time free.

**Tiddlywinks Association\*** - Wed, 8-11pm, Stu Ctr Rm 491.

**Volleyball Club\*\*** - Serious volleyball, eventually leading to participation in Boston area tournaments. Sun (except vacations), 2-4pm, duPont Gym.

**Women's Gymnastics Club\*** - Mon-Fri, 5-7pm, duPont Gym. Info, Ursula, x3-5954.

## Wellesley Events

**Photographs by Wynn Bullock\*** - A selection of his works from the past four decades. Thru Mon, Dec 17, Main Corridor Gallery, Jewett Art Center.

## Social Events

**24-Hour Coffee House\*** - Inexpensive food, candy, non-alcoholic drinks are sold. Relax, play games, read. Daily, Stu Ctr, 2nd fl center lge.

**Pot Luck Coffeehouse\*\*** - Live entertainment, cider, donuts, coffee. 8:30pm-12m, W20 Mezzanine Lge, 3rd fl. Performers & others interested in helping out, call Doug, x8766 Dorm.

**Friday Afternoon Club\*\*** - Music, conversation and all the cold draft you can drink. Fri, 6pm, the Thirsty Ear, Ashdown Basement. Admission \$1 men, 50 cents women. Must be over 18.

**Muddy Charles Pub\*\*** - Join your friends for music, beer, wine, snacks, conversation. Mon-Fri, 11:30am-2pm, 4-8pm, 110 Walker. Call GSC, x3-2195.

**Deutscher Tisch** - Wir treffen uns freitags von 1-2 in Lobdell, um auf Deutsch und ueber Deutschland zu reden. Wir sind an der schwarz-rot-goldenen Tischflagge zu erkennen.

## Movies

**Z (Costa Gavras)\*** - Humanities. Thurs, Dec 13, 7pm, Rm 10-250. Free.

**The Time Travellers** - Midnite Movie Series. Fri, Dec 14, 12m, Sala. Free, ID required. Bring your own blanket.

**Rock Around the Clock** - LSC. Sun, Dec 16, 8pm, Rm 10-250. Admission 50 cents.

**Holiday Film Festival\*** - Student Artists Association. **Charlie Chaplin** in "The Tramp," "The Gold Rush," "The Pawnshop"; **W.C. Fields** in "The Fatal Glass of Beer," "The Great Chase," "The Great McGonicle" & "Dollars and Sense." Mon, Dec 17, 8:30pm, Kresge Auditorium. Tickets \$2, TCA office or Paul's Shoe Repair, 698 Mass Ave. Info, x3-4885.

## Music

**Noon Hour Concert Series\*** - John Gibbons, harpsichordist, will perform Bach Partitas No. 5&6. Thurs, Dec 13, 12n, Chapel. Free.

**Cambridge Singers\*\*** - "Magnificat," program of choral music for Christmas. Fri, Dec 14, 8:30pm, Burton Corner Dining Hall. Free.

**Beethoven's Birthday Concert\*** - Sponsored by MIT Music Section. Pianist John Buttrick, music director, will give a solo concert, all-Beethoven program. Sun, Dec 16, 8pm, Kresge Auditorium. Free.

**Classical Guitar Society Concert\*** - By Hugh and Thomas Geohagan. Mon, Dec 17, 8:15pm, Kresge Little Theatre. Program includes works by DeVise, Lenox Berkeley, Thomas Geohagan, Mozart. Admission \$2.50 at door.

**Recorder Ensemble\*\*** - Music provided, but bring instruments and any music you wish to play. Tues, 7pm, ESG Hdqtrrs, 6th fl bldg 24. All aficionados welcome, freshmen encouraged to attend. Details, David Dreyfus, x3-7787.

## Theater

**Rashomon\*** - MIT Community Players present a play written by Fay and Michael Kanin, directed by Phoebe Wray. Thurs, Fri, Sat, Dec 13, 14, 15, 8pm, Kresge Little Theatre. Tickets \$2.50, \$2/students. Available at door or in Bldg 10 Lobby.

## Dance

**Folk Dance Club\*** - International, Sun, 7:30-11pm Sala. Balkan, Tues, 7:30-11pm, Stu Ctr Rm 491. Israeli, Thurs, 7:15-10-15pm, T Club Lge, duPont, Afternoon Dance Break, Fri, 12:30-1:30pm, Kresge Oval.

## Exhibitions

**The Stars, the Moon\*** - Black and white photography exhibition sponsored by the Committee on the Visual Arts. Comprised of photographs taken at the California Institute of Technology's Mount Palomar Observatory and by NASA's five lunar orbital satellites in 1966-67. Fri, Dec 14-Sat, Jan 12, Hayden Corridor Gallery.

**Recent Paintings by Don Robertson\*** - Sponsored by Committee on the Visual Arts. Public preview Fri, Dec 14, 8-10pm. Exhibit Sat, Dec 15-Sat, Jan 12, Hayden Gallery. Hours: 10am-4pm Mon-Sat closed Sun.

**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** - In honor of St. Cecilia, patron saint of music. Scores, books, pictures.

**Photography Exhibitions\*** - "8x10 Contact Prints" by Ron Rosenstock. thru Tues, Jan 15. Creative Photography Gallery, 120 Mass Ave. Mon-Fri 9am-10pm, Sat, Sun, 12n-6pm, Free.

## Religious Services and Activities

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

**Campus Crusade for Christ/College Life Family Time\*** - Sharing, singing, prayer & teaching from God's Word. Fri, 6-9:30pm, Rm 1-132.

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

**Christian Bible Discussion Group\*** - Thurs, 1pm, Rm 20B-031. Prof. Schimmel, x3-6739, or Ralph Burgess, x3-2415.

**Christian Science Organization\*** - Meetings, including testimonies of healing. Tues, 7:15pm, Chapel.

**Christmas Celebration Dinner\*** - Singing before and after. Sun, Dec 16, 2pm, Burton Dining Hall. Cost 50 cents.

**Hillel\*: Services** - Mon-Fri, 8am, Rm 7-102; Fri, Traditional 4:15pm, K kosher Kitchen, Non-Traditional 7:45pm, 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 K 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.

**Latter Day Saints Student Association\*** - Discussion of beliefs. Tues, 8am, Stu Ctr West Lge.

**Protestant Communion Service\*** - Wed, 5:05pm, Chapel.

**Protestant Worship Services\*** - Sun, 11am, Chapel.

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

**United Christian Fellowship\*** - Christians for Dinner and Sharing Meeting. Thurs, dinner, 5pm, Walker, followed by singing, sharing, prayer 6pm, Rm 6-321.

**United Christian Fellowship\*** - Group study of world religions & Jesus Christ from biblical perspective. Sun, 9:30-10:30am, Rm 5-216.

**Westgate Bible Study Meeting\*** - Includes study of the Gospel of Mark. Wed, 8pm, apt 1202 Westgate I.

## Announcements

**Applications and Information for ADP III** - Will be available Thurs, Dec 13, 12n, Bush Rm 10-105.

**Collection for Goodwill Inn School for Boys\*** - Christmas box located in "Strobe Alley," near Rm 4-405. Try to get items in by Fri, Dec 14. If deliver personally to Inn, meet Dr. Hartl. Suggestions: athletic equipment, games, sports clothing, science & crafts kits, etc.

**Unicef Greeting Cards** - Also notes, datebooks, available at TCA Office, Stu Ctr Rm 450. Wide selection now, but they go very fast! Call x3-4885, stop by today.

**Creative Photography 4.051 Lottery** - Sign up now in Bldg W31, 3rd fl. Only way to get in course is by lottery. Last day for signing up is Thurs, Dec 13.

**MIT Dramashop** - Tryouts & technical position sign-ups for all aspects of IAP production of Shakespeare's *Measure for Measure*, directed by Prof. P.A. Gurney. Tryouts early Feb. Humanities credits available. Questions or unable to attend, x3-2908.

**Wellesley-MIT Exchange** - applications due Wed, Dec 19. Applications and information available at Exchange Office and Exchange bulletin board in Bldg 7.

**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 attendance is planned.

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

\* Open to the public

\*\* Open to the MIT community only

\*\*\* Open to members only

Send notices for December 19 through January 11 to the Calendar Editor, Room 5-111, Ext. 3-3279, before noon Friday, December 14.

## New UROP Listings

Western Electric Company N. Andover

The Merrimack Valley Division of Western Electric would like to involve interested undergraduates and faculty in a number of potential projects: (1) Temperature profiles in large sealed vessels would involve vessels whose internal environment includes high temperature, high pressure, and potentially corrosive chemicals; (2) Stress determination in moderately thin quartz plates would involve development of techniques and equipment necessary to measure the stresses present in large moderately thin plates made from cultured quartz material; (3) Frequency shift during manufacture of sealed crystal devices involves investigating and determining the many factors that result in frequency shifts during manufacture of sealed crystal devices involves investigating and determining 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) Computer-aided fault diagnostics for repair of hybrid integrated circuits; and (6) Effectiveness of Sn-Ni electroplated alloy as a diffusion barrier between Cu and Au—current and projected cost of gold has brought about the need for a technology to reduce the amount of this metal used by the electronic industry. This investigation consists of evaluating Cu, Sn-Ni, Au diffusion couples very near room temperature to several hundred degrees centigrade.

Harvard Medical School Boston

A laboratory in the department of physiology is working to elucidate basic mechanisms of renal function on the organ and system level using new and sophisticated instrumentation. Research opportunities for undergraduates include: (1) Wet chemistry samples of 1-100 picoliters; (2) New methods of volumetric pipetting in the 1-100 picoliter range; (3) Computer interfacing for elemental mapping using the electron probe; (4) movie-production and micro-cinematography; (5) Opportunities to design and develop experimental devices using both electronic and mechanical techniques. Background experience in chemistry, physics and electrical engineering.

Massachusetts General Hospital Boston

The Physics Research Laboratory at MGH is doing work at the MIT Reactor dealing with activation analysis, in-vivo activation analysis, isotope production, and neutron capture therapy. All of these involve some aspects of biology and nuclear physics. The laboratory work at MGH also includes utilization of a small cyclotron to produce short-lived isotopes for medical applications and development of instrumentation and computer systems for use in nuclear medicine image processing.

Boston Biomedical Research Institute Boston

A doctor at BBRI has suggested projects involving investigation of the structure and turnover of neuronal protein. Actin, microtubule protein, and neurofilament protein from mammalian brains have been identified after gel electro-phoresis. Research opportunities exist in the areas of (1) a phylogenetic comparison of the aforementioned neuronal proteins; (2) protein changes in developing aging nerves and brain and (3) protein turnover in normal and pathological conditions.

### Equipment Available

UROP will make available on a full-use basis an electric wire wrap tool, with bit, sleeve, and unwrapping tool, to the author of a suitable proposal.

## 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.

### Ralph Bunche Fellowship Program

In order to encourage greater involvement and provide more opportunities for young Black Americans to participate in international affairs and U.S. foreign policy, the United Nations Association is sponsoring the Ralph Bunche Fellowship Program. The Fellowships are designed to allow selected Black Americans to pursue a one-year, off-campus program of research and active involvement in international affairs. Each Fellow develops his or her own personal program of research and involvement. The fellowships are of one-year duration and carry a stipend of \$5,000. To be eligible, an applicant must be (1) a Black American, (2) under 30 years of age, and (3) either a graduate or undergraduate student. Need will be a consideration. Deadline: March 1, 1974.

### Laboratory Research Fellowships in Nuclear Sciences and Engineering

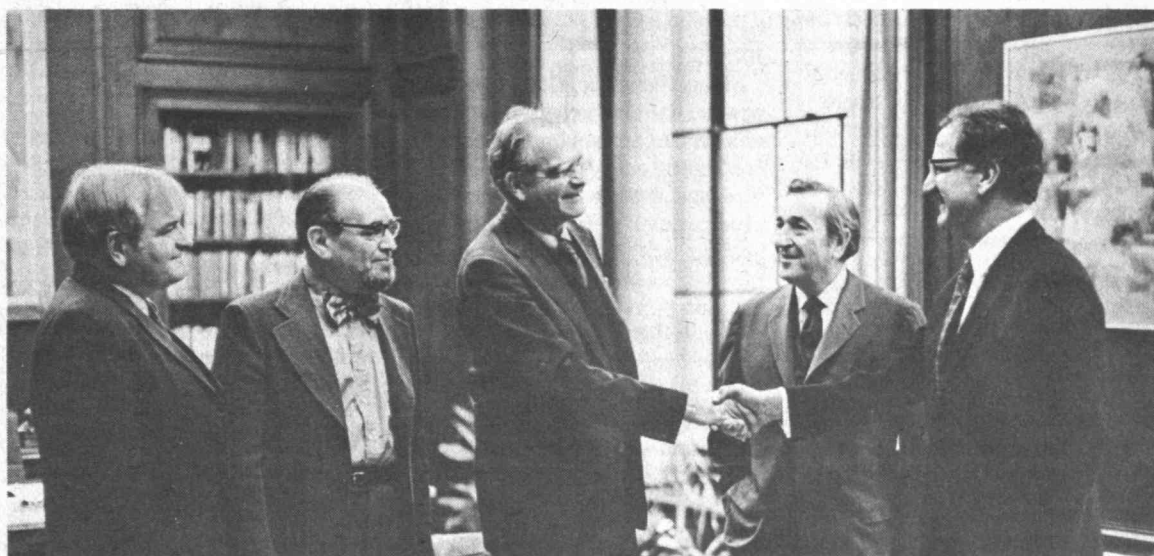
The United States Atomic Energy Commission announces an assistance program for research in Nuclear Sciences and Engineering. The Laboratory Graduate Program awards appointments to students of advanced standing in support of research for doctoral and master's theses. The awards are available for the academic-calendar year and are renewable up to three years. The program provides a \$3,000 stipend in addition to tuition, fees, dependency and travel allowances. To be eligible, applicants must be (1) a US citizen, (2) from a US educational institution, and (3) registered in a thesis research program during tenure. Deadline: Jan. 10, 1974.

### Connecticut State Scholarship Grants for Graduate Students

The State of Connecticut announces the availability of a limited number of grants for graduate study. The grants carry stipends of not more than \$1,000 per year. To be eligible, the applicant must be (1) a US citizen or in the process of seeking citizenship, (2) a legal resident of Connecticut for at least 112 months immediately prior to the time of application, and (3) must be enrolled in or have been admitted to a program of study leading to a post-baccalaureate degree. Deadline for all credentials: March 10, 1974.

### The William Van Alen, Architect, Memorial Award

The William van Alen, Architect, Memorial Award offers a \$6,000 stipend for one academic year for further study either towards an advanced degree or a research project of some architectural nature. Any student from an architectural or engineering teaching establishment under 35 years of age by December 31, 1974, is eligible. Deadline: June 1, 1974.



Formal presentation of the James R. Killian, Jr., Faculty Achievement Award for 1973 is made to Dr. Victor F. Weisskopf, Institute Professor and Killian Award Lecturer. From the left are Chancellor Paul E. Gray, Provost Walter A. Rosenblith, Professor Weisskopf, President Jerome B. Wiesner and Dr. Elias P. Gyftopoulos, Ford Professor of Engineering

and chairman of the faculty. The announcement of Dr. Weisskopf's selection was made last May by a faculty election committee. The award, created by the faculty in 1972 as a permanent tribute to Dr. Killian, the honorary chairman of the Corporation, recognizes "extraordinary professional accomplishments" by faculty members.

## Sloan Review Issue Dwells On Productivity

The difficult goal of achieving higher productivity while improving the quality of work experience is explored in three articles in the fall issue of the Sloan Management Review.

Dr. Elmer B. Staats, comptroller general of the United States, describes current efforts to improve productivity in the federal government.

Professor Richard E. Walton of the Harvard Business School presents an outline of the ways in which an employee's attitude toward his job is determined.

Professor John F. Rockart of MIT's Alfred P. Sloan School of Management describes some innovative approaches to raising productivity in health care and education.

The Review, which has a redesigned format and cover style, is the professional management journal of the Sloan School of Management. It is published by the Industrial Management Review Association at the school.

## Freshman Forms

Freshman Evaluation Forms are due on Wednesday, Dec. 12. Instructors' deadline is Friday, Dec. 28.

## Technology Wives Set Up Job Bank

The Technology Wives Organization (TWO) is setting up a job bank to find employment for student wives who want or need to work but are having difficulty finding jobs.

TWO is seeking all kinds of jobs—domestic, business, temporary, part-time and full-time. Some of the wives are foreign and have language limitations and/or visa restrictions on employment.

Anyone having a job to offer may call Kathy Ervin, 648-5286.

## Contributes Essay

George F. Farris, associate professor of organizational psychology and management in the Alfred P. Sloan School of Management, has contributed an essay for *Current Developments in the Study of Leadership*, published last month by the Southern Illinois University Press.

## Kenneth McKay First Speaker For EE Series

First speaker for this year's Electrical Engineering Colloquium Series will be Dr. Kenneth G. McKay, executive vice president of Bell Telephone Laboratories, Murray Hill. He will speak on "The Communications Convolution" at 8pm today, Wednesday, Dec. 12, in Room 9-150. All interested persons are invited.

Dr. McKay, a physicist, has been associated with electronic, semiconductor and solid-state research and development programs at Bell since 1946.

A native of Montreal and graduate of McGill, he received the ScD degree from MIT in 1941 and worked with the National Research Council in Canada until 1946. At Bell laboratories, he became director of development of solid-state devices in the 1950's, vice president of systems engineering in 1959 and was named to his present position in 1962.

Dr. McKay is a fellow of the American Physical Society and also of the IEEE.

# Davenport to Head Electrical Engineering

(Continued from page 1)  
 "As a first step," he said, "I intend to ask the Departmental Advisory Committee to study and make recommendations concerning both the structure and the administration of the department and the basic policies concerning the department's undergraduate, graduate and continuing education programs."

Dean Keil said that the appointment was a particularly important one "because the department is not only the best known of all the departments of the School of Engineering but is also by far the largest." He indicated that 30 percent of the School's faculty, 57 percent of its undergraduates, and 30 percent of its graduate students are associated with the Electrical Engineering Department.

The department, which, along with the Research Laboratory of Electronics, recently moved into the new Sherman F. Fairchild Electrical Engineering and Electronics Complex, has long been noted for its excellence.

In 1971, in a report on graduate education by the American Council on Education in Washington, the department was ranked first in the nation for faculty quality and was tied for first with Stanford for effectiveness of doctoral programs. The report was based on a poll of 6,000 US scholars.

Dean Keil said the department "spans a most unusual spectrum of pioneering research activities in electrical and bioelectrical engineering, plasma physics, energy, electronic materials, communications, systems and control theory, and particularly the area of computer science, which has developed so spectacularly during recent years."

He said that Professor Davenport "brings to his new assignment a unique range of outstanding capabilities—from personal research, teaching, academic administration and research management to the broader aspects of engineering education in general."

Professor Davenport was chairman of a search committee appointed by Dean Keil to assist him in the search for a new department head. The committee's other members were Dr. Hermann A. Haus, Elihu Thompson Professor of Electrical Engineering; Dr. Fernando J. Corbato, professor of

electrical engineering; and Drs. Stephen Burns, Joel Moses and Stephen D. Senturia, all associate professors of electrical engineering.

Prior to the committee's appointment, Dr. Davenport had said on several occasions that he did not want to be considered for the post. After the committee had reviewed more than 30 potential candidates, it reported those most qualified to the Dean. Professor Davenport's name was included in this list with an indication that he preferred not to be considered. However, after serious discussions and a review of additional candidates, Dean Keil recommended that Dr. Davenport be appointed "because it had become apparent that he was by far the most qualified candidate for the position."

When Professor Davenport was then approached, Dean Keil said, "he re-evaluated his previous decision, concluding that the role he would play as head of the Department of Electrical Engineering was more vital to the Institute as a whole and professionally so challenging that he would accept this new position." He did this even though he said that he would find it difficult to withdraw from his efforts in continuing engineering education as director of CAES.

Professor Davenport had participated in the teaching programs of the Center for several years before becoming its director in 1972.

Since then, the Center has expanded the character and number of both its campus and off-campus continuing education programs. It also has initiated in-depth evaluation studies of its self-study programs; started experiments on the use of interactive computer terminals, as well as video tapes, in its self-study programs; converted its primary television facilities from black and white to color; and added an experimental black and white television studio and editing facility for use by faculty and students.

During the same period the Center also started the production of short video-tape programs centered on the activities of the School of Engineering. A half-hour program about the activities of the new Energy Laboratory has been produced, and a program about women in engineering is now in production.

Dr. Davenport, 53, was born in Philadelphia. He received his BEE degree in 1941 from the Alabama Polytechnic Institute and the SM and ScD from MIT in 1943 and 1950, respectively. After serving in the US Navy, he returned to the Institute in 1946 as an instructor of electrical engineering, and was appointed assistant professor in 1949. In 1951, he joined Lincoln Laboratory as leader of the Communications Techniques Group and became associate head of the Communications and Components Division in 1955. Two years later he was appointed head of that division and in 1958 became head of the newly formed Information Processing Division.

Dr. Davenport returned to campus as Professor of Electrical Engineering in 1960 and from 1961 to 1963 was associate director of the Research Laboratory of Electronics. In 1963, he returned to Lincoln Laboratory for a two-year period as Assistant Director of the Laboratory. Returning to the campus in 1965, he began the development in CAES of a new subject on random processes while conducting research and teaching graduate subjects in communication theory and undergraduate subjects in electrical engineering and computer science. In 1968, he was named Undergraduate Academic Officer and Chairman of the Undergraduate Educational Policy Committee of the Department of Electrical Engineering. He held these positions until he was named Associate Head of the Department in 1971.

Professor Davenport has acted as a consultant to the Office of Science and Technology, the Department of Defense and the Communications Satellite Corporation. He is author of the book, *Probability and Random Processes*, published in 1970, is co-author, with Dr. William L. Root, of the book *An Introduction to the Theory of Random Signals and Noises*, published in 1958, and has written for a number of technical journals.

Dr. Davenport is a Fellow of the IEEE and the American Association for the Advancement of Science, and is a member of the Society for Industrial and Applied Mathematics, the Mathematical Association of America, and the Sigma Xi, Eta Kappa Nu, Tau Beta Pi and Phi Kappa Phi societies.

## DINING SERVICE HOURS DURING THE HOLIDAY SEASON

DEC. 22	TWENTY CHIMNEYS	8 AM TO 7 PM
DEC. 23	TWENTY CHIMNEYS	9 AM TO 7 PM
DEC. 24	CLOSED	
DEC. 25	CLOSED	
DEC. 26, 27, 28	LOBDELL BREAKFAST	7:30 AM TO 10 AM
	LUNCH	11 AM TO 2 PM
	DINNER	5 PM TO 7 PM
DEC. 29	TWENTY CHIMNEYS	8 AM TO 7 PM
DEC. 30	TWENTY CHIMNEYS	9 AM TO 7 PM
DEC. 31	TWENTY CHIMNEYS	8 AM TO 7 PM
JAN. 1	CLOSED	
JAN. 2, 3, 4	LOBDELL BREAKFAST	7:30 AM TO 10 AM
	LUNCH	11 AM TO 2 PM
	DINNER	5 PM TO 7 PM
JAN. 5	TWENTY CHIMNEYS	8 AM TO 7 PM
JAN. 6	TWENTY CHIMNEYS	9 AM TO 1 AM
JAN. 7	RESUME REGULAR SCHEDULE IN ALL FOOD SERVICE OPERATIONS	

WALKER MEMORIAL FOOD SERVICE WILL BE CLOSED FROM THE END OF SERVICE DEC. 21 TO BREAKFAST 7:30 AM JAN. 7, 1974.

PRITCHETT LOUNGE (WALKER) WILL BE OPEN NOON TO MIDNIGHT SUNDAY JAN. 6, 1974.

Professor Davenport and his wife, the former Joan Purington, reside at 190 Garfield Road in Concord, Mass. Their son, Mark, a graduate of Dartmouth College and the Case-Western Reserve University Medical School in Cleveland, Ohio, is an intern at the Cleveland University Hospital, and their daughter, Sally, a graduate of Pembroke College of Brown University, Providence, R.I., and the School of Applied Social Studies of the Case-Western Reserve University, is a social worker with the Walter G. Nord Centers in Elyria, Ohio.

## Minority Problems Subject of Seminar

The concluding session of the Technology and Culture Seminar for this semester will begin at 5:30pm Friday, Dec. 14, in Lecture Hall 9-150.

Speaking at the seminar will be Dr. John U. Monro, director of freshman studies and professor of English at Miles College in Birmingham, Ala.

Dr. Monro will be responding to the views expressed at the seminar Nov. 30 by Dr. Kenneth B. Clark, professor of psychology at the City University of New York, on the problems of minority group students involved in higher education.

## Concert Marks LvB Birthday

Pianist John Buttrick, director of music at MIT, will give a solo concert celebrating the 203rd anniversary of the birthday of Ludwig van Beethoven, Sunday, Dec. 16, at 8pm in Kresge Auditorium.

The Beethoven program will feature the Sonata in F, Opus 10 number 2, the *Moonlight Sonata*, Opus 27 number 2, some Bagatelles and the Sonata in C minor, Opus 111.

A former pupil of Beveridge Webster, Rudolf Serkin and Isidor Philipp, Professor Buttrick has performed annually in Europe since 1961. He came to MIT in 1965 and was appointed chairman of the music faculty and director of music last year.

The concert, which will be sponsored by the Music Section, will be free and open to the public.

## ASCE Chapter Cited

MIT's student chapter of the American Society of Civil Engineers (ASCE) has been cited for 50 years of membership in the ASCE. The MIT chapter was the first established in the northeast and is the first in New England to be so cited.

## 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.

## For Sale, Etc.

Exc Xmas gift: full color portrait, pastel or oil, done prof. Appointment, Alison, x3-7726.

Sgl bed, box spr & matt, gd cond, \$10. Call, 734-9648.

Wall hangings: 2 pr antique snow shoes, fencing mask & foil, carved wdn 40" fork & spoon; gold sofa; brass mag rack; map coffee tbl. x3-6840.

Refrig, 2 cu ft, Welbilt, exc cond, \$30; sgl bed, hebrd, cordry sprd, Sealy matt, lk nw, \$80. Call, 489-3515, aft 6.

Caber ski boots, sz 8½, worn once, \$30. Ivan, x8-1379 Draper.

Boys man-made fur coat & hat, choc brn, exc cond, worn 6x, sz 6, was \$50, \$25. Bob, x8-4544 Draper.

Atala 101 bike, 24", \$250. Dennis Merritt, x8-1560 Draper.

Child 1 pc snow suit, sz 4, red, best. x3-5851.

Stud snows, Delta F78-14, mtd Mustang, yr old, \$25/pr. Bob, x3-4816.

Tbl & chrs, \$40; wdn bench, \$20; ftstool, \$5; garbage pail, \$5; asst hsewares; lving cntry. Ken, 494-8212.

Maytag porta-washer, Mdl A50, used 3x, spin dry, \$100. Stanley, x3-4288.

Exclusive Xmas gift this cold wnter: polar bear skin, v lg & beaut, serious inquiries only, best over \$1,800. Call, 861-9027.

Refrig, 7 cu ft, gd cond, \$50 nego; 27" sq embroidery frame, unused, \$12. Evelyn, x7302 Linc.

Free or best: 100 gal 2 heating oil & 275 gal tank, gd cond, u move. Paul, x8-1367 Draper.

Wstgshse washer, best. x8-4061 Draper.

Fr horn for beg, \$100; beg skis, 66", 69", \$10, \$5. Nichols, x314 Linc.

Stud snows, Frstn T&C, 6.85x15, used 2 seas, exc cond, \$30/pr. J. Laynor, x7202 Linc.

Hseplants, many asst varieties, 3½" pots, 50 cents ea. Peter, Rm 13-3078.

Heath sine sq wave gen, AG-10, old but gd, \$20; Heath decade cap & res box, \$10 ea; power supplies: Eico 1020, 0-30V, 300ma, \$10; 2 Lafayette 99-50775, 5-20V.2A, \$25 ea. Larnie, x8-3367 Draper.

Saab 96 oil filter, nw; shop man. Larry, x3-5557, lve msg.

Bed w/frame, matt, spr, \$10. Dave, 876-5038.

Elec calculator: Commodore MM2SR, elec sl rule, sq, sr, recip, m, etc, used 2 mos, w/ac adapt, as nw, \$90; also PE 2040 trntbl, gd cond, w/out ctrtdg, \$80. Sol, Rm 442 Random Hall.

Saska ski boots, sz 7½, f, lace, \$10; Ralston Spalding tennis rckt, 4 5/8 M, nw, \$5. Peggy, x8868 Dorm.

Michelin X tire, 135x15; pr m ice skts, 8½ nw. David, x3-5550.

Milwaukee Saw-Z-A11, 2 spd heavy duty, 6 mos, w/case, exc cond, orig \$120, \$80. x3-5831.

Panasonic RS-275US cassette deck, 2 mtr direct dr, all solenoid operation, auto-shut-off. Tom, 262-0846, aft 6.

Wind power generators, Swedish & Australian, 32 pg booklet, \$1. Write

Kenyon King, Chatham, NH, 04058.

HL 630 rcrrv, 6 mos, perf cond, best. Bob, x9366 Dorm, aft 6.

Used am/fm/sw Blaupunkt car radio, \$75. Nancy, x3-5226.

Tickets, 2, Nutcracker, \$4 balc seats, 7:30pm, Fri, Dec 14. x3-5665.

O'dea Javelin 14' fbrglas sailboat, Snowco trlr, \$800. Larry, x5574 Linc.

Slinglander 4 pc drum set, Zilgion cymb, cvr, many acces, \$300; Amana radar range, \$200; both gd cond. Carl, x8-2876 Draper.

Stud snows, Armstrong, glasbelt, 7.35-x14, used 2 mos, \$30. Mark, x3-3242, lve msg.

Br nw Asahi Pentax ES auto SLR cam, fl.4, lens listed \$650, ask \$420. Ed, 266-8138.

Snows, 2, 6.50x13, used 1 seas, \$15/pr. John, x3-7080.

Kodak EX126-20, 10 rolls, expires 6/24, \$1.25/ea. Steve Morton, x7378 Linc.

Caper ski boots, \$25 or best; bskt for bike; hcky equip. Rob, 536-3723.

Playboys & Penthouse mags. Paul, x8-1357 Draper.

Telescope, Tasco, 7TE, 3" refract, equatorial mnt, 3 eye pces, hrdwd tripod & case, \$100. Call, 868-4744.

Bell & Howell 35 mm proj, lited pointer, 6 mags, \$30; Hart std skis, 210 cm, w/bndgs, \$15 or best; toddlers

snowsuit, sz 4, yel/red/navy, nw, \$10; HP 400A ACVTVM, \$20. Dennis, x8-3333 Draper.

Baby carriage, conv, \$25; 6½' artificial Xmas tree, \$5; 2 pr sawhrse brckts, \$2; or wl swap for elec trains. Call, 623-6704.

Stud snow, H78-15, mtd '71 Ford, \$40. Kathy, x7702 Linc.

Compl set dishes, srvc 12, Embassy china, \$25. Paul, 259-8758.

Snows, 2, 6.40x15, fit Volvo & cmpcts, \$7.50/ea; m hcky skts, Bauer, lk nw, sz 13, \$6.50. Mrs. Gundersen, x3-6085, pm.

Space heater, 1350 w, 6 settings, \$12; nw all-prps mtl cart, \$6; mirror, \$5. Call, 494-9044.

Darktone plexiglas lamp, \$19; suitcases se \$9, 3 pc set \$32; dbl quilt bdsprds, \$7; wd tbl, 2', \$9; rd tblclths; blankets; f clothes, sz 5-7; shoes sz 5½; cheap. Call, 494-8323.

Stud snows, 825x15, mtd 6-lug whls, fit ½ T truck, used 3 mos, \$45 mtd, \$35 un. Chuck, x3-6726.

Expedition down parka, Top Mt Products line, 2" loft, lg, bl, unused cond, \$70 nego; want used AR man trntbl; used pr KLH, EV, AR or similar spkrs. Dan, x0640 Dorm.

Free '69-'70 Science mag; ski poles, wdn skis; cheap f ski boots, sz 8½. Stu, x3-1418.

KLH 32 spkrs, \$65; Heathkit AA 14 amp, \$55; bckpk, \$10; b nw nvr worn snorkl parka. Eliot, 876-1593, evgs.

Skis, Gerdau 195 cm, fbrglas Solomon step-in bndgs, gd shape, \$25. Rick, x0527 Dorm.

Pr Bose 901's, \$350; Crown IC 150 preamp, \$200; Maranty 32 power amp, \$150. Brain or Jim, 738-7481.

Snows, VW F70-14, stud, used 1/2 seas, \$20/pr. x3-7102.

Hcky skts, m sz 11, exc cond, \$15. John, x3-4598.

Spalding Sideral skis, 198 cm, slolom, nw, bndgs, nvr mtd, 2 yr grnty, list \$190, sell \$100. Barbara, x5385 Linc.

Moving, must sell: yr old dbl matt, \$40; desk, \$25; 4 drwr bureau w/mirror, \$15; port tvs, 19" Zenith, \$40, brkn GE w/std, \$8; sm pup tent, \$8; cinder block bkese, \$5. Roger, x3-7085.

Frigidaire AC, csmnt wndw mdl, 8,000 BTU, 2 yrs, best. Bill, 494-8377.

Nw wh Head parka w/fox trim hood, sz 12, \$90. Call, 862-5591.

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

Refrig, Frigidaire, 9 cu ft, \$40 or best. Steve, x3-1691.

Magnavox tv-stereo rcrd player comb, \$20. Fisher, x3-5571.

Bell & Howell super 8 movie cam, auto focus, zoom lens used once, \$48. x3-4748.

Stud snows, radial, 215x15, 1 seas, \$35/pr. x7218 Linc.

## Vehicles

'64 Falcon sta wgn, 6 cyl, std, hi miles, reliable, \$100. Call, 443-8541.

'64 Dodge, 4 dr, std, 86 K, exc eng, 6 gd tires, nvr crashed. Prof Taylor, x3-2485.

'65 Mustang conv, exc cond, auto, 6 cyl, best over \$400. Jerry Morse, x381 Linc.

'65 Dodge Coronet, nds back br job, gd eng, nw exh, sticker, ask \$100. x3-3444.

'65 Dodge Polara, p st & br, fac ac, gd int, nw br, depend eng, \$250. Call, 926-5068, evgs.

'66 Volvo 122S, gd run cond, \$500. Call, 491-4873.

'66 VW bug, mech v gd, r, radials, nw paint, nw br, exc transp, lving cntry, \$400 or best. Peter, x3-5829.

'66 VW Karmann Ghia, \$150. Linda, x3-5864.

'66 Pontiac Bon, 48 K, full pwr opts, vinyl top, x tires, runs exc, v comfy, \$350. Paul, x3-6050.

'66 VW Karmann Ghia, runs, well, gd on gas, nw batt, tuned, used daily, 78 K, must sell, \$450 or best. Joe, x3-6727.

'66 Chevy Imp, 2 dr hdt, sm V8, p st, gd cond, nw batt & shocks, 4 gd tires, 2 nw mtd stud snows, must sell, \$300 or best. Alan 484-1147.

'67 Ford sta wgn, sm V8 eng, lo miles, ac, p st, gd cond, \$600 or best. Ehud, x3-2517.

'67 Chevelle, auto, p st, r, exc cond, must sell, lving cntry, \$350 or best. x3-6268.

'67 Plymouth Belv, 4 dr sed, \$200 or best. Joe, x8-1118 Draper.

'67 Chevy II sta wgn, gd cond, gd mpg, \$495 or best. x3-3711.

'67 VW sqbk, 72 K, amfm, gd run cond, body fr, \$550. Karla, 868-1410.

'68 Ford LTD wgn, 302 eng, fine cond, \$895. Tom, x8-3987 Draper.

'68 Ford Cortina, 4 dr, exc cond, \$350. Wu, x3-1940.

'68 Pontiac Le Mans, p st & br, auto, ac, r, nw snows, \$650. Tom, x8-1276 Draper.

'68 Olds 98, exc cond, gd tires, ac, 4 dr sed, grn, \$750. Beverly, x3-3101.

'69 Imperial, exc run cond, nw exh, 4 gd radials, 42 K, must sell 12/14, best over \$500. Tom, x3-7080.

'69 Opel Kadet, runs well, tuned, 2 snows, nw exh, lving cntry, \$400. Diaz, x3-7118.

'71 Blazer, 38 K, 4w/d, amfm, 4 flots, 4 snows, nvr plowed, \$2,500. x3-2556.

'72 Vista Cruiser wgn, p st & br, 48 K orig, selling bec disabled in accident, \$3,500. Call, 623-7458.

'73 Capri, less 2.5 K, 3 mos old, perf cond, nw \$3,700, sell \$3,300. Jan, x9451 Dorm.

'73 Datsun 240Z, 10 K, org, AP mags, fnt & r spoilers, ANSA exh, alarm, \$4,300. Call, 738-5449, aft 5:30.

'73 Karmann Ghia, red, hdt, 4 spd amfm, 16 K, exc cond, \$2,800. Diane, x159 Linc.

'63 Chevy pick-up, 3/4 T, 6 cyl, nds body work, \$300 or best. Nick, 262-8754, lve msg.

Ford Pinto, yr old, wht, perf mech & body cond, less 12 K, 2 nw tires, 25 mpg, lving cntry. Sylvain, x3-6185.

## Housing

Bri, crnr Wash & Comm Ave, sub w/opt, bsmnt facing crtyd, LR, eat-in-K, B, avail 1/1, \$160 incl util. Susan, x8-4561 Draper.

Bos, nr Kenmore Sq, 1,2 BR, K, avail 1/1 or 2/1 thru 8/31. Rick, 266-6576. Camb, Cent Sq, 3 BR (1 w/k sz wrdbd), LR, 17' K, avail 1/3, \$200 incl h. Mona, 354-6109, aft 4.

Camb, Estgt, furn apt, avail 12/13-1/5. x3-7483.

Camb, 3 BR sub, nr H Sq, Tobin Sch, \$270. x3-1750.

Camb, 3 BR, 5 min H sq, dw, garden MIT affil only, \$270. x3-5524.

Ipswich, nw 3 BR hse, fully appl K & lndry, 1 1/2 B, ww, frpl LR w/lg deck over bay, lse thru June \$275 + util. Call, 272-0636.

Lex, BR apt, multi-lvl, Scand style, on farm, priv prch views open land, wk to Linc Lab, bus H Sq, avail 2/1, childless cpl, no pets, \$285. Gerd Randers, x3-6737.

Melrose, 3 rm apt, furn, 3rd fl hse, prking, babysitting avail, mo sec dept, \$175 incl h & util. Dick 665-8849.

Newtonville, 1st fl mod 2 fam hse, 6 rms balc, bsmt, priv prking, nr sch, shops, elec h, \$325. Call, 244-5244.

Waltham, Warrendale sec, settle estate, 7 Rm cape, prch, gar, \$31,500 or best. Bob Strong, x8-1416 Draper.

Watertown, 1st fl, 5 rm, sec dept, unheated, \$230. Call, 924-7124, aft 6.

Compton, NH, nw condo, slps 6, priv ski slope, h pool, etc, ski 93 area. Carl, x7722 Linc.

Weston, Vt, ski hse avail for Xmas-NY, 3 BR, LR, DR, den, frpl, slps, 8, ski Magic, Bromley, Okemo, Stratton, \$40/dy. x477 Linc.

Wilmington, Vt, ski lge, nr Mt Snow, slps 10. Mrs Turner, 802-464-5441.

Vt, for Xmas-New Yr rental: A-frame, all conveniences. x3-7187.

Free IAP, Martha's Vnyrd: b nw waterview yr-rnd hse, all appl, dw, washer, drier, frpl, in exch for minor carpentry, lscape, odd jobs. Don Welch, x3-2991.

Free rm & brd in communal type Newton hsehold in exch for evg babysitting. Rene, x3-7026, lve nmb. r.

## Animals

Rabbits, siamese & blk satins, pedigree reg show stock, ready 12/15, wl hold til Xmas. Betty, x3-2285.

Beaut 10 mo f Lhasa-Apso, must sell to gd home. Judith, x3-7953.

Cats, f, spayed, 1 siamese, 1 tortshell, must go tog, free. Doug, x3-4170.

Free to gd home: Lab-Sheperd (?), m, 8 mos-1 yr, about 50 lbs, hsebrkn, v frndly, trusting, trainable. Mike Paskind, x3-7004.

## Lost and Found

Lost: knit org wool scarf, check design, "Victor" knit one end. V. Ambros, x8161 Dorm, lve msg.

Lost: keyring, Rm 26-100, Nov 30, reward. Els, x3-2696.

Lost: bsktball, Rick Barry Atuograph mdl, duPont, Thurs evg 11/29, gift, hi personal value, gd reward. x0427 Dorm.

Lost: pr contact lenses, wh case, 11/29. Mark Ryan, x3-2991.

Lost: grn suese checkbk w/all ident, Dec 3, reward. Judy, 787-1197.

## Wanted

Grad B or C league IM team nds xtra hcky player. John, x5702 Linc.

Used child chifforobe & umbrella type stroller. Mark, x3-2284.

Thanks for beacon taken from Grn Bldg & rtn to Bldg 7 Lobby. Where is glass cover, rubber cork, side clamps?

Voltage stabilizer for 75 w photo enlarger. Lin Howitt, x3-6717.

Tech Arrow Club membership. Mark, x7856 Linc.

Sm stereo system, \$100-\$125. Louise, x3-3821.

Woman or cpl to live our hse nr H Sq, 3 wks during Jan, assume responsibility 12 yr old daughter while we travel, stu or wkng person satisfactory. x3-7281.

Neat rmmate, m or f, 1/2 of exc 2 BR apt, 2 fam hse, Medford, drvwy, yd, nr T, I drive daily to MIT, avail 1/15 flex, \$100 + util. Dan, x3-3190, kp try.

R-to-R stereo tape rcrdr; elec sew mach; vac clnr. Call, 861-9027.

Transmission for '67 VW bug. Clyde, 665-3027, evgs.

Rmmate, m, Tang Hall, apt 2B-1. Gerd, x3-7571.

Merck Index, 8th ed. Mark, 868-4890, evgs.

Carpool, Lex-Waltham border, (Concord Ave), to MIT, 5 dys/wk. Call, 861-9027.

Carpool or ride, Townsend area to Linc Lab, 8:30-5. John Harris, x7124 Linc.

Boarders, pref f, w/Japanese fam, nr MIT, H, BU, \$150 incl h, util. Call, 547-9633.

Person to transcribe 16 hrs cassette tapes soon, rates nego. Gail, x3-6679.

VW minibus, gd mech cond. Call, 547-6645, evgs.

Ski club, limited number fam & sgl members. x3-1555.

Ride 2-3 days/wk, from Medfield area, work 8-5, pay \$1.50/day. Mac, x3-7273.

Rmmate, Camb, 2 rms avail 3 BR apt, furn, K w/d&d, pking, \$93. Call, 354-1638.

Tennis rckts, 2, reas gd cond. Call, 266-8182, evgs.

Raccoon coat, gd cond, urgent; 2 drwr fire-resist file cab. W. Bradford, x8-4617 Draper.

Ride or riders, Fitchburg-Leominster area, Phys Pl 8-4:30. Call, 582-4980.

Bldg Bose 901? Nw Series II drivers come in lots of 54, nd persons to share purchase, \$174. x3-7109.

F grad stu or prof, share 5 rm apt, Camb-Som line, own rm, \$50 + util. Call, 661-3366.

Cheap refrig, body any cond, must freeze well. Tom, x3-2237.

Stu interested in design & construction of windmills for home use. Oscar Orringer, x3-2430.

Ride, Bedford & Hill St, Lex, reg hrs. Al, x5340 Linc.

Tape deck for car. Pat, x3-2603.

F w/6 yr old b wants f to share 4 rm spac apt, bet H & MIT, \$75. Gael French, x8-2897 Draper.

Riders, Wilmington & s, nr Rte 93, to MIT, 9-5 flex. x3-2433.

Calligrapher for sporadic work. Sandy, x3-2574.

F, share furn Beac Hill apt w/2 f grad stu, quiet safe st, nr T, dntwn, Camb, gd lndrd, \$87. Call, 227-3621, evgs.

## Miscellaneous

Tutoring, math or chem. Edward Friedman, x3-5230, lve msg.

Expert typing, prof writer wl do non-tech, also edit for foreign stu. Chuck, x3-7410.

Truck/driver avail, rubbish removal, hauling, cellars yd, homes, etc. Call, 523-0978, aft 5.

Responsible Hampshire Col jrs w/ref wl housesit for mo of Jan. Contact thru Prof Edwin Diamond, x3-3371.

Typing, non-tech, reports, etc, 100 wpm, accurate. Ginny, 969-7100 x234.

## 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. Because transfer activity has been low in biweekly jobs Grades I-IV, 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  
Phillip 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  
Claudia 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:

73-1159-R Secretary IV  
73-1210-A Techn Asst V-(PT)  
73-1211-A Clerk II-(PT)  
73-1212-R Secretary III  
73-1058-R Secretary IV  
73-1197-R Sr. Secretary V  
73-1155-R Sr. Secretary V  
73-1031-R Secretary IV  
73-1159-R Secretary IV  
73-1196-R Secretary IV  
73-1237-R Secretary III  
73-795-R Systems Prog  
73-1108-A Admin Staff  
73-1018-A Admin Staff  
73-1195-R Secretary IV

The following positions are on HOLD pending final decision:

73-1199-R Techn Instr  
73-1258-R Secretary III  
73-1235-R Clerk-Typist  
73-1116-A Admin Staff

Administrative Staff member will work in the area of resource development dealing with individual contributors. Develop strategies and programs, prepare reports, provide advice and counsel of a legal nature for resource development activity. Some travel required to represent MIT. Must have legal training and preferably some experience as a counselor in practice or a job situation utilizing legal training. Writing and organizational ability; motivation, enthusiasm required. 73-480 (5/30).

DSR Staff member will plan, manage and execute high-quality research projects having a strongly experimental orientation. Familiarity and experience with low-speed flight and wind tunnel testing methods and advanced piloting aviation type aircraft; Ph.D. in Aerodynamics and five years applicable research and development experience required. 73-488-A (6/20).

Biochemist - DSR Staff member will participate in lipoprotein studies, and will supervise the activities of several technicians in a clinical research setting. Ph.D. or M.D. in Biochemistry required, as well as experience with lipoprotein and supervising. 73-515-R.

Manager of Subsystem Development - Administrative Staff in the Programming Development Office will provide technical direction of the design, development, and maintenance of software subsystems under the OS/360, OS/VS2, and Multics Operating Systems. Minimum of 7 years professional experience, and 2 years experience in technical management. 73-912-R (9/12).

Systems Analyst - DSR Staff at the Cambridge Project will adapt Time Series processor programs for use with the Consistent System on Multics. Knowledge of calculus, econometrics, statistics, and linear algebra; extensive PL/I programming experience on Time Sharing Systems; familiarity with TSP-CSP required. Position is temporary until 6/74. 73-845-R (8/29).

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 performance of high spatial resolution and physical constants of thin film, or MS degree required. 73-1127-R (10/24).

Technical Librarian - Administrative Staff will design and implement procedures for organizing and maintaining an Industrial Administrative Information Systems. Process and document EDP reference manuals, technical journals, internally prepared documentation. Aid in implementation, and thereafter maintain, formal methods of interfacing with vendor support personnel. Be directly involved in process of documenting material developed by technical support group, including editing and re-writing of such material. Will also edit and re-write material for a Programmer's User's Guide Knowledge of methods for development and maintenance of a Special Library required; minimal knowledge of data processing concepts and terminology desired. 73-953-A (9/19).

Administrative Staff - Program Administrator in the Office of Sponsored Programs will represent the department with respect to sponsored programs in a number of academic departments and laboratories, including proposal review and submission, grant contract negotiation and post-award administration. Experience in an academic department or research laboratory working with faculty principal investigators on sponsored programs preferred. Experience in MIT financial or business administration valuable. 73-1156-A (10/31).

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 BAL (ALP) Assembler Language Programming experience. Knowledge of teleprocessing, and COBOL or PL/1. 73-265-R (4/73).

Programming Analyst for the MIT Information Processing Center must have experience and thorough knowledge of large-scale, time-sharing computer systems. PL/I 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).

Administrative Staff - INSITE System Programmer in the Planning Office will maintain the space inventory system (INSITE) for MIT and other institutions using the system. Develop the system and instruct consortium members in its use. Degree in a technical field (computer science, math); experience with IBM hardware, knowledge of PL/1 and Job Control Language is essential. Ability to instruct others and coordinate programming efforts is important. 73-1259-R (12/5).

Computer Operator IV will operate IBM Model 135 and all peripheral equipment associated with it, including disk drives, tape units, card reader/punch, printers. Must have a good knowledge of DOS job control, multi-programming experience and be capable of understanding operating instructions, Midnight to 8:00am shift. 73-1221-R (11/21).

Senior Keypunch Operator III in the Office of Administrative Information Systems will operate the IBM 029 keypunch machine. Punch into computer input cards formatted and unformatted documents. Minimum 2 years experience operating IBM 029 or comparable equipment. 73-1286-R (12/12).

DSR Staff - Systems Analyst at Cambridge Project will adapt Time Series Processor programs for use within the Consistent System on Multics. Knowledge of calculus, econometrics, statistics, and linear algebra; extensive PL/I programming experience on Time Sharing Systems; familiarity with TSP-CSP required. This position is temporary 7/1/74. 73-749-R (8/8).

DSR Staff in Earth and Planetary Science will interpret Mars picture data, and diffuse reflection spectral fractures arising from electronic transition; perform spectroscopy of asteroids and reflection spectroscopy of lunar samples; coordinate research and projects in the Planetary Astronomy Laboratory; supervise undergraduate assistants; write reports, proposals and papers. Experience in the fields of planetary surfaces, observational astronomy, igneous petrology, optical properties of solids, lunar sample

analysis and computer programming. Candidate should have an academic background in geology and principles and techniques of optical astronomy. 73-1218-A (11/21).

**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 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, 73-1234-A (10/24).

**DSR Staff - Project Engineer (part-time-temporary)** in Earth and Planetary Sciences will design and construct a prototype cooled slow-scan imaging device for use on telescopes. Knowledge of charge couple devices used at low temperature, slow-scan imaging devices; experience with digital circuit design; experience with analog and digital circuiting required. 20 hour work week; 8 month job. 73-1257-R (12/5).

**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 - Electronics Engineer** in the Center for Space Research will design, test and check out 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. BS 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).

**DSR Staff** in the Research Laboratory of Electronics will work on problems concerning interactions of atom with the radiation field. Individual should have a recent Ph.D. degree with strong background in atomic physics and laser techniques. 73-1243-R (11/28).

**DSR Staff member** will be responsible for the off-campus medical and major part of the industrial areas participating in the Undergraduate Research Opportunities Program. Solicit off-campus contacts, coordinate the details of student placement; prepare reports; initiate and followup on the interactions between the program and offices of MIT; explain and promote the program to the outside community. Demonstrated creativity, writing and communication skills; self confidence required. 73-1283-R (12/12).

**Nurse/Supervisor-Administrative Staff** in the Clinical Research Center will assume responsibility for management of patients and personnel of the Center's Nursing Unit. Will also provide nursing care to all types of patients; perform various nursing duties; participate in research procedures by maintaining records of patient courses and research activities as requested by the physician investigators, the Program Director or Assistant Program Director. Candidate must be a registered nurse; previous supervisory experience preferred. 40 hour work week. 73-1282-R (12/12).

**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. 73-1183-A, 73-1184-A (11/14).

**Senior Secretary V or Administrative Secretary VA** to the Provost will handle general secretarial duties and assist in the processing of staff appointments. Must be able to establish priorities in order to coordinate a very busy appointment calendar. Other responsibility will include monitoring office accounts, making travel arrangements, and independently, answering correspondence. Light shorthand or speedwriting skills required. Strong secretarial experience and established organizational and administrative skills important. Maturity and good judgment essential. Knowledge of Institute procedures strongly preferred. 73-1269-R (12/5).

**Senior Secretary V** in the Arteriosclerosis Center will coordinate the office activities of the Director of a multifaceted 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 Academic department will type correspondence, proposals, DSR reports, manuscripts, theses (much of it technical); keep DSR account records; maintain small library; compose routine letters; assist professor with details of registration. Ability to work independently and to write letters important; accurate typing essential; knowledge of shorthand, technical typing and bookkeeping preferred. 73-578-R (6/27).

**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 require 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 IV** to a Professor in Economics will handle all general secretarial duties; type correspondence, course material, technical manuscripts; perform editorial secretarial duties for *Econometrica*. Good typing and organizational skills required. 73-1170-R (11/7).

**Secretary IV** in Mechanical Engineering will handle bookkeeping for computerized accounts; maintain budget records; prepare materials for courses; type technical reports. Secretarial school background or previous experience preferred; knowledge of bookkeeping, keypunching, or other computer techniques helpful. Good typing and the ability to work for several people required. There is a lot of student contact in this job. 73-1194-(11/14).

**Secretary IV** to the Executive Officer of Chemical Engineering will handle general secretarial duties; maintain petty cash account; receive visitors. Previous secretarial experience preferred, ability to anticipate, maturity to handle problems and work independently required. Good shorthand and typing skills necessary. 73-1191-R (11/14).

**Secretary IV** in Mechanical Engineering will handle general secretarial duties necessary for the smooth function of this busy office. Type technical reports, proposals, papers, class notes; answer routine correspondence; maintain files; Previous secretarial experience, excellent typing skills required; experience in technical typing, shorthand preferred; ability to establish priorities important. 73-1230-R (11/14).

**Secretary IV** in Nutrition will perform general office duties for three faculty; maintain files, handle correspondence. Good typing, shorthand and dictaphone skills required; some knowledge of medical, biological and/or chemical terminology helpful. 73-1230-R (11/21).

**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** to three psychiatrists in the Medical department will handle all secretarial duties; transcribe patient case histories; maintain accurate records. Will also assist with other secretarial projects. Excellent typing skill, maturity, ability to deal with patients important. 37½ hour work week. 73-1267-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** to Associate Director of the Alumni Fund will handle general secretarial duties for the office. Independently answer correspondence; type alumni Fund Bulletin; statistical reports, assist with the preparation of reports. Good typing and shorthand

skills required; experience with MTST desirable; ability to work independently with details is essential. 73-1268-R (12/5).

**Editorial Secretary IV** in Aeronautics and Astronautics will handle general office duties. Type progress and research reports (some technical). Perform general editorial functions: check for accuracy, proper format; spelling grammar, punctuations, etc. Excellent typing skill required. Basic editorial skills. Publication experience desired. 73-1249-R (12/5).

**Secretary IV** will handle general secretarial duties for a small group involved with the Undergraduate Research Opportunities Program (UROP). Excellent typing, dictaphone and organizational skills required. Ability to deal with students, academic and research staff important. 73-1265-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; occasionally edit and proof manuscripts; 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** in Biology will handle general secretarial duties for a laboratory group. Monitor research accounts; arrange travel; process requisitions and approve invoices. Excellent skills important; ability to work independently, previous experience desired. 73-1293-R (12/12).

**Secretary IV** for the administrative office in Psychology will monitor accounts; process payroll reports; type reports, correspondence; maintain files and records. Excellent skills required; familiarity with MIT accounting procedures helpful. Ability to coordinate the work of others and to work independently is important. 73-1284-R (12/12).

**Secretary IV** for the Undergraduate Association, Dean for Student Affairs Office will type correspondence and minutes of meetings; maintain files and records; schedule booths for the lobby of building 10; monitor checking account. Good skills and knowledge of office procedures preferred; ability to work with several people and the desire to help students important. This position is for 10 months per year; office not open during July and August. 73-1285-R (12/12).

**Secretary III - IV** to the Manager of Self Study Subject Development (Center for Advanced Engineering Study) will handle general secretarial tasks; perform scheduling for video taping; filming sessions, viewings; perform some accounting functions; type technical material; act as liaison between the office and individuals it deals with. Maturity; ability to handle detail; excellent typing essential. 73-1245-R (11/28).

**Secretary III - IV** to three professors in Chemical Engineering will type correspondence, course material, technical manuscripts; handle general office duties; assist in maintenance of student records. Excellent typing skills required (technical typing preferred); ability to work with students and for several people important. 73-1246-R (11/28).

**Secretary III - IV** will handle secretarial duties in the Child Care Office and assist with duties in the Personnel Development, Special Services Office. Type and edit for grammar and format material from both areas; maintain Child Care accounts; process tuition assistance applications; assist with orientation programs. Excellent secretarial skills; competence in basic arithmetic, spelling, grammar required. Maturity, good judgment and ability to set priorities important. 73-1260-R.

**Secretary III-IV (part-time/temporary)** in Meteorology will type manuscripts and correspondence for a professor and support staff; monitor contract accounts. Good typing required; knowledge of bookkeeping procedures preferred. 15-20 hour work week; Jan-April. 73-1279-R (12/12).

**Secretary III-IV** for a group of faculty members in Mathematics. Handle all general secretarial duties, maintain postdoctoral job opportunity files. Excellent typing skills needed for correspondence and mathematical papers. Previous technical typing experience helpful. Ability to work with minimal supervision important. 73-1254-R (12/5).

**Secretary III (part-time)** in the Dean for Student Affairs Office will assist with general secretarial and administrative duties necessary for the operation of Talbot House, Student Center/Kresge. Good secretarial skills; and the ability to act quickly important. 12 hour work week. 73-11980 (11/21).

**Secretary III** in the General Purchasing Office will handle general secretarial

duties; prepare purchase orders; maintain log sheets and record data. Accurate typing skills required. Ability to work with details important. 73-1270-R (12/5).

**Secretary III** to the Vice President for Administration and Personnel and to 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).

**Senior Clerk IV (Documentation)** in the Center for Policy Alternatives will organize and maintain an extensive document collection of English and foreign language publications for a research group involved in the area of science, technology and public policy. Search current literature, order publications pertinent to the center; document and catalogue material; handle correspondence. Accurate typing required; knowledge of French and German or Russian desirable. Familiarity with MIT's library system preferred. 73-1248-R (11/28).

**Administrative Assistant V** in the Summer Session Office will assist with the office administrative functions. Handle and supervise the processing of applications and notifications of admission; maintain records of communications; arrange publication of publicity material for programs; coordinate mailing lists, ability to assume responsibility, to compose and type correspondence, to coordinate details required. MIT experience would be helpful. 73-1247-A (11/28).

**Jr. Programmer V** in the Arteriosclerosis Center will assist in design, development, and evaluation of a Medical Data Management System. Candidate must have a sincere interest in working in a medical environment and have the ability to collaborate with medical personnel. Previous data management experience, knowledge of PL/1 and familiarity with 360/370 OS desirable. 73-1182-A (11/14).

**Technical Assistant IV** in the Alumni Association will keypunch records; assist in the administration of the data processing controls, changes, updates, and maintenance of 80,000 records and subscriptions. Minimum 3 years keypunch and data processing experience with Alpha-numeric punching. Familiarity with 029 keypunch, 059 card verifier and 129 keypunch/verifier preferred. 73-1275-R (12/12).

**Technical/Administrative Assistant** in Nutrition and Food Science will search for references in the libraries; coordinate information concerning research connected with African nations. Excellent typing and dictaphone skills; fluency in French; knowledge of biological and/or chemical terminology required. College background preferred. 40 hour work week. 73-1239-A (12/12).

**Senior Library Assistant IV** in the Barker Engineering Library will be assistant in the Processing Office for Monographs and Catalog Maintenance. Verify catalog records; process incoming monographs; supervise various card catalog processes. Previous library experience in cataloguing/processing department, some library science courses in bibliography, experience is a necessity. Accurate typing required. 9-5 or 10-6. 73-1231-R (11/21).

**Senior Clerk III or IV** in the Registrar's Office will work with Undergraduate student records. Transcribe grades, check computer input/output, update permanent records. Excellent typing required. Previous office experience helpful. Interest and ability in working with details essential. 73-1257-R (12/5).

**Accounting Clerk III-IV** in the Center for Space Research will be responsible for various payroll records; monitor travel expense vouchers; reconcile the monthly accounting statements; perform other general clerical duties. Familiarity with the Institute payroll procedures; accurate typing skills are desirable. 40 hour work week. 73-1255-R (12/5).

**Technical Typist III** in the Chemical Engineering Department will type large volumes of reports, manuscripts, proposals from rough drafts using a magnetic tape typewriter. Excellent skills; ability to handle typing of equations and chemical symbols; good skills in punctuation and paragraphing required. Ability to work independently important. 73-1238-R (11/28).

**Senior Clerk III or IV** 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; answer questions from students. Ability to work with details and

figures important; previous office experience helpful. 73-1290-R (12/12).

**Senior Clerk III-IV** will work with 1200 undergraduate records in the Registrar's Office. Will be responsible for data entry of grades; answer phone queries. Previous office experience helpful; accurate typing skills, ability to work with details important. 73-1287-R (12/12).

**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).

**Jr. Dietary Aide II** in the Clinical Research Center will prepare meals for all in-patients; weigh formulas and additives given to out-patients on dietary studies; check to see that everything is labelled correctly. Candidate must be familiar with dietary aide procedures; previous experience preferred. Ability to work independently important. 40 hour week. 73-1277-R (12/12).

**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 (11/21).

**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).

**Electrician** for Physical Plant will install and maintain all types of electrical equipment and systems. Ability to work from blueprints, verbal instructions or sketches as necessary. Some electronic experience desirable. Must be able to work all shifts and on irregular schedule. Minimum of five years experience and Mass State license required. 73-1107-R (10/17).

**Technician A (E and M)** in the Radioactivity Center will maintain electron equipment associated with controlled low background facility, breath radon and thoron equipment; troubleshoot nuclear pulse instrumentation; do construction and wiring. Individual must have a strong background in pulse and digital circuits; experience in use of oscilloscopes and other test instruments; ability to use shop machinery. Experience in repair of electronic instrumentation helpful. 73-1186-R (11/28).

**Electronic Technician B (temporary)** at Earth and Planetary Sciences will operate testing equipment such as the oscilloscope and assemble and check out circuits. Duties also include wiring, connecting boards, documentation, drawing and processing of acquired data. Knowledge of electronic circuitry; some familiarity of processing of computer data required. (Job guaranteed to 1/31/74 with possibility of extension to 6/30/74). 73-1229-A (12/5).

**Electronic Technician B** in the Center for Space Research will assist with laboratory research; operate technical experimental apparatus. Breadboard and test linear and digital circuit systems for satellite experiments. Graduation from a two-year day technical school or its equivalent; ability to perform flight-quality soldering and cabling required. 40 hour work week. 73-1261-A (12/12).

**Secretary IV** to the Director of Personnel Relations will handle general office duties; answer some correspondence; set up meetings, conferences. Type statistical material, setting up formats for charts; maintain office accounts. Excellent typing, including knowledge of format for statistical tables and charts. Basic bookkeeping skills helpful. Previous secretarial experience or training required. 73-1303-R (12/12).

**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, 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 (12/5).

**Painter** in Physical Plant must have minimum of 5 years experience in all phases of painting, including interior and exterior work, preparation and mixing paint materials and matching colors, thorough knowledge of the various materials, tools, equipment and rigging used in the trade. Must have a Painter rigger's License and be able to work effectively on staging and ladders. 40 hour work week. M-F. 73-1240-R (11/24).