



"NOT A SINGLE BORING MOMENT" is how one MIT daycamper describes her summer of swimming, riflery and arts and crafts activities at the 1975 MIT Day Camp. At left, Ann Chequer, Julia Onorato (with ball) and Nina Smith of the eight-year-olds' Chipmunks group begin a game of "Spud" while counselor Kerry Smith (center photo), a sophomore at the University of New Hampshire, leads his mutual admiration society of Blackfeet Indians



across Massachusetts Avenue. Easy riders at right are Ginny Gil, daughter of Peter Gil, associate dean at the Sloan School of Management, Cordelia Farrar of Cambridge, and Martha Lees, whose father, Robert Lees is Director of the Arteriosclerosis Center at MIT and whose mother is a research associate in the Department of Nutrition and Food Science.

—Photos by Calvin Campbell

## Apollo-Soyuz Mission to Carry MIT Crystal Experiment

By WILLIAM T. STRUBLE  
Staff Writer

A new crystal growth experiment designed by a research team at MIT will be carried out aboard the joint US-USSR Apollo-Soyuz manned space mission scheduled to be launched next Tuesday, July 15.

The experiment in melting and regrowing a germanium crystal represents an extension and re-

finement of a highly successful crystal growth experiment done earlier during the Skylab space flight.

These experiments constitute one of the most promising projects for commercial space exploitation, because crystals grown in space under zero-gravity conditions have proved to be completely uniform, unlike crystals grown in earth-bound laboratories.

Lack of uniformity and crystal-line perfection are one of the major causes that make electronic devices—especially semiconductor devices—perform below their optimum theoretical level.

The germanium crystal growth experiment will be carried out by US astronauts in the Apollo spacecraft that will dock in earth orbit with the Russian Soyuz spacecraft in the first international space venture, called the Apollo-Soyuz Test Project.

In the Skylab III and IV experiments in 1974, crystals of indium antimonide were partly melted in space, then melted portions were regrown in the absence of gravity to enable the scientists to compare parts of the crystals grown in space and the parts grown on earth.

Results were beyond expectations, according to Dr. Harry C. Gatos and Dr. August F. Witt. The space-grown crystals were perfectly uniform—something never achieved on earth.

"Successful as our experiments were in the Skylab mission, they

were by necessity limited in scope," the scientists said. Because of Skylab power limitations, for example, it was not possible to include instrumentation to make a

continuous recording of the microscopic rate of growth.

The follow-up experiment with germanium "is far more sophisticated" (Continued on page 2)

## 20 Minority Youngsters Try Engineering Through MITE

By ELLEN N. HOFFMAN  
Staff Writer

Twenty minority students from Massachusetts high schools will be among the 38 minority students attending a new two week introduction to engineering program at MIT beginning July 13, 1975.

The 38 high school sophomores and juniors—20 of whom are women—will be participating in the Minority Introduction to Engineering (MITE) program sponsored by MIT and the Engineers'

Council for Professional Development.

The purpose of the MITE program is to stimulate minority interest in careers in engineering. Open to black Americans, Puerto Ricans, Mexican-Americans and American Indians, the MITE program will give the students a sound overview of engineering and allow them to establish personal contact with faculty and practi-

(Continued on page 2)

## Budget Tightening Hits Mail Service

The twin exigencies of tightened budgets and increased operating expenses have prompted MIT Building Service officials to consolidate the 26 Institute mail delivery routes into 15 and reduce the number of internal mailboxes from 114 to 43.

A major goal of the reorganization plan—which will also eliminate all office pick-up services—is to increase cooperation between office personnel and head custodians who deliver the mail. The proposed sharing is expected to speed up end-of-the-day dispatching processes for some 8,000 pieces of outgoing and interdepartmental mail.

Ted Doan, manager of Building Services, said the plan should be in (Continued on page 5)

## Blue Cross Rates to Rise

John M. Wynne, vice president for administration and personnel, has announced that the monthly rates paid by members of the faculty and staff for Blue Cross-Blue Shield Master Medical coverage will be increased as follows effective July 1, 1975:

Family coverage—from \$30.00 to \$36.00.

Individual coverage—from \$11.80 to \$15.00

The rates paid by members of the MIT Health Plan for the added services provided under the plan will remain unchanged at \$4.00 per month for the family coverage and \$1.50 for the individual, bringing the total rates to \$40.00 and \$16.50 per month, respectively.

Mr. Wynne said the increases were made necessary by the continued rise in the costs of hospitalization and medical care and reflect a continuation of the policy of sharing the total costs equally between the Institute and the participants.

## Subscription Drive Boosts Sloan Management Review

A well organized subscription drive coupled with careful planning has helped to make *The Sloan Management Review* one of the fastest growing management publications in the country.

Published three times yearly at MIT's Sloan School of Management, the three graduate student editors also say the *The Sloan Management Review* is now the most widely circulated student-run management publication. Its circulation has tripled in the past four years and will reach 8,000 in

the fall of 1975. A vigorous subscription campaign waged by a series of graduate student editors and Gay Van Audsdall, the full-time managing editor for three years, has contributed greatly to the publication's financial growth during the past five years. According to a *Sloan Management Review* readership survey, 35 percent of the readership first heard of the magazine through the subscription drive and more than 25 percent of the readers have subscribed for the

first time this year.

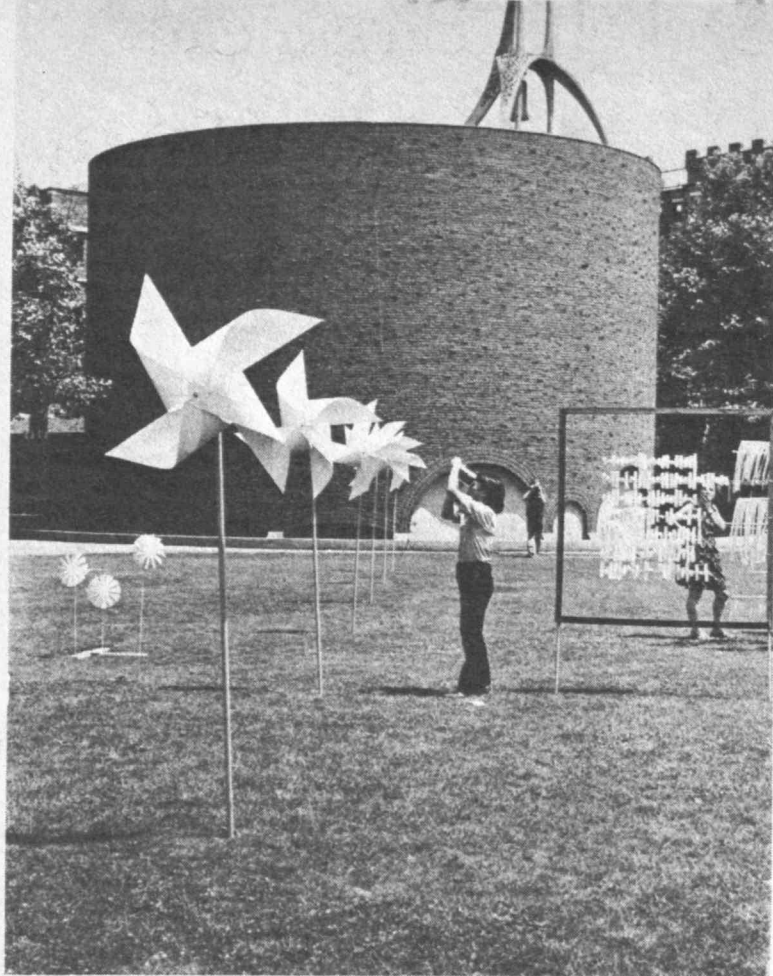
Another reason for the success is the fact that *The Sloan Management Review* found a place for itself in the field of management-oriented publications.

"*The Sloan Management Review* does not try to compete with *The Harvard Business Review*," says Michael Green, one of the three 1974-1975 graduate student editors. "*The Harvard Business Review* is the largest circulating management magazine and has shorter articles which appeal to a

broad audience. *The Sloan Management Review* prints only about six articles per issue and does not shy away from in-depth discussions and the publication of simple equations."

For example, the Spring 1975 issue features "Advertising Research at Anheuser-Busch, Inc. (1968-74)" by Russell L. Ackoff and James R. Emshoff, of the University of Pennsylvania—the second of a two-part series in which Professors Ackoff and Emshoff (Continued on page 8)





FAIR BREEZES breathed life into a wind sculpture—the collective work of student artists—mounted on them on Thursday on the Kresge Oval, as part of a summer school course, "Midsummer Daydreams: Problems in Color, Form and Sound," taught by Lowry Burgess, Paul Earls and Michio Ihara, fellows at the Center for Advanced Visual Studies.

## Alumni Fund Announces Gains in Donors and Dollars

Contributions from about one third of the alumni body of MIT are expected to top the \$3 million mark this year, according to Frederick G. Lehmann, '51, Financial Vice President and Treasurer of the MIT Alumni Association and director of the 1975 MIT Alumni Fund.

Dollar receipts to date total \$2,619,000, with 19,800 alumni contributing. Both figures are up two percent from last year's statistics. Other Ivy League colleges and universities have remained at the

same rate of progress or slightly behind MIT this year.

"The continued rate of growth of the MIT Alumni Fund since its founding 25 years ago distinguishes it as one of the top university funds in the country," Mr. Lehmann said.

A sudden increase in alumni giving at Brown University is thought to be a result of a new Challenge Gift Campaign and recently publicized university budget difficulties, according to Mr. Lehmann.

Mr. Lehmann said uncertainty about the national economy had been curiously offset by several examples of "a reaffirmation in alumni participation." He reported a 17 percent increase in the number of gifts at \$100 or more, and said that the average participation rate for graduates of the Classes '69-'74 was now about 42 percent.

The current rate of alumni giving to two internal Fund campaigns—the Independent Residence Development Fund for improvement of off-campus housing facilities, and the MIT Sailing Fund for a new pavilion and fleet—also reflects substantially increased support. Proceeds from the first fund, which aims to raise \$10,000,000 over 12 years—have already helped build the new Alpha Tau Omega and Kappa Sigma fraternity houses on Memorial Drive. The Sailing Fund for \$211,800 has raised \$130,000 in less than a year and has attracted individual contributions of up to \$3,000 from alumni who had never before contributed to MIT.

Specified purposes such as the Sailing Fund make up 19 percent of the net income of the total MIT Alumni Fund, which credits gifts from living alumni for amounts up to \$50,000. Large gifts and bequests are usually handled by MIT's Office of Resource Planning.

Fund receipts for unrestricted gifts compose 46 percent of all gifts, while departmental projects—for buildings, professorships and research—receive 20 percent. Housing, including the IRDF Fund, and student financial aid respectively receive five and ten percent of Fund receipts.

## INP Hosts Brazilian Nutrition Planners

A month-long workshop focusing on nutrition planning in Brazil is underway at MIT.

Sponsored by the US Agency for International Development and conducted by the MIT International Nutrition Planning Program (INP), the workshop has brought together in Cambridge top nutrition and planning officials from government, research institutions and universities in Brazil, a country of more than 100 million people in an area larger than the continental United States.

The workshop has been organized by Dr. John O. Field, associate for research and training of

the INP Program, which is directed by Dr. F. James Levinson.

The INP Program was established at MIT in 1972 by the Department of Nutrition and Food Science and the Center for International Studies at the initiation of Dr. Nevin S. Scrimshaw, head of the department, and Dr. Eugene B. Skolnikoff, director of the CIS. "The INP Program has held several workshops over the last few years," Dr. Field said, "but this is the first one that is 'country specific.' Because it is, we will be able to deal with nutrition problems that truly exist and discuss them with a clear sense of context."

A major part of the workshop will be devoted to an analysis of Brazil's second national five-year nutrition plan with which many of the workshop participants are involved.

The Brazil workshop is also the first at which members of the teaching staff are from the country involved, a sign that one of the INP Program's goals—the establishment of a cadre of nutrition planning specialists in developing countries—is being met, Dr. Field said.

The special instructors from Brazil are Antonio Carlos Campino, professor of economics, University of Sao Paulo; Maria do Carmo Leal Pereira, chief, Education and Training Division, Superintendency for the Development of the Northeast, and Patricio Fuentes, Sarmiento, an economist in the Ministry of Agriculture's Superintendency for Planning.

Three special dinner seminars for workshop participants and a panel discussion have been planned.

Dr. Richard S. Eckaus, professor of economics at MIT, will discuss "Fads, Fashions and a Few Real Gains: Economic Development Theory in Time Perspective" at the first seminar.

Dr. Nevin S. Scrimshaw, head of the MIT Department of Nutrition and Food Science, will discuss "Nutrition Intervention: What Works, What Doesn't and Why" at the second seminar.

Dr. Ernst R. Pariser, senior research scientist in the Department of Nutrition and Food Science and advisory services officer of the MIT Sea Grant Program, will discuss "FPC: Ten Years Later" at the final seminar.

A panel discussion on "Changing World Needs: The Role of Foreign Assistance in Combating Malnutrition" will be held July 30 from 3-5pm in the Schell Room, E52-461. The public is invited.

The discussion moderator will be Dr. Levinson, director of the INP Program. Participants will be Jose M. Begoa L., National Institution of Nutrition, Caracas, Venezuela; James P. Carter, Meharry Medical College; Martin J. Forman, USAID; Marion Frazao, USAID; Werner Kiene, Ford Foundation, and Dr. Scrimshaw.

Dr. Forman, director of the Office of Nutrition for USAID, will speak on "Nutrition Planning: Past Record and Future Needs" at the 6:30pm banquet concluding the workshop on July 30. It will be held at the Faculty Club.

## People Noted

Professor Gordon L. Brownell of nuclear engineering received the Paul C. Aebersold Award of the Society of Nuclear Medicine at the Society's recent annual meeting in Philadelphia. Professor Brownell was cited for outstanding achievement in basic science applied to nuclear medicine. He is also director of the Physics Research Laboratory at the Massachusetts General Hospital.

Howard W. Johnson, chairman of the MIT Corporation, has been appointed the Massachusetts civilian aide to the US Secretary of the Army. In this position, Mr. Johnson will interpret Army policies for the citizens of Massachusetts and serve as an avenue for their opinions to reach the Secretary. He will also represent the Secretary at various functions in the area.

Campus Patrol chief James Olivieri was elected to a two-year term as Northeast District Director of the International Association of College and University Security Directors at the organization's recent annual meeting in Long Beach, Calif.

## Women Plan New Newspaper

A group of women are planning to start a women's newspaper at MIT, and are looking for other women who have interest in or knowledge of newspaper production, management, and/or planning.

The newspaper has received funding for the first two issues through the Women's Forum, and it is hoped that after that time the paper will support itself by selling advertising. There will be a meeting on Wednesday, July 16, at noon in the Student Center, room 491 for those women interested. If you have questions, please call Allison Platt at x5856.

## MITE Program Initiated at MIT

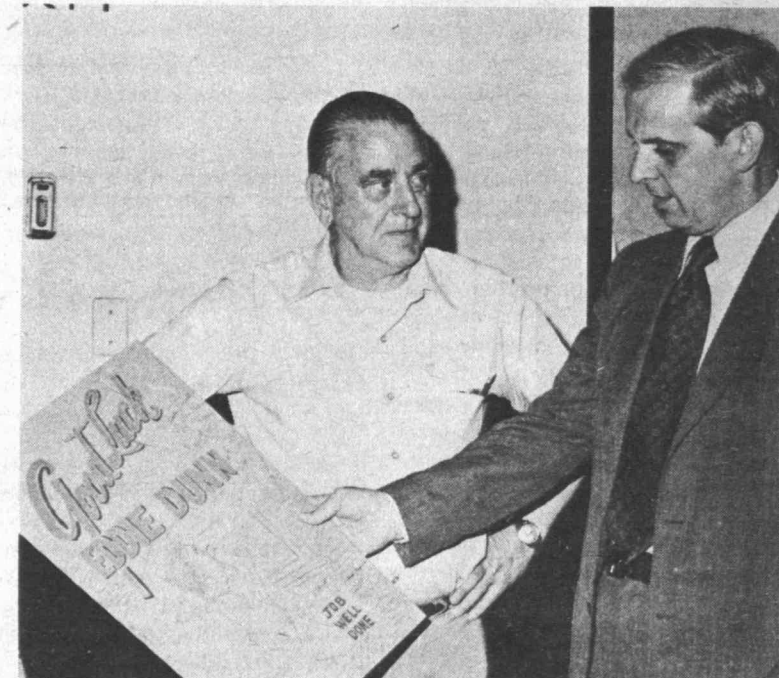
(Continued from page 1)

ing engineers.

The students, whose expenses will be paid by the Engineers' Council for Professional Development, were selected by MIT from approximately 80 applicants on the basis of their math and science grades and aptitudes for engineering.

While living on the MIT campus, the students will be introduced to different fields of engineering through field trips, lectures, social events, a design competition and instruction in computer programming.

"The technical content of the program will be at an elementary level" said Dr. Frank Perkins, acting head of MIT's Department of Civil Engineering and director of the MITE program at MIT. "The main purpose of the program is to stimulate an interest in engineering and provide career coun-



PEOPLE TO PEOPLE communication highlighted a surprise retirement party at the Sloan School for head custodian Eddie Dunn who received a poster signed by his building clients from Dean William F. Pounds. Mr. Dunn, who came to the Institute in 1962 as a night custodian, had been head custodian at Sloan for the past eight years. In addition to the poster, he was given a pewter mug and a cash gift from his friends at Sloan.

seling, not impart large quantities of technical knowledge."

However, those students who have a particular interest in something like the design competition or computer programming will be encouraged to work on these projects during their free time in the evening.

Five minority student resident advisors from MIT will be available to help the students. They are: Nanelle Scott, a junior in aeronautics and astronautics from Harvey, Ill.; Inez Hope, a graduate student in electrical engineering from the Bronx, N.Y.; Gerald Adolph, a recent graduate in chemical engineering, from Nanuet, N.Y.; James Clark, a recent graduate in electrical engineering from Quincy, Fla. and Joseph Ogwall, a recent graduate in aeronautics and astronautics, from Kenya.

The MITE program was started

by the Engineers' Council for Professional Development at 10 universities in 1974 and expanded to 20 schools, including MIT, this year.

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# 25 Build Confidence, Skills In Summer Interphase Program

By PATRICIA M. MARONI  
Staff Writer

Adonis A. Neblett of Security, Colorado, doesn't remember hearing about synthetic division or vector calculus in high school, but he will enter MIT's Class of 1979 this fall with a definite "confidence" advantage.

He is one of 25 new MIT freshmen participating in Interphase—an intensive academic program to sharpen the mathematical, technical and verbal skills of students who have excelled despite certain weaknesses in their secondary school training.

For six weeks, from June 22-August 6, they are exchanging uncomplicated summer living in towns like Houma, Louisiana; Tesuque, New Mexico; and Ocheyedan, Iowa; for classes in chemistry, math, physics, writing, study skills, and art and photography.

The program owes its establishment to formal requests by the MIT Black Student Union in 1968 for recruitment and admission of more minority students as well as plans to ensure their success, once accepted. Project Interphase welcomed its first group of 44 students in the summer of 1969 and 39 students in 1970.

All students come at the invitation of the Office of Admissions, and none are required to attend. On satisfactory completion of Interphase students receive 18 units of elective credit towards their first year at MIT.

Mary O. Hope, assistant dean for student affairs and coordinator of the program, said there would be an increased commitment to follow up on the first semester progress of students this year because of an increase in summer tutors.

"No one knows better than these students," she said, "just how incompatible high school ego notions can be with university demands of timetables and professors' expectations. They've been so accustomed to being top students in their home towns, that they need to break down false ideas about achieving and build up skills that will be essential to them with their better prepared peers."

Jim Gates, a participant in the first Interphase Program seven years ago, received his SB degree in physics and math and is now a second year graduate student in physics. As a teacher of physics in this summer's program, he believes a head start in basic skills is more important to building first year confidence than filling gaps in learning.

"Diagnostic tests are very poor indicators of what these students can do in the classroom once they've been given a little encouragement. They are innately smart and demonstrate it as soon as they are exposed to the academic mainstream of MIT,"



CREATIVE THINKING lines the faces of Adonis Neblett (facing camera) and Dock Williams (right), who work out a calculus problem after a morning of chemistry, math and physics seminars.

he said.

Dr. Brian Schwartz, an Interphase instructor in physics, added that a "wearing out" of positive self-image programs could be observed around Thanksgiving time of every freshman's first year.

"Even students from the so-called super high schools find that their advantages wear out after mid-term exams, and everyone starts facing the same problems," he said.

During the more than 37 hours Interphase students spend in classes and "rap sessions" each week, they cover the material and use the textbook of Calculus 18.01, a required core subject at MIT. Physics classes introduce them to the concepts and applications of Newtonian mechanics, vectors, velocity, and acceleration, as

taught in Physics 8.01, while chemistry lessons stress nomenclature, gas laws, basic atomic structure and chemical periodicity.

Wilton R. Madison of Portsmouth, Virginia, a participant in this summer's program, said he thought Interphase was a fine idea because it prepared him for logarithms, which he had never encountered before. Janet C. Metsa, from Chassell, Michigan, said she hoped to spend the last weeks of the program "correcting precision problems in simple addition and multiplication" that prevented her from scoring as highly as she would like on take-home quizzes. Keith W. Reid of Roosevelt, N.Y., his pencil tucked conveniently into the crown of his Afro hair style, said he was "glad to finally know about partial fractions."

## Three Appointed Visiting Associate Professors

The appointments of three visiting associate professors at MIT have been announced. They are:

Takaaki Nagao, in the Department of Mechanical Engineering for one year, effective September 1. Since 1966 he has been associate professor of mechanical engineering at the University of Tokyo, where he received his undergraduate, master's and doctoral degrees. As holder of the Chair of Machining there, he has taught courses in casting, welding, plastic working and heat treatment. His doctoral thesis on the statics of granular materials won the 1968 annual prize of the Japan Society of Mechanical Engineers.

Allen Sinai, part-time in the Sloan School of Management for nine months, effective September 1. A graduate of the University of Michigan (AB '61) and Northwestern University (MA '66, PhD

'69), he has been associate professor of economics at the University of Illinois at Chicago since 1972, and an assistant professor since 1966. His fields of specialization include macroeconomic theory, statistics and econometrics, monetary theory, and business conditions forecasting.

Christoph Haehling von Lanznauer, in the Sloan School for 11 months, effective August 1. A member of the faculty at the University of Western Ontario since 1969, he was previously an assistant professor at the University of Wisconsin from 1967-69. He was a member of the teaching staff at the University of Bonn from 1963-66, where he received his master's and doctoral degrees during those years. A native of Wiesbaden, West Germany, he has written two books and 14 cases in management science in addition to several journal articles.

# Szekely, Birgeneau Named Professors

The Department of Materials Science and Engineering and the Department of Physics at MIT have each announced the appointment of a new full professor, effective July 1.

Dr. Julian Szekely, a native of Budapest, Hungary, will come to the faculty of the Department of Materials Science and Engineering from the State University of New York at Buffalo, where he is director of the Center for Process Metallurgy. Dr. Robert Birgeneau, head of the Scattering and Low Energy Physics Research Department at Bell Laboratories in Murray Hill, N.J., will join MIT's Department of Physics, where his chief field of research will be solid state spectroscopy.

The teaching and research activities of both men represent a wide range of international and

industrial experience.

Dr. Szekely, now on sabbatical at London's Imperial College, will arrive at MIT next spring, after a first-term leave of absence to complete work on projects in turbulent flow and the treatment of gases and hydrocarbons at Buffalo.

He earned the BSc degree in 1959 from Imperial College while working part-time as a process engineer for Cremer and Warner, Inc., London. After receiving the PhD in 1961 he joined the company on a full-time basis for a year.



A four-year lecturing assignment in the Department of Metallurgy at his alma mater followed this work experience along with the award of the Junior Moulton Medal from the British Institution of Chemical Engineers. In 1966 Professor Szekely was appointed associate professor of chemical engineering at SUNY, where he was promoted to full professor in 1969 and director of the Center for Process Metallurgy in 1970.

During MIT's Independent Activities Period last January he taught a seminar on "Modeling Materials Processes" with Professors Michael B. Bever, Thomas B. King, and Merton C. Flemings of MIT's Department of Materials Science and Engineering.

Professor Szekely holds an honorary DSc from the University of London and last year was awarded the Curtis McGraw Research Award from the American Society for Engineering Education, the Professional Progress Award from the American Institute of Chemical Engineers and a Guggenheim Memorial Fellowship, for his present sabbatical in London.

He is the author of *Rate Phenomena in Process Metallurgy* and editor of four other books, in addition to many research papers and journal articles.

Professor Robert J. Birgeneau, a graduate of the University of Toronto (BSc '63) and Yale University (PhD '66), joined Bell

Laboratories in 1968 and since then has been engaged in neutron scattering research. While serving as a guest scientist at Brookhaven National Laboratory during those years he devised a program in scattering that used a beam of neutrons from the nuclear reactor at Brookhaven to probe the microscopic structure of matter.



A fellow of the American Physical Society and a member of the American Association for the Advancement of Science, he was a visiting scientist with the Danish Atomic Energy Commission in Reskilde, Denmark, in 1971. At MIT he will be working mainly with Professor Peter A. Wolff of the Center for Theoretical Physics.

Professor Birgeneau has also taught at Benedict College in Columbia, S.C., and Yale University, as an instructor in the Department of Engineering and Applied Science.

## Trips Planned

The MIT Quarter Century Club is planning the following trips for the coming year.

### Departing Boston

Rumania	July 16
London	August 27,
	September 10
Greece	September 23
Istanbul	October 13,
	December 1
Vienna	October 28
Caracas	January 10
Mexico	March 4
Canary Islands	April 1
Hong Kong	April 15,
	June 5

### Departing New York

Spain	July 23
Greece	September 16
London	October 15
Istanbul	October 13,
	December 8
Vienna	November 4
Caracas	February 7
Canary Islands	February 19
Mexico	March 11
Hong Kong	April 11,
	June 4

For further information, call x3-7914 daily from 9:30am-12:30pm.

## Proposals Sought

The MIT Division for Study and Research in Education reminds faculty members that July 15 is the deadline for grant proposals for the Lilly Faculty Teaching Award Program.

The faculty development program is open to all faculty members and post-doctoral instructors. At least five of the approximately 12 participants must be instructors or faculty members who next year will be in their first, second or third year of full-time teaching.

Information can be obtained from Elaine Medverd, DSRE administrative officer, at x3-7362.

# MIT to Host International Automatic Control Congress

"Control Technology in the Service of Man" is the theme of the sixth world congress of the International Federation of Automatic Control, to be held at MIT and Harvard August 24-30.

Topics will include: social effects of automation, medical and health care systems, environment and pollution, transportation systems, nuclear power plants, electric power systems, computer control and space vehicles.

Participants from 39 nations have already registered to attend the congress, the first of the triennial congresses to be held in the

US. The congress will open with a reception at Boston City Hall Sunday, August 24.

A total of 330 papers will be presented in the 63 technical sessions. In addition, there will be 13 round table discussions, and 10 plenary sessions. Most of the meetings will be held at MIT. Advance programs can be obtained from IFAC/75 Secretariat, 400 Stanwix St., Pittsburgh, Pa. 15222.

A number of MIT researchers will take part in the congress, including Dr. Jay W. Forrester,

Germeshausen Professor of Management in the Alfred P. Sloan School of Management, who will speak on "World Dynamics" in the plenary session Monday afternoon, August 25.

Among the persons at MIT planning the congress are (on behalf of MIT) John M. Wynne, vice president for administration and personnel, and Dr. Louis Menand III, special assistant to Provost Walter A. Rosenblith; and (on behalf of IFAC) George C. Newton, Jr., professor of electrical engineering; Henry M. Payn-

ter, professor of mechanical engineering; Wallace E. Vander Velde, professor of aeronautics and astronautics; and John E. Ward, lecturer in the Department of Electrical Engineering and Computer Science.

The International Federation of Automatic Control, founded in 1957, is a world-wide federation of 38 member organizations, each representing the scientific and engineering societies of its country that are concerned with automatic control. The US member organization is the American Automatic Control Council.



# THE INSTITUTE CALENDAR

July 9  
through  
July 27

## Events of Special Interest

### Tuesday, July 15

**Parametric Instabilities in Inhomogeneous and Finite-Extent Plasmas\*** - F. Chambers, G. Plasma Theory Seminar. 11am, Rm 36-261.

**MIT PDP 11 Users Group Meeting\*** - Sponsored by IPS. 2:30pm, Rm 13-5002. Coffee 2pm.

### Friday, July 18

**The Limits to Meteorology - Theory, Practice and Prudence\*** - R. S. Scorer, theoretical mechanics, mathematics, Imperial College of Science & Technology, London. Meteorology Seminar. 2:30pm, Rm 6-120.

### Tuesday, July 22

**Resonance Broadening and Trapping in Wave-Wave Turbulence\*** - N. Fisch, G. Plasma Theory Seminar. 11am, Rm 36-261.

### Wednesday, July 23

**Education of Naval Architects and Marine Engineers at Newcastle upon Tyne University, England\*** - Michael Chilton, ocean engineering, Newcastle upon Tyne University. Ocean Engineering Seminar. 2pm, Rm 5-314.

## Community Meetings

**Women's Forum\*\*** - Meetings Mon, 12n, Rm 10-280.

**Graduate Orientation\*\*** - Meeting of graduate student committee on housing & community affairs Wed, July 9, 4pm, Walker silver rm.

## Social Events

**Strat's Rat** - Sponsored by SCC. Continuous music provided by WTBS radio's disc jockeys. Light or dark beer, \$.25/16 oz cup or 5/\$1. Free admission. Fri, July 11 and Fri, July 25, 8:30pm, air conditioned Sala. College ID required.

**24 Hour Coffeehouse\*** - Enjoy relaxing conversation, piano playing, games, inexpensive food, candy & drinks. Summer hours: Sun-Thurs, 11am-12m; Fri & Sat, 11am-2am; Stu Ctr 2nd fl lge.

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

**Ad-Hoc Over 30's Singles Club** - Concert Cruise of Boston harbor, Thurs, July 24, 5:30pm, and 7:30pm boardings at Long Wharf, return 8pm, chamber music, sandwiches, drinks. \$3.50 for early boarding, \$2.50 for 7pm. Alice x3-3400 for further details.

## Movies

**Mr. Smith Goes to Washington\*\*** - LSC. Fri, July 11, 7:30pm, air conditioned Rm 26-100. Admission \$.50, ID required.

**The Given Word (Duarte)** - Fri, July 11, 7:30 & 9:30pm, Rm 6-120. Admission \$1.

**Kelly's Heroes\*\*** - LSC. Sat, July 12, 7:30pm, air conditioned Rm 26-100. Admission \$.50, ID required.

**Story of a Love Affair (Antonioni)** - Film Society. Fri, July 18, 7:30 & 9:30pm, Rm 6-120. Admission \$1.

**Bridge on the River Kwai\*\*** - LSC. Fri, July 18, 7:30pm, air conditioned Rm 26-100. Admission \$.50, ID required.

**Guys and Dolls\*\*** - LSC. Sat, July 19, 7:30pm, air conditioned Rm 26-100. Admission \$.50, ID required.

**Four Nights of a Dreamer (Bresson)** - Film Society. Fri, July 25, 7:30 & 9:30pm, Rm 6-120. Admission \$1.

**Planet of the Apes\*\*** - LSC. Fri, July 25, 7:30pm, air conditioned Rm 26-100. Admission \$.50, ID required.

**Night of the Living Dead\*\*** - LSC. Sat, July 26, 7:30pm, air conditioned Rm 26-100. Admission \$.50, ID required.

## Music

**MIT Summer Concert Series\*** - Abraham Comfort, Israeli violinist with John Buttrick, pianist, performing works by Schumann, Debussy & Beethoven. Tues, July 15, 8pm, Kresge. Free.

**MIT Summer Concert Series\*** - Abraham Comfort, Israeli violinist with John Buttrick, pianist, performing works by Brahms, Mozart & Reger. Fri, July 18, 8pm, Kresge. Free.

**The Black Eagle Jazz Band\*** - Dixieland jazz. MIT Summer Concert Series. Tues, July 22, 8pm, Kresge. Admission: \$2.50.

## Dance

**Folkdancing - International:** Sun, 7:30-11pm, Sala. **Balkan:** Tues, 7:30-11pm, Stu Ctr Rm 491. **Israeli:** Thurs, 7:30-11pm, Sala. **Noon dancing:** Fri, 12n-1:30pm, Kresge Oval in good weather, otherwise Bldg 7 Lobby.

## Exhibitions

**Works from the MIT Art Collections\*** - Sat, May 17-Wed, July 16, 10am-6pm daily & Tues 6-9pm, Hayden Gallery. Free.

**Hayden Corridor Gallery Exhibit\*** - Selections from the William Barton Rogers book collection and a selection of balloon prints from the Theodore N. Vail collection. Sat, May 17-Wed, July 16. Free.

**July Faculty Club Art Exhibit\*** - Works by Irene Morey.

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

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

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 July 23 through August 10 to the Calendar Editor, Room 5-111, Ext. 3-3279, before noon Friday, July 18.

# Artificial Light Effects Need Study, Scientist Says

By BARBARA BURKE  
Staff Writer

Americans who live and work indoors are serving "as the unwitting subjects in a long-term experiment on the effects of artificial lighting environments on human health," according to Dr. Richard J. Wurtman of MIT.

Writing in the July issue of *Scientific American*, Dr. Wurtman said, "Very little has been done to exploit the biological effects of light for treatment of diseases and maintenance of good health." Moreover, very little research has been done to identify whether existing indoor lighting environments are biologically inadequate, or even potentially harmful.

Dr. Wurtman is professor of endocrinology and medicine in the MIT Department of Nutrition and Food Science. He and his co-workers recently found a daily rhythm—perhaps induced by cycles of light and dark—in the excretion by humans of melatonin, a hormone

thought to regulate sleep and sexual maturation.

In the *Scientific American* article, Dr. Wurtman discusses the disparate effects of light, and ways in which lack of exposure to natural light might affect health.

"Most people in industrial societies spend many of their waking hours bathed in light whose spectral characteristics differ markedly from those of sunlight," he said. Moreover, the artificial light is much less intense than natural light. "The total amount of light to which a resident of Boston (for example) is exposed in a conventionally lighted indoor environment for 16 hours a day is considerably less than...if he were to spend a single hour each day outdoors."

What impact might this have on human health? Little is now known, although there is evidence that some ultraviolet radiation is necessary for calcium metabo-

lism, and light is now being used as the primary treatment for a growing number of diseases, Dr. Wurtman said.

On the negative side, light can cause sunburn and, after prolonged exposure, skin cancer. But it can also help treat several diseases—it is used, for example, in a new psoriasis treatment developed at the Massachusetts General Hospital.

Light has also been a lifesaver for premature infants afflicted with jaundice, a condition which can lead to motor and mental retardation, and even death.

"Perhaps 25,000 premature American infants were successfully treated with light last year as the sole therapy for neonatal jaundice," Dr. Wurtman said. Exposure to light for several days lowers the level of bilirubin, a toxin which the immature livers of premature babies cannot remove from the body quickly enough.

This treatment by light is not only a blessing for the afflicted infants and their parents—it also raises intriguing questions for biologists.

"The observation that ordinary sunlight or artificial light sources can drastically alter the plasma level of even one body compound...opens a Pandora's box for the student of human biology," Dr. Wurtman said. "It presents the strong possibility that the plasma or tissue levels of many additional compounds are similarly affected by light. Some such responses must be physiologically advantageous, but some may not be."

Light also has profound indirect effects on bodily rhythms, including sexual maturation, Dr. Wurtman said.

"Light levels and rhythms influence the maturation and subsequent cyclic activity in the gonads of all mammals and birds thus examined," Dr. Wurtman said. Continuous exposure to light accelerates the maturation of ova-

ries in rats; blindness delays sexual maturation.

It appears that light exerts this influence by regulating the rate at which the hormone melatonin is synthesized by the pineal gland. The discovery by Drs. Wurtman, Harry Lynch and Michael Moskowitz of a daily rhythm in the rate at which humans excrete melatonin suggests that a similar mechanism regulates human bodily cycles.

These disparate effects of light "support the view," Dr. Wurtman concluded, "that the design of lighting environments should incorporate considerations of human health, as well as visual and aesthetic concerns."

"Only minuscule sums have been expended to characterize and exploit the biological effects of light...One hopes that this casual attitude will change. Light is potentially too useful an agency of human health not to be more effectively examined and exploited."

## Crew Races Well at Henley, But Loses

MIT's second varsity heavyweight crew won two exciting come-from-behind victories at the recent Henley Royal Regatta at Henley-on-Thames, England, but the Engineers were defeated in the semi-finals by the University of London Varsity.

"We rowed our very best race in losing to the University of London," said MIT rowing coach Peter Holland.

An MIT four-man-crew, which won the Elite Four title at Nottingham June 28, drew America's best four, the Vesper Boat Club, in the opening round at Henley July 3 and lost by a length after leading for half the race.

"Both our crews rowed very well," Coach Holland said. "In the races they lost, both boats rowed better than they had previously, but they were up against people who were better than they were.

We have no excuses."

For the eight, the regatta was in one important respect a nightmare of boat switching. Because of a Regatta Committee mixup in boat assignments, the MIT crew rowed in eight different shells in nine days, a situation that kept Joseph F. Landquist, the MIT boat rigger, busy.

"Joe was rigging a boat a day," Coach Holland said.

"Rigging" refers to the adjustments that must be made in the seats and oarlocks of each rowing position. The adjustments reflect the preferences of each individual rower.

The second varsity eight included:

Anthony S. Foti of Jamaica Plain, Mass., the coxswain; Brian E. Wellendorf of Tuscon, Ariz., stroke; Craig W. Christensen of New Canaan, Conn., No. 7 oar; Thomas R. Crawford of Dhahran, Saudi Arabia, No. 6; Thomas B. Higgins of Delaware Water Gap

Pa., No. 5; Charles F. Jung of Randolph, Wisc., No. 4; Douglas M. Johnston of Auburn, N.Y., No. 3; Joseph L. Healey of Issaquah, Wash., No. 2, and Mitchell S. Seavey of Framingham, Mass., bow oar.

The MIT four were Thomas Strat of Fort Lee, N.J.; coxswain; Gary G. Piantedosi of Burlington, Mass., stroke; James J. Gorman of Greenfield, Mass., No. 3; John G. Everett of South Easton, Mass., No. 2, and Peter D. Beaman of Hampton, N.H., bow oar.

Coach Holland, Piantedosi and Everett left Cambridge Tuesday for Dartmouth College where the competitions that will lead to the selection of the National Rowing Team will get underway soon. Coach Holland will be an assistant coach of the team. Everett was a Gold Medal winner with the US national heavyweight team in the world championships last summer again and Piantedosi was a member of the squad. They will try to make the national team.



William B. (Ben) Alexander, left, received a trophy clock from John N. Goddard, president of the Research, Development and Technical Employees' Union, at the June stewards meeting. Mr. Alexander, who served as president of the union from 1964 to 1975, was cited for his dedicated service and loyalty to the union members.



# Professor Emeritus Herbert B. Dwight, 89

Word has been received of the death of Professor Emeritus Herbert Bristol Dwight, 89, professor of electrical machinery, Monday, June 30, in Warwick, R.I. Professor Dwight, who was associated with the Institute throughout his career, first joined the faculty in 1926 as professor—a post he held until his retirement in 1951.

Born in 1885 in Illinois, Professor Dwight later lived in Canada where he attended the University of Toronto and McGill University—receiving the BS degree in 1909 and the doctorate in 1924.

A prolific writer, Professor Dwight was the author of more than a hundred articles for professional journals on electrical machinery, power transmission, com-

plex computation, re-entry physics and optical radiation.

In addition he was the author of three books: *Transmission Line Formula*, 1913, *Constant Voltage Transmission*, 1915, and *Tables of Integrals*, 1934.

He was a member of numerous

## Elmer Blackwell

Elmer Blackwell, 62, of Baltimore, a former ozalid operator at Graphic Arts for 21 years, died on Wednesday, June 4. Mr. Blackwell, who came to work at the Institute in 1947, leaves his wife, Mozella, four brothers and four sisters, a daughter, Cecilia Moore of Buffalo, and two grandchildren, William and Donna Moore.

## Bernard J. Callery

Bernard J. Callery, 74, of Chelmsford, who retired in 1966 as a construction assistant at Lincoln Laboratory, died on June 11. Mr. Callery came to the Institute in 1953. He is survived by two sons, Bernard T. Callery and Thomas B. Callery, both of Chelmsford.

## William R. Grant

William R. Grant, Jr., 65, of Watertown, who had been on long-term disability leave since 1962, died on Tuesday, June 24. Mr. Grant, who came to work at the Institute as a guard at Lincoln Laboratory in 1959, leaves his wife, Ella, a son, William R. of Marlboro, a sister and two grandsons, David and Richard Grant.

## John H. Mason, Jr.

John H. Mason, Jr., 70, of Burlington, who retired from the Institute in 1972 after 22 years as a member of Physical Plant, died on Sunday, June 29. He leaves his wife, Edna, a daughter, Mrs. Patricia M. Jones of Pensacola, Fla. and a sister also of Florida.

professional societies, among them the American Institute of Electrical Engineers and the American Association of University Professors—which he served as a secretary and treasurer.

Active throughout his retirement years, Professor Dwight was a part-time lecturer at the Institute until 1956 and a consultant at Lincoln Laboratory in the fields of complex computation and radio propagation research from 1953 until 1971.

He is survived by his wife, Beryl Marshall Dwight; five daughters: Mrs. Julia Stevens of Barrington, R.I., Mrs. Barbara Alves of Sacramento, Calif., Beryl Dwight of Oak Park, Ill., Mrs. Edith Scully of Falmouth, Mass., and Mrs. Margot Girard of San Lorenzo, Calif.; a brother Professor Theodore Dwight of Toronto; 13 grandchildren, and 5 great-grandchildren.

## 2nd Student Wins Fulbright-Hays

The Institute of International Education has notified MIT that a second MIT student, Judith A. Chubb, a graduate student in the Department of Political Science, has been awarded a Fulbright-Hays Grant.

Ms. Chubb plans to do a study on "the relationship between the structure of urban labor markets and the distribution of political and economic power in a large Southern Italian City." Her study will be conducted at the University of Rome and the University of Catania.

Mr. Robert Berrier, a graduate student in the Department of Political Science, also received a Fulbright-Hays for doctoral research in France.

special circumstances, postdoctoral fellowship support is reserved for those whose doctoral degrees were conferred not more than 3 years prior to submission of the application. The grant includes: 1) The Fellow's salary (not to exceed \$12,000 per annum); 2) Fringe benefits as required by the sponsoring institution; 3) Five percent overhead; and 4) Cost of travel to scientific meetings during the tenure of the fellowship.

Deadline: December 15, March 15, and August 15. Application forms are available from: Damon Runyon-Walter Winchell Cancer Fund, 33 West 56 Street, New York, New York 10019.

**American Field Service Fellowship for Doctoral Research**—American Field Service (AFS) has announced the establishment of a program of research fellowships to assist the organization in undertaking a more systematic examination of its operations. AFS is a high school international exchange program providing living and learning experiences for young people ages 16 to 18. In keeping with AFS' commitment to provide the best possible opportunities for cross-cultural learning, continuing research on both program operations and the quality of the experience is needed. A limited number of research fellowships in amounts up to \$2,000 are available to students pursuing advanced degrees (MA, MEd, PhD, etc.). Research projects will be developed by the researcher in cooperation with AFS. A sample of areas of interest to AFS include: voluntarism in the US; international voluntarism; family dynamics; orientation for the cross cultural experience; impact of foreign exchange on families, schools, and communities; personality and attitude change; and selection and placement of students and families. Interested persons should write to: Robert Stableski, Research and Training Coordinator, AFS, 313 E. 43rd Street, New York, New York 10017.

## New UROP Listings

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

**Massachusetts Hospital School** Canton, Mass. The Massachusetts Hospital School, the state's educational and medical facility for the physically handicapped, has offered the following project for an interested undergraduate:

The development of a device for the lower extremities in spinal cord injury patients which will mimic a competent venous

system by rhythmically milking pooled blood against gravity, returning it to the general circulation.

The project will involve a literature review, measurement of forces required, development of materials required, and construction of a prototype.

If this project interests you, please call or visit the UROP Office (20B-141, x3-4849) for further information.

## MIT Club Notes

**Bridge Club\***—ACBL Duplicate Bridge. Open pairs Thurs, 7pm. Stu Ctr Rm 473. Steve, 782-2756.

**MIT/DL Bridge Club\*\***—ACBL Duplicate Bridge. Tues, 6pm. Stu Ctr Mezzanine Lge.

**Goju Karate Club\***—Mon, Wed, Fri, 7pm. Stu Ctr Rm 491. Beginners welcome. Info: 492-1741.

**MIT Kung-Fu Club\*\*\***—Practice Tues & Thurs, 7-9 pm. Stu Ctr Rm 407. Jim Lee, 494-8674.

**Space Habitat Study Group\***—Meeting Wed, 7:30pm, Rm 24-407. Info: M. Gaffey or B. Hazelton, x3-1917.

**Strategic Games Society**—Sat, 1pm-1am, Walker Rm 309 & 318. Offers opponents and discounts on merchandise to members plus gaming & periodical library. Help needed for SUMMERCON & WINTERCON. Info: Paul Bean, 266-6108 or Robert Sacks, 494-8889. Origins I Avalon Hill Games Convention info: Paul Bean.

**Student Homophile League\***—MIT Gay Lounge (Rm 50-306) open for lunch and most evgs; call ahead, x0745 Dorm. Meetings 1st & 3rd Sundays each month, 4pm, Rm 50-306. For info, talk, help in coming out, call Tom at the Hotline, x3-5440. (Hotline is being moved and is temp out of commission!)

**MIT Tae Kwon Do Club\*\***—Meetings & workouts Tues & Thurs, 5-7pm, Stu Ctr Rm 491.

**Tech Squares\*\***—Square dancing Tues, 7:30pm, Sala. Admission \$1, at door.

**Tiddlywinks Association\***—Meetings Tues & Thurs, 8pm, Stu Ctr Rm 473.

## Religious Activities

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

**Campus Crusade for Christ\***—Family time Fri, 8-9pm, Rm 37-252.

**Roman Catholic Mass\***—Sun, 10am, Chapel.

**Summer Bible Study Group\*\***—Tues, 12:30-2pm, Rm 13-5002.

# Employment Q & A

By CLAUDIA LIEBESNY  
Office of Personnel Services

**What is the role of the Classification Review Committee in the Staff Salary Administration Program? Have the members been appointed yet? If so, who are they?**

The Classification Review Committee will be responsible for evaluating newly created classifications, considering requests for reclassification based on changed responsibilities, and considering requests for review. One of the first tasks of this small standing committee will be to evaluate a number of positions that were not prepared in sufficient time to be considered during the analysis phase of the study and those which have been created since that time.

The following persons have been appointed to serve on this committee which will work in conjunction with the policy committee and the Wage and Salary Section of the Personnel Office to administer the program:

James D. Bruce	School of Engineering
William R. Dickson	Physical Plant Office
Patricia A. Garrison	V.P. Administration and Personnel
John J. Hynes	Office of Sponsored Programs
Kathryn W. Lombardi	Analytical Studies and Planning Group
Margaret A. Otto	Libraries
Peter H. Richardson	Admissions Office
Richard A. Sorenson	V.P. Operations

**Is information relating to the Institute's new staff salary administration program available to biweekly employees?**

Information regarding the new Salary Administration Program has recently been distributed to all members of the administrative, academic administrative and library staffs. Each person presently covered by the program is being informed of the classification which encompasses his or her position, of the level to which this classification is now assigned, and of the salary bases associated with each of the nine levels. For the purpose of career planning, individuals on all payrolls may obtain specific information about the levels of any or all classifications in consultation with their department heads or Personnel Officers.

**If an employee is fired, is she/he able to collect unemployment compensation?**

Eligibility for unemployment compensation is determined by the Department of Employment Security. When a person files for benefits, D.E.S. requests information from all recent employers on wages earned, and from the employee and the employer on the reason for termination. In order to qualify for benefits, a person must have earned \$1200 in the preceding year and must be available and looking for work.

If these two criteria are met, the D.E.S. adjuster considers the specific circumstances surrounding the termination. Terminations are categorized as either voluntary or involuntary on the part of the employee. Persons terminating voluntarily (e.g. to relocate or to seek a different type of position) are normally disqualified from receiving benefits for 4 to 8 weeks. Persons who have terminated involuntarily are awarded benefits depending on the specific circumstances involved. Persons terminated involuntarily because of lack of work/or funds are not normally disqualified from immediate payment nor are persons terminated involuntarily because of their inability to perform their work assignment at an acceptable level. In contrast, if the D.E.S. adjuster determines that an individual was discharged for deliberate misconduct, he or she may be disqualified from receiving benefits for a period of 4 to 8 weeks.

## Mail Service Curtailed

(Continued from page 1)

operation by August 4. A list of locations of MIT mailboxes will be published in the next issue of *Tech Talk* on July 23.

Some key features of the postal parsimony, as outlined by Mr. Doan this week, include:

—The replacement of MIT's 114 widely dispersed mailboxes with 43 new deposit boxes (measuring 21 X 21 X 46") near the main entrances of major campus buildings. Two of these oversized receptacles will flank MIT's main entrance at 77 Massachusetts Ave.

—The introduction of three platform trucks equipped with six mail sacks for on-the-spot sorting of "bulk," "metered," "interdepartmental," "first class," "air," and "special" mail. Pick-ups will continue as usual, three times a day, at the hours of 10am, 2pm, and 5:15pm. There will be no change in the delivery of special, registered or insured mail.

—A consolidation of route assignments in order to accommodate personnel changes because of retirements and reassignments.

Mr. Doan predicted at least a one hour extension in the Institute's delivery schedule, which

now runs from about 9am to 2pm.

"Supervisors and employees will have to re-arrange their work day in accordance with the new schedule changes," he said. "In the meantime, we will encourage head custodians to work out the details of each delivery with their respective customers. Problems are bound to arise from an overflow volume after long weekends, special mailings, and the annual delivery of phone books, IAP circulars, and other bulk pieces, but we're hoping the MIT Community will be patient with us," he said.

A new procedure to expedite sorting and subsequent delivery to MIT customers will be an overnight delivery from the main mailroom to all head custodians.

The average volume of incoming mail to MIT on any given day is approximately 40,000 pieces—one fifth of which is interdepartmental. It is impossible to compute the outgoing volume because of the large number of US mailboxes on campus, Mr. Doan said.

## INSTITUTE NOTICES

### Announcements

**Freshman Picturebook\*\***—TCA will be putting together the next Picturebook during week of July 28 (evgs). Want to help? Call x3-4885 or come by TCA office, Stu Ctr Rm 450, that week.

**TCA Summer Hours**—Open approx 12n-2pm, occasional evg hrs. Call ahead to see if open, x3-4885.

**Student Furniture Exchange**—Open Tues & Thurs, 10am-2pm. Buy and sell to students, tax-free donations gratefully accepted. 25 Windsor St. x3-4293.

The following companies will be interviewing during the time period covered by the current Institute Calendar. Those interested may sign up in the Career Planning and Placement Office, Mon-Fri, 9am-3pm, Rm 10-140, x3-4733.

**Equipment Group of Texas Instruments**—Recruiting Thurs, July 10. Needs 105 engineering graduates who want to become involved in high technology, state-of-the-art design, development and manufacturing of electro-mechanical systems. Products range from airport surveillance and airborne radars to missile guidance and control and electro-optical systems.

### Foreign Studies

**Damon Runyon-Walter Winchell Cancer Fellowship Grant**—Available to scientists working in universities, hospitals, and research institutions, in any country, with previous accomplishments in research, particularly in the cancer field. The grant is for the training of young scientists who have demonstrated the ability to conduct original research, and is awarded to an institution for the support of a postdoctoral, or predoctoral fellow, or an undergraduate student, to work on a specific project of a principal investigator. Except in



# CLASSIFIED ADS

Ads are limited to one per person per issue and may not be repeated in successive issues. All ads must be accompanied by full name and Institute extension. Only Institute extensions may be listed. Members of the community who have no extensions may submit ads by coming in person to the Tech Talk office, Room 5-111, and presenting Institute identification. Ads may be telephoned to Ext. 3-3270 or mailed to room 5-105. Please submit all ads before noon, Friday, July 18. They will be printed on a first come, first served basis as space permits.

## For Sale, Etc.

Nw Bauer Blk Panther hcky skates, sz 8 (10 2/3 metric sz), worn once, \$30; boys shin & elbow pads, hlmt, pr used Bauer huggers sz 7 1/2, \$10. Call, 547-9694.

Typwrtr, SCM Coronet elec port, exc cond, \$100. Daniel, x3-2716.

'75 Scamper tent trlr mdl Big T, slps 8, refrig, stove, oven, htr, tandem whls, self contained, nw \$3,700, \$2,900; Sears batt charger, \$20; GE amfm radio, colonial cab, \$20. Don, x465 Linc.

BSR trntbl, \$20. Dean Jones, x183-0, Bates LINAC.

Emerson Quiet Cool AC, 8000 BTU, 120 V, \$100. Wayne, x3-6107.

Openwork cotton summer blnkt, twin sz, green, \$5; wood-soled lthr clogs, sz 8, hrdly worn, \$5; 14" steel shlf brkts, 50 cents ea. Helen, x3-7690.

Wd door, 80"x36", \$13. x3-2008.

Ornately carved Victorian blk wint Eastlake parlor set, gd cond, \$375. Alan, x3-6279.

Golde 35 mm proj w/airquipt adaptor; Minolta 16 camera; Minolta slide proj for 16 mm slides. Ben Dorries, x8-2818 Draper.

Vac land site, Frye Is, Lake Sebago, Me, 13,345 sq ft on planned red 1,000 acre Frye Is, lo taxes, free 1/2 nr ferry srvc, \$5,600. Call, 646-3157.

Moving from lg home, wl sell BR, DR, K furn, rugs, sm elec appl, so forth, reas. Gladys, x3-4198.

Sansui 2000A rcvr. Dual 1209 trntbl, dust cvr, dual cvr, Dual 1209 trntbl, x3-4341.

Refrig, gd working cond, lg freezer; also m 3 or 10 spd bike, 24-26". Jesse, x0106 Dorm, aft 5pm, kp try.

Hermes 3000 man port typwrtr, self-contained case, pica, exc cond, \$60; 2 Michelin stl belt radials, 205-14, mtd GM whls, dynamically blncd, used less 5 K, \$75. Ellen, x3-1669.

Amer Indian jewelry, var prices, incl liquid slvr chokers & chains, Arlene, x3-6779.

Rebel 16' sailboat w/trlr, gd cond, nw sails, \$1,075. Call, 332-0767.

Port bed, hrdly used, 38" W, 72"L, 5" urethane foam matt, \$50. x3-2720.

Above ground pool frame, 18' diam, nds liner, 4' deep, take it away. x3-7309.

Canvas tent, 10x10, gd cond, \$30. x3-4955.

Compl stereo sys, Heath AD-27, fm rcvr, trntbl, 2 Utah 3X spkrs, \$150. Larnie, x8-3045 Draper.

Stu couch w/nw covers, \$70; oak nite tbl, \$25; lg 4 drwr mpl desk w/formica top, \$80; wd bkshlvs, \$15; 10x12 gray rug, \$30. Lou, x3-8081.

Herndon DR tbl, buffet, china cab, imported fruitwd, 52 rnd tbl w/2 lvs, \$700. Nancy, x3-3405.

Alum swim pool, 24' diam, 4' deep, incl pump & fltr, \$300. Call, 272-0636.

Typwrtr, Royal port man, ask \$40; Eico tuner & multiplexer, ask \$15. Call, 661-1797.

Sofabed, grn w/brn fleck, \$20. Diane, x3-7648.

Waterbed access, k sz bag, liner, htr, \$45. Gary, x3-3021.

Hitachi 20" color, TV, 2 yrs, \$215; want canister vac. Jane, x3-4804.

Reznor space htr, 400,000 BTU input/hr, 4" flue, 6'4" chrome pipe thermo control, gas fired, \$25. Chris, x3-7469.

Sherwood S-7100 rcvr, 20 W/ch, pr TDC-VI spkrs, exc cond, \$260. Ruben, x3-1538, lve msg.

Refrig, avail 7/26, \$25. Call, 628-1116, bef 3pm.

Dbl bed frame only, wd hdbrd, \$25; A-78-13 Dynaglas snwvs, 3 yr grnty, \$30; McGraw-Hill hndbk of Physics, \$20; MIT math set, 3 bks, \$5. Capers, x3-5334.

'69 VW transporter eng w/full flo oil cooler & fltr, lsky hyd cam, hi vol pump, etc, recent valve job, \$175; rims, 5x14, \$6/ea; mstr cyl, f&r brake assemblies, f seat, etc. Bill, x3-7230.

Frigidaire 8000 BTU AC, 11.5 amp, 115 V, exc cond, used 5 hrs, orig \$220, \$120 firm; beaut contemp hse on huge Me. lake, wldrness, avail wkly July & Sept. x8-2577 Draper.

Used & nw clothes, sm sizes, all seas, cheap. Betsy, x9868 Dorm, evgs.

KLH 40 tape deck, compl, gd work cond, \$125 nego. Dave, 492-1398.

Ayer, Ma, 2 wtrfront hse lots, comb frontage cln pond 320', 10 min Rtes 2 & 495, elec, town water, \$10,000/ea. Mrs. Wesley, x7031 Linc.

Simmons hide-a-bed, 3 yrs, colonial w/org flowerprint, Beautyrest matt, \$50. Jed, x3-1807.

Old Gerry down slp bag, gd cond, \$40. Call, 494-8147, evgs.

Wool swtrs, lk nw, sz 12, pullovers & cardigans, \$5/ea. Ginny, x3-2380.

JVC b&w 17" TV, yr old, exc, lk nw, orig \$124, \$60 or best. Call, 776-5100.

Endtbls, 2, \$5 & \$15. Call, 776-2416, evgs.

B sink, peach porcelain over cast iron, incl chrome fixtures, v gd cond, \$25. x5778 Linc.

Emerson port stereo phono, \$20; 3 drwr bureau, \$15. x7618 Linc.

Lex, 7 rm split for sale, 3 BR, 1 1/2 B, DR, garage, dead end street, bus for schools, 1/4 acre. Call, 861-9440.

Brn swivel desk chr w/casters, \$15. Rocky, x3-4834.

Loree oboe, gd cond, \$700. Call, 547-7576.

Head Competition tennis rckt, med, interchangeable grip, strung w/Imperial gut, \$40 w/cover. Charlie, x5307 Linc.

Moving to Calif, must sell: Emerson console stereo hifi; 2 Gdyr Suburbanite E78x14 snwvs, used 1 seas; best on both. x3-1866.

Gold 9x12 rug, \$7. x3-6025.

M & f 3 spd bikes, \$30/ea; lock & chn, \$5. Tom, x3-6726.

Scott stereo rcvr, \$100; Scott stereo amp, \$40; Herald stereo rcvr by Nikko, \$60; Dynaco mono amp, \$10. Ernie, 491-4607.

Oak DR set w/6 chrs, tbl, sidebrd, \$250; mahog BR set, compl, \$250, Call, aft 3, 625-4117.

Must sell: TV; amfm clock radio; Sony tape rcdr; phono; downhill skis; Salomon bndgs; Rotenburg rcdr; desk & chr. Call, 491-3064, evgs & wknds.

Met filing cab, 4 drws, legal sz, w/lock, susp fully, lg sofa & armchr, exc cond, desk lamp, case hardened 4 ft bike chain and lock, bks, head skis, 175 cm and poles, must sell moving. Call 547-4465, evgs & wknds.

6,000 BTU, 7.5 amp, yr old, hi effc, Fedders ac. Call, 566-3965.

Full sz bed, \$30. Margaret, x3-7899.

'73 Amana ac, 12000 BTU, 220 V, exc cond, \$175. Tom, x3-7530.

Chest, 5 drws, \$20; pr 2-drwr nite stands, \$7 ea; 9x12 rug & pad, beige, \$75; steel locker, \$20. Carol, x3-4710.

Free 2 relatively nw refrig, nd work, you move them fr 3rd fl apt. Diane, x3-1691.

Furn sale: couch/bed, buffet, tbls, chrs, hassock, 9x12 rug, lamps, mag rack, 2 tape rcdrs, calcu, 3 cameras, telescope. Call, 876-4328, evgs.

A/C Sears 11000 BTU, 115 volts, used one yr, best. x3-6616.

Port b&w TV, \$20; beaut K clock, \$10. Sonia, x3-6046.

Polaroid land camera, color pack, blt in time w/case, less than a yr, \$25. Alex, x3-7273.

Philco 12" b&w TV w/indoor antenna, yr old, \$30. Urs, x3-3374.

Swim fins, sz 11 1/2-13, \$12. Rob, x3-6909.

Couch, blk vinyl, \$25; big & small lamps \$5, \$2; desk \$5; bk shelf, \$2; foldg cot w/gd matt, \$15; upstd chr, \$12; port typwrtr \$20. Rosie, x3-5089.

Frigidaire casement window a/c, exc cond, \$90. Buchanan, x5441 Linc.

Philco TV 12", b&w, less than a yr old, w/wrnty & earphone, \$60. Paco, x3-6466.

Pr Dyna Mark III, mono amps, nw tubes, \$125; Soundcraftsman 20-12 equalizer, \$190; Rabco St-4 trntbl/nw ADC XLM-II cartrdg, \$120. Skip 855-2255 days.

FM converter for auto, exc cond, orig \$30, asking \$15. Lou, 876-2253, lv msg.

Kennel Ration dog food, (60) 15 1/2 oz cans, chicken flavor, (10) 15 oz cans Rival Variety, \$10/all. Ogden, x3-3178.

## Vehicles

'63 Chevy, mech sound, body rough, \$125 or best. Bob, x3-7305.

'64 Buick Spec, 63 K, nds some work, \$200. Yoram, x3-2147.

'65 Mustang hdtpr, gd motor & trans, other parts nd help, runs, \$100. Ray, x7573 Linc.

'66 Merc, \$350, gd cond, no troubles. Darvi, x3-5253.

'66 Olds 88, exc cond, eng lk nw, nw br, shocks, \$600 or best. x3-5777.

'67 Chevelle w/'71 eng, nds work, \$200. Ace, 354-3713, evgs, kp try.

'68 Opel Kadet, run cond, snwvs, radio, \$250. Bandeira, x3-4620.

'68 Camaro, std, rebt eng, runs great, \$750 firm. Call, 776-1133.

'68 Rover 2000 TC, 60K, gd cond, many xtras, \$700. Kevin, 547-2863.

'68 Olds Toronado, exc eng, front whl drive, nw snwvs, remote trunk control, p st & br, always starts, no problems best, must sell w/in wk. x9862 Dorm.

'69 VW bug, 89K, new muff, clutch and brks, \$300 neg. Michael, x3-5266.

'69 Chev Van - camper slps 5, water, toilet, ac, 70K, many xtras, lv country must sell. Call, 235-2687, aft July 27.

'69 Ford Frine, 4 dr sed, V8, auto, p st, snwvs, 45 K, exc mech cond. Len, x8-1354 Draper.

'70 Maverick, 6 cyl, 2 dr, std, gd cond, quick sale, \$895. Cliff, x3-6194, 'til 2:30pm.

'71 Vega hatchbk coupe, 29K, auto tr, carpeted, heater, radio, snwvs, \$900. Rosie, x3-5089.

'71 VW camper, 58K, exc cond, radio, \$2,500 or best. Erick, x3-6726.

'71 Ply Fury III, blu, blk vinyl top, exc cond, ask \$1,350. Yvonne, x3-7295.

'71 Torino 500, 6 cyl, auto, p st, 2 dr hdtpr, gold, tires 5 K, 2 nw mtd stud snwvs, recent tune-up & brakes, ask \$1,200. x3-4958, lve msg.

'72 Grande Mustang, metallic blue, vinyl top, 29K, exc cond, must sell, best. x3-3312.

'72 Vega GT wgn, 36 K, radio, auto, ac, tinted glass, 2 snwvs, v gd cond, \$1,550; also b&w port TV, v gd cond, 6 mos, wrnty, \$50. Roland, x3-1867.

'72 Toyota Mark II, amfm, ac, nds eng & rt fender, \$500 or best. George, x5415 Linc.

'73 Maverick, 4 dr, auto, p st, wht/lime grn roof, exc cond, have too many cars, \$2,450. John, x7768 Linc.

'73 Renault R12, cln, 12 K, radio, 1 ownr, auto, exc mileage & eng cond, radials. Call, 494-8669.

'74 Datsun 610 wagon, 4 spd, am-fm radio, 16 K exc cond, \$3,000 firm. Tore, x3-7624.

'69 BSA 650 cc mtrcycl, Firebird Scrambler, twin carbs, top end rebt, stock chassis, best. Jones, 484-7363.

'71 Yamaha 350, mech great, incl chn, xtras, recently tuned, \$600. Jia Shu, 494-0060, lve msg.

'72 Kawasaki 750, 8K, exc cond, \$115 or best. Chris, x129 Linc.

'72 Yamaha 200 cc, \$550. Roger, x9786 Dorm.

'72 Honda, CB 350, 11 K, gd cond, xtra hlmt, 1 1/2 saddlebags, windshield, shop manual, \$700 nego. Bill, x3-2503.

Norton Commando 750cc, exc cond, semi chopped, \$1,500. x8-4655 Draper.

'75 CR Honda Elsinore, moto cross bike, used once, abs perf cond, w ext set of nw rings & gaskets, manual & tools, cost over \$1,000, selling \$825 firm. Steve 221 Bed Fli Fac.

## Housing

Arl, 2 fam hse, both apts for sub, ea 6 unfurn rms, qt st, gd cond, avail 8/1 w/Sept opt, pkg, nr T, approx \$275. John, x3-6179.

Bel, beaut lg 4 rm apt, avail approx 7/30-9/4, furn, nr T, secl area, wash/dry, \$250 incl util. x3-2345.

Bel, off Concord Ave, 5 BR, 2 1/2 B, mod K, LR, DR, den, nr bus & schools, avail 7/15, \$500 + util. Francois, x8-1342 Draper.

Bel, 1 1/2 BR, LR, DR, B, eat-in K, furn, nr bus & stores, avail now, \$250. Call, 484-8644.

Bos, Comm Ave, 2 rm apt w/B, sub 8/1 w/9/30 opt, ideal walking loc MIT, cln, mod, grdn view. R E Clarke, x3-6162.

S Bos, east-side, stu, brite, sunny, sep K, shower, faces bch, 1 mo sec dept, \$150 incl util. Anne, x3-5643.

Brighton, 2 BR, K, DR, LR & den, pkg, in 2 fam hse. Helen, x8-2471 Draper.

Camb dupl, nr Fresh Pd, lg LR, 2 BR, K, B ea side, lg ldscp yd, \$52,500. x7219 Linc.

Camb, nr H Sq off Brattle, hse avail mo of Aug, arrangements nego. Call, 491-4258, evgs.

Camb, sub beaut Harv Tower apt, BR, LR, terrace, dw, ac, \$240. x3-7329.

Camb, Tang 19E, sub, nego. Call, 661-9055.

Charlestown, stu w/back yd, cool, renovated, exc rent, 30 min walk Bldg 7, sub w/opt. Mary, x3-3231.

Lex, mod cape, sm lot w/open fields, qt but nr shops & T, LR w/carpet, frpl, DR, K, 3 BR, 1 1/2 B, lg closets, full bsmt, garage, carport, mid 40's. x7283 Linc.

Lex, colonial 3-4 BR hse, 1 1/2 B, screen porch & sunprch, wooded priv setting, dead end str, short walk H-Sq-Hanscom Field bus, nr all town rec facil & all lvl schools, asking \$49,900. Call, 861-0401.

Newton, 2nd fl apt in 2 fam hse, 6 rms, nr T & Rt 9, yard, avail 8/1, \$300 + util. Nora, x3-2053.

Southboro, 3 BR ranch, frpl LR, beaut wd floors, garage, bsmnt, landscaped yard w/grdn, qt dead-end st, 2 min Pike, easy commute, \$38,900. x3-6705.

Furn 4 rm apt, priv pkg, nice area, avail 7/15-9/1, \$160 incl util. Call, 776-1133.

Som, sum sub w/opt, Beacon st, nT, 2BR, LR, w to w, laundry, park, avail now, \$265, incl heat & water. Ramos, x3-3259.

Unfurn apt, 4 rms, 3rd flr, gas ht, wking cpl preferred. 776-8763.

Cape Cod, Brewster, nw hse, eligible for \$2,000 rebate, LR, DR, 2 lg BR, K w/dw, self-cln oven, garage, fully lndscaped, town water, forced hot water/oil, wd lot, qt dead-end st. Daniel, x5550 Linc.

Edgartown, 4 BR hse, avail July, \$400/wk. x3-5725.

Maine, lkfront cabin nr Bethel, beach, canoe, avail July & Sept, \$100/wk, \$40/wknd. Rae, x3-7728.

NH, 2 BR cottage & bunkhse on sm, cln lake, rowboat & canoe incl, 2 hrs Bos, \$150-\$175/wk. Call, 1-369-8054, aft 7pm.

Highland Lake, NH, lkfront rental, cottages, all facilities incl, frpl, electric stove & refrig, H/C water, porches, rowboats, piers, etc., 90 miles from Bost. 603-446-7079.

## Animals

Morgan mare, 14.2 hands, age 6, Hunter type, details. Carol, x3-6429.

Free pups, 8. Call, 484-6449, evgs.

AKC Grmn shep, m, exc temperament, 8 wks. Frank Cavell, x3-2091.

Beaut blk m cat looking for nw home. Elizabeth, x3-4669.

Free kittens, mother Siamese. Dick Laton, x7447 Linc.

Free to gd home: Hungarian puli (sm sheepdog, no papers), all shots, recent boosters, flea & tick bath, 7 yrs, slvr w/brn eyes, exc w/childrn, watchdog. Call, 492-0162.

## Lost and Found

Reward for retn of brass rat class '71. Joanne Nestor, x3-3134.

## Wanted

M sgl spd bike. Irma, x3-3343.

Ride to Maryland or other strthn coastal pts, lvg anytime, wl share driving & exp. Joel, 536-1300.

Want to rent power boat suitable for skiing for 2 wks. x646 Linc.

Looking for grp or indiv w/Stu Ctr or Cent Sq PO box who is willing to share box (& rent) or sell the box, v nego. Call, 494-8888.

Furn apt or rm w/B for visit prof, fall term, safe loc for sgl f & nr T essential. Ctr for Theoretical Physics, x3-7077.

IBM typwrtr, selec, gd cond. Steve, x3-2211.

Someone to share exp of boarding a horse & info on & transp to gd stable in exch for riding privileges. Karen Sao, x3-5961, lve msg.

Hand-made cello, \$300-\$500 range. x3-5128.

'73 Cutlass Supr eng, gd cond. Van, x8-4488 Draper.

Visit prof nds furn hse, 2 BR apt or twnhse, 1/1-6/1, nr elem school & T. M. Yovanovich, 275 Ferndale Pl, Waterloo, Ontario, N2J 3X8, Canada.

Flying Scout Sailboat. R. Curry, x3-7756.

Resp driver of Toyota, Bost to Rochester, end of July or Aug. x3-4160.

Port b&w TV, wk cond, cheap. George, x3-7082, lve msg.

Yg prof cpl seek apt in 2 fam hse in Belm in area just west of Grove St, frpl, 2-3BR, garage, for Sept 1. Bob x3-6330.

Trlr hitch for '71 Volvo. Sara, x3-5763.

Visiting post doc req 3 BR hse or apt, access MIT, Sept to June 76; vsting post doc wishes exchg 3 BR hse Zurich for similar hse or apt, access MIT, Sept to June 76. x3-3391.

Rd for 2 to Wash DC, lv Jul 17 or 18, wl shr exp. Judy, x8-3200 Draper.

Hse or apt, 2 or 3 BR, in Wayland, Wellesley, Natick or Fram area or vic, Sept 1, gd ref. Andy, x3-1851.

Furn apt or hse for responsible Swedish post doc, wife & 2 sm childrn, beg late Aug or early Sept. Prof. Sharpless, x3-1842.

## Roommates

F rmmate for 2 BR Woburn apt. Call, 935-6674.

BR in 4



# 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, 10-211, and in the personnel office E19-239, on the day of Tech Talk publication. Personnel interviewers will refer any qualified applicants on all biweekly jobs Grades I-IV as soon as possible after their receipt in Personnel.

Persons who are not MIT employees should call the Personnel Office on extension 3-4251.

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

- |                                   |        |
|-----------------------------------|--------|
| Dick Higham                       | 3-4278 |
| Pat Williams                      | 3-1594 |
| <i>(secretary - Dixie Chin)</i>   |        |
| Virginia Bishop                   | 3-1591 |
| Mike Parr                         | 3-4266 |
| Phillip Knight                    | 3-4267 |
| <i>(secretary - Joy Dukowitz)</i> |        |
| Sally Hansen                      | 3-4275 |
| Jack Newcomb                      | 3-4269 |
| Evelyn Perez                      | 3-2928 |
| <i>(secretary - Susan Bracht)</i> |        |
| Ken Hewitt                        | 3-6512 |
| Carolyn Scheer                    | 3-6511 |
| <i>(secretary - Ellen Schena)</i> |        |

Effective with the July 9, 1975 issue of Tech Talk, descriptions of available positions will be published for two issues only. At the end of the Positions Available section, a summary is included of additional positions that were still available at the time of the deadline for this issue of Tech Talk. The date following each position in this section is a prior Tech Talk issue date in which the position was described. Additionally, descriptions of all available positions are posted, and may be reviewed in the Personnel Office, E19-239.

**Admin. Staff, Asst. Director/Program Administrator, Office of Sponsored Programs** will be responsible for proposal review, grant and contract negotiations, and post-award administration. Act as liaison with academic departments and/or laboratories. Assist financial administration in budget process and on special financial studies. BS in business administration or related field, or equivalent combination of education and experience required. Considerable experience in sponsored program administration, university accounting and budgeting procedures necessary. A75-40 (7/9).

**Spons. Res. Staff, in Sloan School System Dynamics Group** will assemble, organize and maintain computer files and develop command procedures for execution of System Dynamics National Model, a large-scale computer simulation model of U.S. economy. Will be trained in JCL and Time Sharing Command Language. Experience in computer programming required. Interest in social systems modeling, economics and system dynamics desirable. D75-116 (7/9).

**Spons. Res. Staff, Systems Programmer, in Lab for Nuclear Science Bates Linear Accelerator, Middleton, Ma.** will maintain and extend RT-11 and R5X-11D real-time operating systems on tightly coupled dual processor configuration of PDP 11/45 computer with varied peripherals. Thorough knowledge of DEC PDP 11 machine code and I/O handling and minimum 5 years experience in real-time systems or mini computer required. Strong computer science background at BS level, or equivalent, required. D75-120 (7/9).

**Admin. Staff, Operations Manager, Medical Dept.** will be responsible for coordination of ongoing operations management functions: act as liaison with medical, administrative and support personnel to define priorities and requirements. Bachelor's degree and 3 years management experience required. MBA, MS or experience in Health Management field preferred. A75-38 (6/25).

**Spons. Res. Staff, Asst. Director, Center for Information Systems Research, Sloan School,** will provide coordination, liaison and adminis-

trative assistance to director and faculty of recently established Center: liaison and presentation to corporate and other research sponsors; preparation of newsletters, research proposals; coordination of Institute administrative activities (space, personnel, accounting). Bachelor's degree with working administrative experience required. Familiarity with computer systems, writing and presentation skill, ability to work as team member also necessary. D75-114 (6/25).

**Spons. Res. Staff** will work on Electronic Systems Lab projects on application of Modern Control Theory to optimize traffic flow in a freeway corridor: develop mathematical models, performance criteria, static and dynamic algorithms. Ph.D. majoring in modern control theory, extensive knowledge of theory, algorithms, practice of mathematical programming techniques, stochastic control and nonlinear filtering required. Prior experience with freeway and signalized arterial mathematical models and other transportation problems necessary. D75-115 (6/25).

**Spons. Res. Staff in Lab for Nuclear Science** will do heavy ion physics research including instrumentation development, operation and data handling with MIT groups, using Brookhaven Nat'l Lab facilities (NY). Ph.D. in Physics plus 3 years experience in nuclear instrumentation and interpretation of nuclear reaction data required. Position is for 1 year, but may be extended. D75-105 (6/11).

**Admin. Staff, District Officer, in Resource Development,** a major role in capital campaign will be support of volunteers in New England. District Officer will identify and enlist campaign leadership, and assist in making presentations to donors. College degree required as well as effective communications skills - oral and written - and presence to interact effectively with corporate and financial officers. Background in creative marketing, public relations or similar field helpful. Candidates must have either a close familiarity with MIT or comparable familiarity with Boston leadership community. Extraordinary opportunity for dynamic person with opportunity to become deeply involved in MIT leadership campaign. A75-26 (4/16).

**Admin. Asst., Exempt, Loan Collection in Student Loan Office** will assist student loan officers in delinquent account collection: communicate directly with borrowers to arrange payment plan; research and integrate data from several sources to determine appropriate action; act as liaison with lawyers, collection agencies. Knowledge of accounting/bookkeeping, collection procedures, skip-tracing methods, experience in student loan collection or collection agencies required. Oral and written communication skill also necessary. A75-25 (7/9).

**Admin. Asst., Exempt, in Psychology** will assist Admin. Officer. Responsible for monitoring research accounts, including supervision of non-salary expenditures; process payrolls; maintain and reconcile petty cash; maintain departmental supplies, files, records. Type correspondence, reports, forms. Ability to work with figures, accurate typing, discretion required. MIT experience and familiarity with its accounting procedures desirable. Must be able to assume additional responsibility as necessary. E75-26 (7/9).

**Exempt, Asst. Account Representative, in Comptrollers Accounting Office** will act as Institute liaison with employees, students and companies in credit and collection matters through correspondence and personal contact; prepare aging reports, payroll notices and other material. 4-5 years accounting experience, specifically in credit collection, tact and judgment required. E75-27 (7/9).

**Exempt, Inpatient Nurse,** will do bedside nursing and assist with emergency and first-aid treatment. Mass. R.N. required. Rotating 3pm-11pm and 11pm-7am shifts. E75-24 (7/9).

**Exempt, Histology Technician in Division of Laboratory Animal Medicine, Medical Dept.** will perform diagnostic microbiology procedures, working with pathogenic microorganisms in laboratory animals; tissue preparation and staining for histology. BS in biological sciences preferred. Formal and practical training in histology and microbiology required. E75-23 (7/9).

**Exempt, Food Production Supervisor, Food Service,** will have responsibility for operation of kitchen and its food production personnel, daily production, inventory control, purchasing, quality control, sanitation program. Degree, or equivalent experience, in food production field, technical knowledge of menu planning and food-related purchasing required. Must be able to work irregular hours, weekends and to train and develop personnel. E75-29 (7/9).

**Exempt, Dental Hygienist, in Medical Dept.** will perform initial examination and charting, prophylaxis, peridental

treatment, plaque control. Take and process x-rays; screen emergencies. Registered Dental Hygienist required, preferably with AB or BS in Dental Hygiene. Previous work experience, including peridental care preferred. E75-22 (6/25).

**Tech. Asst. IV in Psychology** will assist in human language performance research using human subjects, spoken and written stimuli: prepare stimulus materials on magnetic tapes, slides; prepare response forms; score responses; prepare data for computer; keypunch. Familiarity with recording equipment and knowledge of elementary statistics required. Knowledge of linguistics and computer programming desirable. Possible job-sharing opportunity. B75-288 (7/9).

**Secretary-Administrative Asst. V** to faculty members and research group in Architecture. Position includes varied secretarial and administrative duties for Ph.D. program director, History of Arch. faculty members and Urban Ecology Research Program: library research; bibliography development; draft correspondence; type manuscripts. Initiative, willingness to perform routine office tasks, ability to read and, preferably, to speak French and German required. Facility with Russian, Italian, Spanish desirable. Human relations skills, 2-3 years secretarial experience also necessary. B75-305 (7/9).

**Secretary V** for large Civil Engineering research group will supervise and coordinate work of secretaries and other group members. Perform general secretarial duties: type and compose correspondence; schedule and organize meetings; arrange extensive foreign and domestic travel; arrange visitor housing; monitor accounts; payrolls; maintain files. College and/or secretarial school training and secretarial experience required. Discretion, ability to interact well with people at all levels necessary. Non-smoking office. B75-274 (6/25).

**Secretary IV-V** to head of Optical Maser Division, Medical Dept. will take dictation, transcribe and type reports, manuscripts; schedule meetings, seminars; file; coordinate work of other secretary in peak loads. Good shorthand and typing skills, familiarity with technical typing, minimum of 2 years secretarial experience required. B75-306 (7/9).

**Secretary IV, Editorial Acquisition Dept., MIT Press,** will perform secretarial duties for 3 editors: prepare and file contracts; review readers' reports; maintain files; log manuscripts; type. Excellent typing skill, ability to handle detailed work and occasional pressure required. B75-301 (7/9).

**Secretary IV, part-time, to Director of Nurses and Clinic Supervisor, Medical Dept.:** type reports, correspondence; maintain administrative and patient-related records; follow-up contact with patients; update charts. Good typing, ability to deal with patients and staff sensitively necessary. Previously secretarial experience necessary. 20 hrs/wk (9am-1pm). B75-307 (7/9).

**Secretary IV in Nutrition and Food Science** will perform routine secretarial duties including shorthand and machine dictation; prepare scientific manuscripts for publication; type technical material including tables and scientific terminology. Good typing required. Knowledge of biological/chemical terminology helpful. Possible job sharing opportunity. B75-293 (7/9).

**Secretary IV in Civil Engineering Transportation Systems Division** will perform general secretarial duties for faculty member: type correspondence, reports; maintain files and accounts; edit; share office duties with other secretary. Position includes student contact. Good typing skill required. B75-296 (7/9).

**Secretary IV** to several Mechanical Engineering faculty members will type varied material; arrange travel, appointments, coffee seminars; maintain accounts. Excellent secretarial skills including shorthand/machine dictation; technical typing and the ability to interact well with people required. Possible job-sharing opportunity. B75-287 (7/9).

**Secretary IV** to Energy Lab Policy Study Group: edit and type reports; arrange seminars, conferences; monitor files and records; provide general administrative support as required. Demonstrated editing and typing skill, ability to work with minimum supervision required. B75-289 (7/9).

**Secretary IV** to Associate Dean for Student Affairs will handle a variety of student-related activities including coordination of transfer student orientation; advise and counsel students and act as information resource to them; coordinate awards booklet and convocation (research, editing duties, luncheon and dinner arrangements). Will also perform general secretarial duties including maintenance of several budgets. Secretarial skills, judgment, sensitivity, familiarity with MIT

accounting procedures required. B75-295 (7/9).

**Secretary IV** to Material Science and Engineering research group will handle general secretarial duties including shorthand dictation, monitoring of project accounts. Must be able to speak and write Spanish to assist in international program. Excellent secretarial skills, ability to organize work required. B75-271 (6/25).

**Secretary IV** to Material Science and Engineering faculty member will type technical papers, reports, class material from machine dictation; maintain files; monitor OSP accounts; arrange meetings and travel; do some library research. Excellent typing, command of English language, proofreading skills required. Shorthand, MIT experience desirable. B75-273 (6/25).

**Secretary IV** to two physicians in Medical Dept. will schedule and prepare materials for examination; transcribe case histories, reports and correspondence; answer phones; coordinate calendars for clinic and infirmary coverage. May assist other secretaries as required. Excellent typing skill, familiarity with medical terminology (or willingness to learn), experience with machine dictation required. B75-278 (6/25).

**Secretary IV** to Oceanography faculty and staff in Earth and Planetary Sciences will perform general secretarial duties: type correspondence; arrange meetings; file. Handle complicated foreign travel and shipping accounts. Ability to work independently, typing skill, good judgment necessary. Knowledge of Institute procedures helpful. B75-279 (6/25).

**Secretary III-IV** to Energy Management and Economics Program, Energy Lab, will type correspondence and reports; monitor files; provide administrative support as required. Shorthand, excellent typing skill, ability to work as a group member required. B75-290 (7/9).

**Secretary III** to Subcontract Administrator in Office of Sponsored Programs will process requisitions and change orders; verify accurate; obtain additional information and signatures as required. Type letters; purchase orders; arrange meetings; answer phones; maintain signature list. Experience with financial records; purchase orders, accounts receivable, payable, typing skill required. B75-275 (6/25).

**Secretary III** to three faculty members, Organizational Studies Group, Sloan School, will handle correspondence, manuscripts, reports, course material; arrange travel, answer phones. Secretarial training including good typing skill required. B75-280 (6/25).

**Secretary III, part-time, in Alumni Assn., Records Office,** will process address changes; prepare records for computer file; answer phones; assist other secretaries as required. Good typing, telephone manner, accuracy with detail required. Familiarity with machine dictation helpful. 25 hrs/wk. B75-251 (6/25).

**Bookchecker II, part-time, in Science Library** will verify the MIT affiliation of users; assure the proper charging of books; answer questions for users; perform clerical duties. Pleasant, tactful person required. 5 hrs/wk (Sat: 1pm-6pm). B75-297 (7/9).

**Sr. Clerk IV-V** in Comptroller's Acctg. Office will tabulate research expenditures and cash flow for sponsored research projects; assist in data collection for cash forecasts; maintain daily cash balances; prepare monthly billings and fiscal reports; handle all aspects of interim and final audits. Interest in and aptitude for figures, 2-3 years accounting experience required. Good typing desirable. B75-254 (6/18).

**Sr. Clerk IV** in Comptrollers Benefits Accounting Office will process Blue Cross/Blue Shield, MIT health plan records; data input into computerized payroll system; resolve coverage problems; prepare billings, refunds. Interact with Institute departments and employees. Will be trained to work on other benefits programs. Typing skill, ability to use adding machine required. Must be able to communicate well with others. B75-302 (7/9).

**Sr. Clerk III** in Physical Plant, payroll section, will process time cards; control and disburse checks; type forms; maintain accurate, current personnel records; assist in invoice payment including computation of discounts. Assist in office typing assignments. Batch cards for keypunch; edit keypunch reports. Typing skill, ability to use calculator and two years working experience in bookkeeping required. B75-291 (7/9).

**Sr. Clerk-Receptionist III** in Personnel Office will share responsibility with other receptionist in performing varied duties relating to employment process: provide information on job status, specifications and personnel procedures to applicants and others; assist persons in completing applications; administer typing tests; refer general inquiries to appropriate offices; maintain daily interviewing schedules

for 13 people; prepare weekly jobs list and job board; xerox and distribute material; maintain activity records. Ability to exercise judgment, sensitivity and patience in service-oriented function, and typing skill required. 37½ hr/wk. B75-201 (5/21).

The following positions have been FILLED since the last issue of Tech Talk:

- |         |                     |
|---------|---------------------|
| B75-99  | Clerk IV-V          |
| B75-269 | Clerk II            |
| B75-187 | Lib. Gen. Asst. III |
| D75-81  | Spons. Res. Staff   |
| E75-16  | Exempt              |
| B75-270 | Secretary III       |
| B75-237 | Tech. Asst. V       |
| B75-246 | Sr. Clerk IV        |
| C75-4   | Acad. Staff         |
| A75-36  | Admin. Staff        |
| E75-18  | Exempt              |
| B75-244 | Secretary IV        |
| B75-157 | Secretary IV        |
| B75-261 | Clerk III           |
| B75-199 | Tech. Asst. V       |
| B75-215 | Keypunch Op. III    |
| D75-102 | Spons. Res. Staff   |
| B75-230 | Secretary III       |
| B75-252 | Secretary IV        |
| B75-272 | Sr. Clerk IV        |
| B75-228 | Secretary III       |
| B75-170 | Secretary IV        |
| B75-258 | Secretary III       |

The following positions are on HOLD pending final decision:

- |          |                   |
|----------|-------------------|
| B75-217  | Secretary III     |
| C75-9    | Acad. Staff       |
| B75-248  | Secretary IV      |
| B75-209  | Secretary IV      |
| B75-277  | Secretary IV      |
| H75-59   | Machinist A       |
| H75-60   | Instrument Maker  |
| H75-61   | Instrument Maker  |
| B75-259  | Secretary III-IV  |
| 74-753-A | Spons. Res. Staff |

The following positions were still available at Tech Talk deadline:

- ADMINISTRATIVE STAFF:**  
A75-23, Regional Rep., Alum. Assn. (6/25).  
A75-27, Director, Devel. Off. (6/25).  
A75-30, Prog. Analyst, Inf. Proc. Center (6/25).  
A75-32, Graphic Designer, Design Serv. (6/25).  
A75-35, Regional Rep. Alum. Assn. (6/25).  
A75-37, Asst. to Director, Off of Spons. Prog. (6/25).

- BIWEEKLY:**  
B75-190, Tech. Asst. IV, Arch. (6/25)  
B75-193, Sec. IV, Arch (6/25)  
B75-195, Comp. Op. IV, Off of Adm. Inf. Syst. (6/25)  
B75-214, Sec. IV, Hlth, Sc. & Tech. (6/25)  
B75-234, Sec. IV-V. Hlth. Sc. & Tech. (6/25)  
B75-238, Sec. IV. Pol. Sc. (6/25)  
B75-242, Sec. IV, Mech. Eng. (6/25)  
B75-245, Sec. IV, Lab. for Nuc. Sc. (6/25)  
B75-247, Sec. IV, Medical (6/25)  
B75-251, Comp. Op. IV, Off. of Adm. Inf. Syst. (6/25)  
B75-253, Sec. IV, Mech. Eng. (6/25)  
B75-254, Sr. Clerk IV-V, Comp. Acctg. Off. (6/25)  
B75-255, Sec. IV, Mech. Eng. (6/25)  
B75-257, Adm. Asst. V, Arch. (6/25)  
B75-263, Sec. IV, Div. for Stdy. & Res. in Ed. (6/25)  
B75-265, Sec. IV-V, Chem. Eng. (6/25)  
B75-267, Sec. IV, Res. Lab. of Elec. (6/25)  
B75-268, Sec. IV, Devel. Off. (6/25)

**ACAD. STAFF:**  
C75-14, Asst. to Dir., Cent. for Adv. Eng. Study (6/25)

- SPONS. RES. STAFF:**  
D75-8, Biophysicist, Nat. Magnet Lab (6/25)  
D75-48, Economist, Energy Lab (6/25)  
D75-55, nuclear instrumentation, Lab. for Nuc. Sc. (6/25)  
D75-70, Electrical Engineer, Lab. for Nuc. Sc. (6/25)  
D75-91, Biomedical Tech., Physics (6/25)  
D75-93, Comp. Linguist, Res. Lab. of Elec. (6/25)  
D75-94, Programmer, Humanities (6/25)  
D75-95, Programmer, Humanities (6/25)  
D75-100, Engineer, Energy Lab. (6/25)  
D75-101, curriculum devel., Cent. For Adv. Eng. Stdy. (6/25)  
D75-103, Programmer, Res. Lab. of Elec. (6/25)  
D75-105, nuclear instrumentation, Lab. for Nuc. Sc. (6/25)  
D75-106, postdoc. res., Lab. for Nuc. Sc. (6/25)  
D75-107, postdoc. res., Lab. for Nuc. Sc. (6/25)  
D75-111, Programmer, Artificial Intell. Lab. (6/25)  
D75-112, Engineer, Energy Lab (6/25)  
D75-113, Data Mngmt. Spec., Energy Lab (6/25)  
S75-1, Programmer, Proj. MAC (6/25)

**EXEMPT:**  
E75-12, Nurse, Medical (6/25)  
E75-19, Admin. Asst., Microreprod. Lab. (6/25)  
E75-21, Accountant, Comp. Acct. Off. (6/25)

**HOURLY:**  
H75-62, Cook, Endicott House (6/25)  
H75-55, Tech. B., Lab. for Nuc. Sc. (6/25)



# End of Recession to Bring Higher Unemployment

By LESTER THUROW

Recently, the chairman of the Council of Economic Advisors stated that we were at the end of the recession and that he could see light at the end of the economic tunnel. Before we examine whether there is or is not light, we should be clear as to what he was and was not saying.

First he was not using the term 'end of the recession' as it is officially used in economics. By the end of the recession he merely meant that the real GNP was going to reach its lowest point in the second quarter of 1975. Officially the recession ends when the real GNP reaches its previous

peak—a peak reached in the fourth quarter of 1974.

Officially the recession is far from over. Even using the forecasts of the administration, the recession will not be over until well into 1976.

Mr. Greenspan was also not saying that unemployment had reached its peak levels. These have yet to come and will probably not arrive until early fall. In January the administration said that unemployment would peak at eight point five percent; in the spring they said nine point five percent; more recently they indicate uncertainty. Unemployment

is now nine point three percent. I think unemployment will rise to between ten and eleven percent before it stabilizes.

As far as the average American family is concerned things are going to be getting worse before they begin to get better. Higher unemployment is interesting because the administration is now in the process of redefining the definition of full employment. In the early 1960s the exact level of full employment was so controversial that the Kennedy administration set a four point zero percent unemployment rate as an interim target with the idea that once we got to four point zero

percent unemployment we would then redefine full employment. In 1969 the economy actually reached an unemployment rate near three percent.

While there have been no official announcements, all of the official government calculations that involved full employment have redefined full employment to be five and one half percent unemployed. Part of this recession is to be cured by redefining the goals rather than really bringing the economy back to economic health.

The rationale for the higher unemployment targets springs from concerns about inflation. Accord-

ing to the official analysis five and one half percent unemployment is necessary to suppress inflation in the American economy.

If true, this assertion is a devastating statement about the capabilities of the American economy. Basically, the administration is saying that it doesn't work unless some substantial fraction of the American population is thrown out of work.

(Lester Thurow is professor of economics and management in the MIT Department of Economics and the Sloan School of Management. This commentary was presented recently on the WGBH-TV program, *The Evening Compass*.)

## Physicist's Finger Counting System Opens Math Doors

Alan Natapoff, a physicist at MIT's Man-Vehicle Laboratory, counts on his fingers.

He has taught children with learning disabilities to count on their fingers and those children, some after years of frustrating failure, have been able to add, multiply, and divide without using fingers—to learn what they had grown to believe they could not learn.

Dr. Natapoff, a research associate at the Department of Aeronautics and Astronautics' Man-Vehicle Lab, is in the business of discovering how the brain works, not of teaching school kids how to do arithmetic. But the by-products of research often prove valuable in unthought-of environments. And that is why Alan Natapoff came to be at the Hennigan Middle School in Boston's Roxbury section recently, demonstrating what he calls "strategic arithmetic."

What happens when the brain meets a new abstraction? That is the basic question Dr. Natapoff is seeking to answer for the Man-Vehicle Lab where the disciplines of control and instrumentation are applied to biological and psychological problems of man's reaction to flight as well as vehicle display and control, pilot decision making and bio-instrumentation. All these are areas in which the finely honed minds of Man-Vehicle Lab researchers are at work.

How does helping students at a Boston middle school add five plus nine fit into this picture?

"A child trying to learn arithmetic is a perfect setting in which to study the reaction of the brain to a new abstraction," says Dr. Natapoff, 38, whose Pied Piper-like ability to attract and hold the attention of students has won the admiration of teachers everywhere he has demonstrated—at his own expense—what he calls "strategic arithmetic."

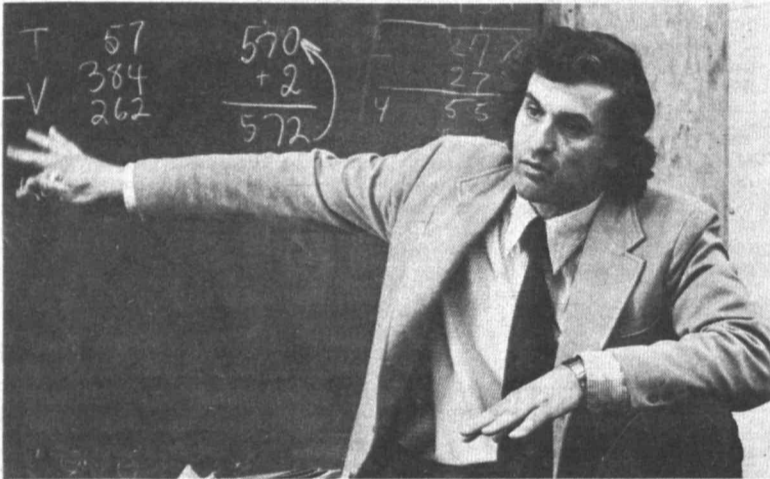
"Consider the paradox presented by the teaching of arithmetic," he said. "Multiplication and long division are abstractly very closely related. Therefore, they should be similar in difficulty. But they are not."

"It is our theory that there is a universal set of capabilities that are poorly used by the present system of education. We find out what those capabilities are and we use them. We want to find out if our system works, and we're not concerned very much with what is wrong with the current system."

Dr. Natapoff's method, which he says can be used to teach multiplication and long division three to 10 times as fast as the usual method, is the same no matter whether he is teaching "normal"

children or children with learning problems. The only difference, he says, is that one teaches more slowly and shifts the emphasis when teaching children with memory problems.

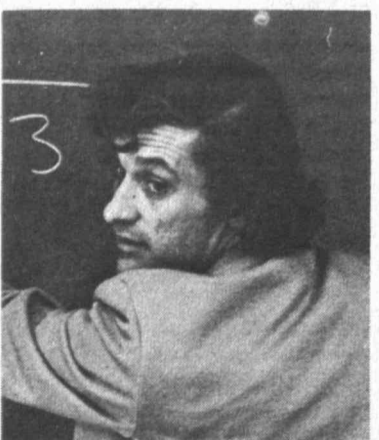
At the Hennigan School four



children were learning how to multiply. They sat side by side, barely three feet from the blackboard where Dr. Natapoff had chalked the problem. There were several teachers from school systems in Weston, Cambridge and Watertown in the room as well as a Boston Globe reporter and a photographer-writer team from the MIT news office.

Some of the people arrived after Dr. Natapoff had begun the session and some left while it was in progress, but the attention of the four children never wavered.

A few of the Hennigan School's teachers stood next to the children, observing how they reacted to his instructions and occasional-



ly helping a student understand some part of the process.

Dr. Natapoff used the child's first name nearly every time he spoke to a student and frequently used emphatic expressions of praise to reward the correct answer.

Reporter Phyllis Coons of the Boston Globe, who referred to Dr. Natapoff as a "math magician" in a long article published in a recent Sunday education section, described what was happening this way:

Four youngsters in grades 6-8 who had been doing second grade

work in arithmetic were multiplying into the millions. Yet they were acting as if the multiplication table had not been discovered. Instead of multiplying, they added various numbers of dozens and added zeros to magnify by 10.

Natapoff was giving them their third lesson. One boy had missed the second, but he was catching up with the others fast....

First they made a table listing the sum of 12, two 12s, four, eight and 16 dozens. "Think of the number 12 as a dozen eggs," said Natapoff.

Next they learned to multiply 12 by 7632. Breaking down the first number, seven, into units of 12 by copying the table they got:

$$\begin{array}{r} 4 \text{ 12s} = 48 \\ 2 \text{ 12s} = 24 \\ 1 \text{ 12} = 12 \\ \hline 7 \text{ 12s} = 84 \end{array}$$

The following step was to multiply that seven by 10 by adding a zero and another zero to the 84, the sum of 7 12s.

Returning to the blackboard, Natapoff pointed to the second digit in the figure 7632, six. Under the 70, he copied two numbers from the chart adding up to six:

$$\begin{array}{r} 70 \quad 840 \\ 4 \text{ 12s} = 48 \\ 2 \text{ 12s} = 24 \\ \hline 76 \quad 912 \end{array}$$

Then Natapoff repeated the process of multiplying each sum by 10 to get 760 and 9120 and adding the next number three.

$$\begin{array}{r} 2 \text{ 12s} = 24 \\ 1 \text{ 12} = 12 \\ \hline 763 \quad 9156 \end{array}$$

The final step was to multiply by 10 and add the last digit, two.

$$\begin{array}{r} 7630 \quad 91560 \\ 1 \text{ 12} = 12 \\ 1 \text{ 12} = 12 \\ \hline 7632 \quad 91584 \end{array}$$

or 7632 times 12 is 91584.

"Sure it takes longer to add instead of multiply, but we can afford to take longer to compute. We can't afford to take a year or more to teach multiplication and still see kids fail to learn how," Natapoff said.

Long division works in a reverse process, by subtracting different numbers of dozens.

In a matter of 22 lessons, Natapoff can teach children with learning disabilities both multiplication and long division. "Yet it costs a quarter of a billion to teach long division in the US every year," he said. "Four million students in every elementary grade spend 50 hours or more per year at a cost of about a dollar per student hour."

Natapoff tests strategic arithmetic with students who have learning disorders in order to demonstrate its simplicity. Such students have average or more intelligence but show difficulty in dealing with figures and letters.

Another reason Natapoff works with disabled learners is that "it would be immoral to walk away from a successful way of teaching these children."

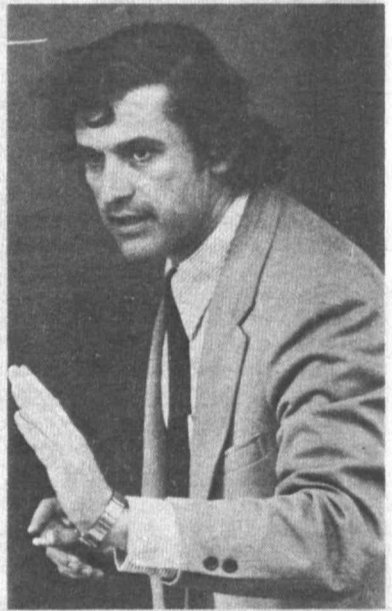
Natapoff works as a consultant with the learning disability clinic run by Dr. Generoso Gascon and Dr. Peter Wolff at the Children's Hospital Medical Center and has worked with the adolescent unit at Boston State Hospital.

"This method is a way of decoding a problem into smaller pieces," said Natapoff. Instead of teaching an abstract idea in an abstract language and thereby trying to teach two new things at once, he uses a formula which avoids learning the multiplication table by rote.

Not that Natapoff has anything against learning by rote, as long as the rote has a concept behind it, and an example in front of it.

He feels that the new math's set theory proved difficult for many because it was taught in a purely conceptual way without enough examples.

Natapoff is not trying to revolutionize the teaching of math. He sees no reason why his method or other alternative methods



should not be used as a preparation for traditionally taught multiplication and long division. He is interested in teaching children not to fail by using a method simple enough to be grasped without taxing memory.

## Subscription Drive

(Continued from page 1)  
describe close to eleven years of management science research and implementation in the marketing area of Anheuser-Busch, Inc. *The Review* has received more than 1,000 requests for reprints of this article.

A recent readership survey showed that 42 percent of the magazine's readers are top executives in management and 36 percent are middle management personnel. At least 50 percent of the readers have at least a master's degree.

According to Sandra Fiebelkorn, an editor, "*The Sloan Management Review* and the Sloan School of Management are both gaining increased recognition in the management community."

*The Review* does not pay for any of the articles printed, yet there are approximately 20 articles submitted for each article chosen. No preference is given to articles from the MIT community.

The three students currently serving the three semester term as editor bring to the job diverse interests and backgrounds. Sand-

ra Fiebelkorn, of Short Hills, N.J., received her undergraduate degree in biology from Mt. Holyoke College in 1967, Michael B. Green, of Concord, N.H., received his undergraduate degree in anthropology and psychology from Dartmouth College in 1972 and is an ensign in the Navy and Margery R. Weil, of Birmingham, Ala., received her undergraduate degree in English from Middlebury College in 1974. All three are enrolled in the Sloan School's master of science program.

These editors feel that one primary reason for the magazine's profits and increased stability is good, old fashioned economy. "We know about paper, printing, and primary costs. We don't go for fancy paper or glossy photos which will run into a lot of money," Green said.

Another reason for the success put forth by the editors is the fact that the small staff of the Review views their association as more than a job. "We take success or failure personally and take pride in the work we are doing," Fiebelkorn said.