

Anne Ellison Appointed to Dean's Office Staff

The appointment of Anne Ellison as Assistant Dean for Student Affairs effective September 1 has been announced by Dr. Carola B. Eisenberg, Dean for Student Affairs.

Her appointment is largely in response to a recommendation of the Ad Hoc Committee on the Role of Women Students at MIT. The recommendation called for "The hiring of a woman by the Dean for Student Affairs Office who would have primary, but not exclusive responsibility for women students. Her day to day duties would include not only individual counseling, but also serving as women's advocate within the Dean's office."

The committee also noted that "women, like men, face academic, financial and personal problems," but because there are so few women at MIT, it is an additional burden for a female student to find sympathetic help. In her new post, Dean Ellison will work to establish widespread contacts with both undergraduate and graduate women students at the Institute.

Until January, Dr. Emily Wick, a professor in nutrition and food science had held a similar part-time appointment as associate dean for student affairs for nearly

seven years. Dr. Wick asked to be relieved of administrative responsibilities in the Dean's office in order to concentrate her attention as an active scientist. Dean Ellison will occupy the position full time.

A native of Montreal, Quebec, Dean Ellison received her B.A. degree in psychology from Bishop's University, Lennoxville, Quebec, and the M.A., also in psychology from McGill University in Montreal in 1964. She has since studied psychology and philosophy at MIT and is presently completing work for a Ph.D. in philosophy.

For the past year Mrs. Ellison has been working at the MIT Education Research Center in comparison studies with freshmen

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Dean Anne Ellison.

—Photo by Margo Foote

Bunnell Finds Therapy for Infant Lung Disease

NEW YORK, August 28—An MIT chemical engineering researcher Monday described a new technique that may one day be used to treat premature babies who suffer from Hyaline membrane disease.

Hyaline membrane disease, the

leading cause of death among newborn babies, is most prevalent in those born prematurely; 25,000 infants die of it each year. It became well-known when it claimed the life of the newborn son of the late President Kennedy, Patrick Bouvier Kennedy.

The disease slowly suffocates its small victims because the tiny balloon-like sacs of the infant's lungs collapse after each breath, finally exhausting the baby from having to re-expand the sacs. In those afflicted by the disease, these sacs, or alveoli, lack a special liquid lining that allows normal lungs to expand easily and remain expanded.

Dr. J. Bert Bunnell of MIT's Department of Chemical Engineering, in a paper presented before the annual meeting of the American Chemical Society here, said the liquid lining of a normal lung contains a soap-like substance called lecithin. Chemical analysis of the fluid lining of the diseased alveoli shows that they lack this substance, he said. When lecithin is absent, molecules of the fluid lining have such a high attraction for one another (high surface tension), that it becomes difficult to inhale.

The basic research underlying the therapy was done at MIT and takes advantage of a synthetic lecithin that can replace the missing component in the diseased lungs. Similar therapy has been previously attempted, Dr. Bunnell said, but getting lecithin deep into the lungs has been a major problem. The lungs' natural defense mechanisms against entry of foreign bodies also work against synthetic lecithin.

A major finding of the MIT research was that lecithin had to be dispersed in water rather than dissolved in an organic solvent, and that the water-lecithin mixture had to be warmed to 85 degrees F. in order to allow an ultrasonic generator to create a fog from it.

Dr. Bunnell's research, upon (Continued on page 2)

Tuition Increases to \$3,100 in '73

Tuition at MIT will be increased \$200, from \$2,900 to \$3,100 per year, beginning with the summer session of 1973, President Jerome B. Wiesner has announced.

In letters to MIT students, Dr. Wiesner said he was announcing the increase with great reluctance.

"The decision to raise tuition was made only after the most careful forecast of our anticipated costs and other sources of income," Dr. Wiesner said.

"Despite very sharp cuts in our budget this year, particularly the budgets for administration and physical plant, the costs of utilities, materials, services and salaries have continued to rise," Dr. Wiesner said. He said that it was his conviction, and that of the Executive Committee of the MIT Corporation, that "there was no responsible alternative" to an increase in tuition.

However, Dr. Wiesner pointed out "Renewed emphasis is being placed on the search for new gift income including, as an item of highest priority, new financial aid funds."

In addition, Dr. Wiesner noted in his letter, "Beginning this fall, the Technology Loan Fund is being modified, first, to take full advantage of the Federally Insured Loan Program, and second, to provide a new program for loan repayment rates related to future income."

The Federally Insured Loan Program insures loans made by lending institutions to students and, under certain financial conditions, pays the interest on the loans while the students are in school.

The new loan repayment schedule, organized by the MIT Financial Aid Office, is geared to the probable income growth potential of each graduate over approximately ten years after he or she has completed the final degree. It is a modification of a program which has been in effect for several years at MIT. In general, loans are repaid at the rate of six percent of the median salary of each graduating class.

Dr. Wiesner also noted in his letter that special efforts are being made to expand the Institute's other sources of income so that tuition bears no more than its historical share of the cost of an MIT education.

He emphasized that "On campus research volume is expanding, providing support for new programs, research assistantships and indirect cost support. I am optimistic about our success in these efforts, but even the combination of budgetary austerity and new sources of income cannot prevent continuing tuition increases as costs rise nationally," Dr. Wiesner said.

Operating expenditures at MIT (Continued on page 3)

Largest Class in MIT History Arrives Friday

The largest class in MIT's history will arrive on Friday for ten days of residential and academic orientation, according to Peter H. Richardson, newly appointed director of Admissions.

In a preliminary count made last week, 1,057 men and women from across the country and around the world are expected to become members of the MIT Class of 1976. This represents an increase of 57 students over the Class of 1975.

The freshman class includes: 118 women, slightly lower than last year's record-breaking number of 124; 42 blacks; six Mexican-Americans; and six Puerto Ricans. The class represents 48 states—all but Wyoming and Nevada—with 129 students coming from Massachusetts and three from as far away as Alaska.

The Class of 1976 will include 63 students from foreign countries including the Netherlands, Pakistan, Tanzania, Kuwait, Cyprus, Jamaica, England, Brazil and Ghana. The foreign students represent some 26 nations, with half of them coming from Asian countries.

Selected from a group of 3,665 final applications, the new freshmen attended about 950 different high schools, 24 of them finished high school in three years, about 90

percent ranked in the top 10 percent of their classes, and 544 freshmen are financial aid recipients. At least a third of the class has some advanced placement credit, mostly in calculus but also in the humanities, physics and chemistry.

The Registrar's Office offers statistics which show the growth of the freshman class over the years: in 1865 total enrollment in all classes at the newly-opened Institute was 72; in 1916, the year MIT moved across the Charles to the Cambridge campus, there were 369 freshmen; in 1942 there were 727 in the first year class; in 1961 the freshmen numbered 892; and in 1970 there were 951 freshmen.

During the ten-day Residence/Orientation Week (R/O), the incoming freshmen will be introduced to the MIT campus, the various living groups, extracurricular activities and the academic programs available to

(Continued on page 7)

Holiday Notice

The Institute will observe the Labor Day holiday next Monday, September 4. Holiday pay provisions will be in effect for that date.



SINGIN' IN THE RAIN—Well, not quite. But on a humid day in late August, cavorting in a lawn sprinkler can be just as enjoyable. That's what these youngsters from the nearby KLH Day Care Center did one day last week. Overtaken, like most of us, with the oppressive heat, they wandered onto Kresge Plaza where they found a most inviting sprinkler.

—Photo by Margo Foote

On Deaning

Reflecting that the freshmen turn up on Friday to begin the Institute's annual ceremonial turn into the academic year, we sallied forth last week for a chat with Dean Carola B. Eisenberg. Our thought was that a new dean contemplating a new class might have something worth saying, and it turned out we were right. We found Dean Eisenberg sitting on a stool just outside her office, which was being painted. "I am a displaced person," she said as she led us back into another office. "So are we all," was our rejoinder and, deciding to put business before pleasure, asked her what changes in the Dean's office she could tell us about.

"We have three new appointees," Dean Eisenberg said. "I'm particularly happy with them: Anne Ellison, Mary Hope, and Alice Seelinger. We're also looking for someone—a man, in this case—to replace David Yohn. I think he should be a younger faculty member, but it's difficult to find someone able to give full time. At that stage in an academic career, faculty members have to think about professional advancement, and although young professors are usually very much interested in students and their problems it is difficult to find a person willing to take on what is after all something of a heroic job. At all events, we will have five counseling deans, although I don't really like that term—counseling deans."

We asked Dean Eisenberg what they might be called instead. "Well, they are deans who counsel students..." she began. She pondered the problem briefly and then with a shrug of her eyebrows set it aside. Dean Eisenberg is a woman of impressive charm, whose brown eyes combine warmth and reserve and who wears her dark hair pulled back in a chignon. Recalling her medical training, we asked her what she wanted to be called and she laughed easily.

"I am called everything," she told us. "Dean, Dr., Mrs., even Ms. I remember getting a letter from a student not long ago with a list of titles—Dr., Mrs. Ms.—saying check one. I find I do understand why some women these days want to use the title Ms., but in any case I think it's unimportant what people call each other. Some students call me a shrink. Possibly you shouldn't put that in your article," Dean Eisenberg admonished us, eyeing our notebook. "I would not want anything to prevent any student's feeling free to come see me, and many, I fear, adhere to the notion of the all-knowing psychiatrist, giving me a crystal-ball quality I do not have. I do have many enthusiastic goals, but if I had to have only one goal it would be to get to know lots of students very well. And my formal training as a psychiatrist is quite irrelevant to that, and indeed to most of the duties of deaning, if I can use such a word."

We thought deaning an admirable word and asked the Dean what it consisted of. "There was one day when I thought it was being chief of the Bureau of Complaints," she said with amusement. "Such a variety of problems. Questions about the self—with those I was familiar—but the life of students is much more complex than that. This summer I have been absorbed in letters sent to us by parents about their children. These letters are in response to a letter we send to new parents welcoming them to the

MIT community. I had gained an overall impression of the incoming freshmen from their admissions folders, but their parents' letters gave me something else. A composite view, you might call it, of how they see their children. I must say I cannot wait to meet these kids. I became quite addicted to this summer reading. The letters are honest, open, heart-warming. And the view they communicate of their children who are coming to MIT—from an almost bewildering variety of backgrounds, I should say—are of young men and women who are above all committed people. Not an indifferent bunch, in their parents' view. Of course, they are committed to many different things, and I do not talk only of political commitment—although I think this generation is perhaps more connected to the outside world, more affected by political events, than we think—but of commitments to...well to chess or to school or to art.

"The point is that, at least in their parents' eyes, these students are goal-oriented," Dean Eisenberg continued. "Of course they are at an age, a stage in human development, when the goals may shift rapidly. One day this deep interest, another day that one. I don't think changing goals is nearly so important, particularly at this age, as that there are goals in the first place. Many people, incidentally, see students in terms of conflict, and regard much of student behavior as acting out their conflicts. However, there is a big difference between action arising from inner tension and action stemming from inner conviction, from commitment to a goal, or from moral ideals. Only when you know a person very well can you be certain which sort of inner feeling is the cause of action, and I prefer to think that most student behavior comes from the natural and healthy commitment that is so evident in the letters I have been reading."

We asked Dean Eisenberg about her own goals. "I have so many," she exclaimed. "It sounds like a cliché, but what I want to do is help improve the quality of the students' lives at MIT. I took this job partly because I was almost too comfortable in my previous one and partly because I wanted to help humanize this place. Learning should not—indeed, it cannot—stop in the classroom. And therefore students should have as rich and varied an experience as it is possible for older people to provide for them. The quality of learning at such an institution as this depends in great part upon what happens to students outside the classroom. These are terribly important years in human development. These are the years in which young people look behind their own familiar ways of life to decide what is important for themselves. Their goals should change and rechange as they examine themselves and their surroundings. Therefore what happens to them at MIT is truly vital to who they are to become. I am optimistic about young people today. And in this time of looking inside, I want to help give them as many chances to measure themselves as a place such as MIT can afford. That is very many in fact. I don't know if I can succeed in all that I want to do. I am enthusiastic about trying."

The Dean smiled. And we departed, feeling that if better deaning was to be done Dean Eisenberg would do it.

Bunnell Reports on Hyaline Membrane Disease Therapy

(Continued from page 1)

which part of his doctoral thesis is based, examined the best means of dispersing the synthetic lecithin in water and of spraying a fine fog into the lungs. The droplets of fog have to be precisely the correct size, he said. If the droplets are too large, the defense mechanisms of the lungs prevent their entrance, while if they are too small, the particles of fog evaporate before entering the alveoli.

Dr. Bunnell is part of an MIT-Harvard Medical School research team that includes Dr. Daniel C.

Shannon, director of the Pediatric Intensive Care Unit at Massachusetts General Hospital, and Professor Edward W. Merrill of MIT's Department of Chemical Engineering, who originated this research at MIT. Continuing research is being supported by the Armour Pharmaceutical Company.

Dr. Bunnell performed his experiments on newborn lambs, which are anatomically and physiologically much like human infants. He used a special ultrasonic generator, developed at

Draper Laboratory, to break a saltwater solution labeled with radioactive gallium into a mist of fine particles that could be kept within certain size limits.

Dr. Bunnell allowed the lambs to breathe the labeled saltwater mist. Then, using a special camera to measure traces of radioactivity in various parts of the lamb's body, Dr. Bunnell developed a technique to determine how deep into the lungs the various particles penetrated. By this means he determined the optimum particle size of the mist and how it should be administered in therapy.

So far, all therapy concerned with hyaline membrane disease of premature infants, including that developed by Dr. Bunnell, has been designed to keep the infant alive until his lungs start producing natural lecithin, which may take several weeks.

In the therapy most successful to date, a tube is placed in the trachea, the major air passage to the lungs, and pressure is applied continuously to the lungs to inflate them. However, the mortality rate using this therapy is still high and an alternative therapy is needed.

Dr. Bunnell will continue his work as a Research Fellow in the Massachusetts General Hospital Children's Service, while holding a teaching appointment in the Department of Chemical Engineering at MIT. The research team hopes to soon obtain federal Food and Drug Administration clearance to use the therapy in humans.

In addition to its use for infants, Dr. Bunnell said, the therapy could be used in adults who develop hyaline membrane disease after smoke inhalation or exposure to noxious gases. The technique may also be useful for delivering other medication to the lungs, he added.

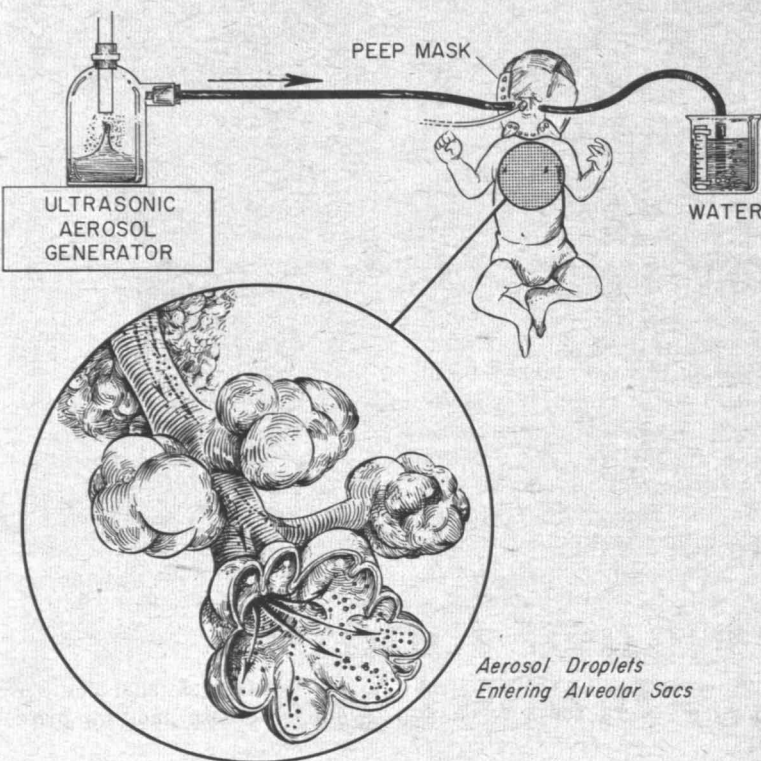


Diagram shows how the lecithin dispersion technique is applied.

Expanded Information Hours Are a Success

With the help of a four-member student staff the Information Center in Room 7-111 has extended its operation to the evening hours, weekends and holidays for the past two months.

The Information Center's extended hours have replaced the desk near the main entrance which was "temporarily" installed during World War II. The removal of the desk has caused no apparent problems.

According to Miss Mary L. Morrissey, administrative assistant for information, "By keeping the Information Center open in the evenings we have been able to respond to more general inquiries from the public. For example, there is always an ample supply of publications available for visitors to browse through. This kind of service wasn't possible before." Nancy Olson, a Wellesley freshman in art history from Springfield, Virginia is one of the four students manning the Information Center during the extended hours. She enjoys her new job and says that she likes to be able to help people.

Most of the inquiries Nancy handles deal with locating people's telephone numbers. The Information Center has a card for each student with his address and telephone number for easy reference. Nancy hopes that returning students who change their address or telephone number will remember to change their card on file in the Information Center.

The new hours for the Information Center are, Monday through Friday 9am to 9pm, weekends and

holidays 10am to 9pm. The general information extension is 3-4795.

Telegrams and special delivery mail which arrive after hours will be held in the lobby of the Ford Building. Addressees will be notified by telephone and may either pick up the wire or letter or wait until the following day's regular mail delivery.

SIPB Offers Job Referral

The Student Information Processing Board (SIPB) has announced expansion of its operation to include a job referral service for students and members of the MIT community who are seeking jobs in or have openings in the fields of programming, consulting and digital hardware.

According to SIPB Chairman Christopher Tavares of Warren, Rhode Island, an expected increase in SIPB membership levels is making this service feasible. The referral service is being offered in conjunction with the Undergraduate Research Opportunities Program (UROP which will share the job opportunity files with SIPB.

Mr. Tavares says, "We hope that this service will provide still another alternative for students seeking jobs in computer related fields and we would urge people offering such jobs to make their needs known to the Board."

SIPB is located in Room 39-200 on Ext. 3-7788.

TECH TALK
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Please address all news and comment to the editorial office, Room 5-111, Ext. 3-3277.

Ho To GAMIT Gives Overall Picture of Life in the Institute



Students negotiate a sale with Mrs. Licklider while Mrs. Murphy, in background, takes a call.

—Photo by Margo Foote

Furniture Exchange Anticipates Busy Fall

The MIT Student Furniture Exchange anticipates a busy next few weeks with the arrival of students for the fall term.

Located in a warehouse at 25 Windsor Street, the Exchange serves as the marketplace for a variety of furnishings and household items. Students and short term visitors may look through a wide range of offerings, from \$25 bureaus and \$1.50 chairs to a "standard family size" washboard.

"You name it and we've got it," says Mrs. Netta Murphy, manager of the Exchange. "We buy practically anything." Most stock is bought from departing students but the Exchange will buy usable household goods from anyone in the community.

"We try to give the students at least two-thirds of what they paid for an item," Mrs. Murphy says. Sometimes students can even realize a profit if they have made substantial improvements on a piece of furniture.

Although antiques have been discovered at the Exchange, Mrs. Murphy says that all items are "priced according to what we

think students can afford." Many items, such as the washboard, are given away for the asking.

The Exchange is a non-profit organization operated by volunteer members of the MIT Matrons. It began in 1958 as an outgrowth of a program sponsored by the Matrons to help foreign faculty wives find housing. The Matron volunteers were shocked at the expense of short term housing and furnishings, so they started the Furniture Exchange to serve the community.

The Exchange is open year round Tuesdays and Thursdays from 10am to 2pm. For the next three weeks Mrs. Murphy hopes to have enough volunteers to keep the Exchange open Tuesdays through Fridays from 10 to 2.

Tuition Increases for '73

(Continued from page 1)

have exceeded operating income by some \$2 million a year for each of the past three years, a financial experience common to most colleges and universities in the United States in recent years. A

When freshmen and other newcomers to the community begin arriving soon, many of them will receive—among a host of brochures, guides and maps—the fourth edition of a publication called HoToGAMIT.

HoToGAMIT, called by many simply "GAMIT" stands for How To Get Around MIT. Designed originally for undergraduates, GAMIT has grown into a fairly complete survival manual for anyone at the Institute and, in fact, provides a comprehensive introduction to the greater Boston area.

"This book is information. It won't teach you calculus, get you a meal at 3am, or prevent your car from being stolen. But it can tell you how," Alan Wu, editor for Edition 4, writes in the foreword. Wu, a senior in electrical engineering from Melrose, estimates that he has spent "about two-thirds of the summer, more time than I intended to" in getting out the book.

Each edition produced so far has become more comprehensive than its predecessor. Edition 4 has absorbed the "Family Guide to MIT," formerly published by the Technology Matrons. Earlier editions had assimilated "The Guide to Graduate Life" and "The Social Beaver," a compendium listing area sightseeing trips, cultural facilities, restaurants, radio stations and MIT extracurricular activities.

Much of HoToGAMIT's charm lies in its conversational tone. For example, in describing the piercing of ears:

"You can have your ears pierced at the Medical Department. The price is \$8 for the first ear, the second one free. Reason: "The small plastic cylinders put in the ear to keep the hole from closing only come in pairs."

This is followed by one of

hundreds of quotes which enliven the book:

"I'm not sure what you mean by that, but I doubt it."

—6.544 lecturer

In describing travel and transportation, GAMIT notes:

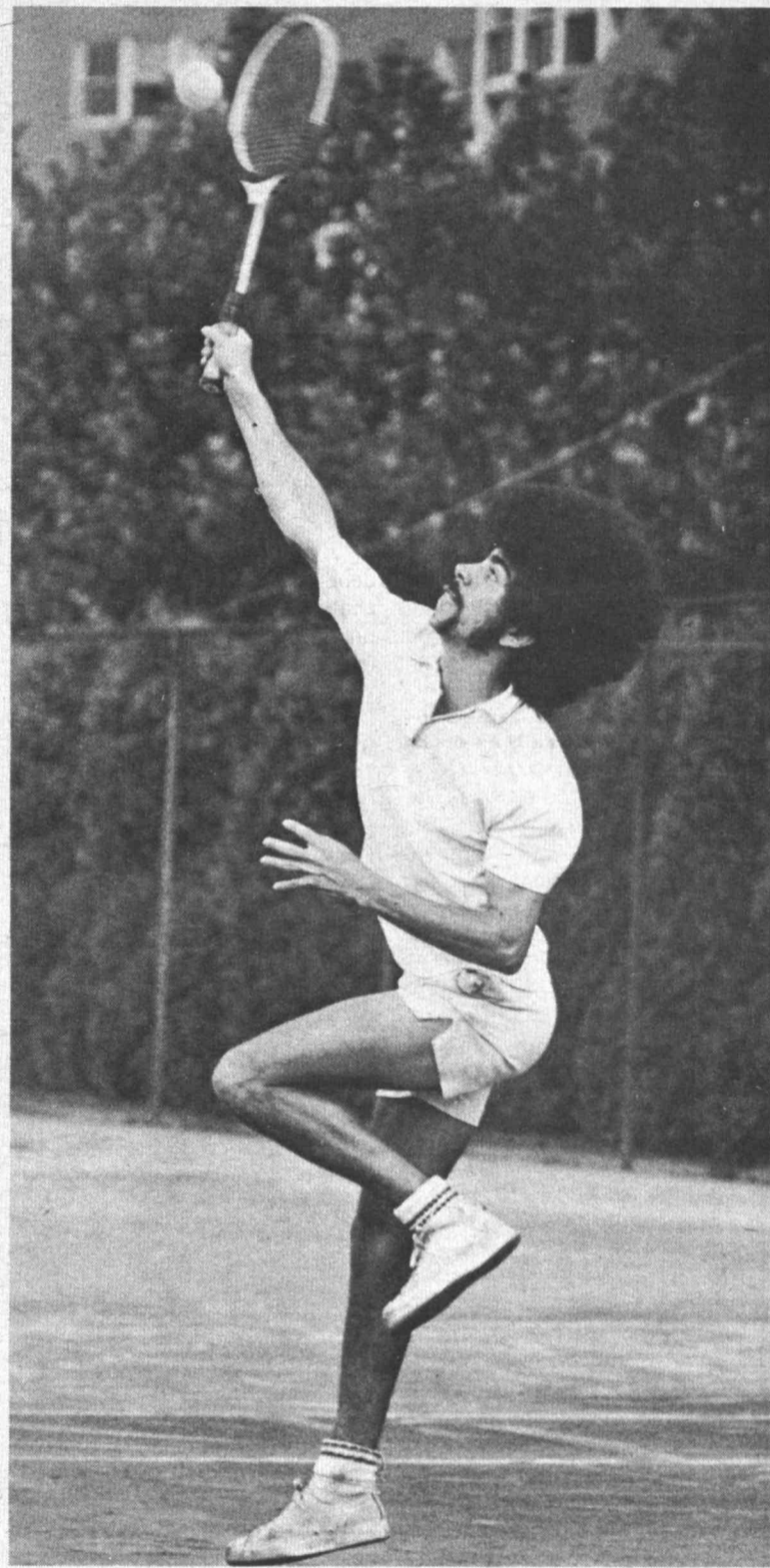
"Most streets are not clearly marked. Main streets are almost never marked; you can go out of your mind learning the names of every tiny side street without ever finding out what highway you are on."

There are half-a-dozen maps in GAMIT, one of which is unique. Wu discovered that the MBTA has not yet had a map printed showing the rapid transit extension to Quincy, so he drew one in himself. Another map shows the amount of

land fill in the Charles River basin.

HoToGAMIT also includes four feedback sheets in the front of the book. Wu hopes readers will use them to supply additional information, or make corrections for future editions.

GAMIT is published by the Technology Community Association (TCA). Copies will be distributed to freshmen through TCA. New graduate students may receive them through the Graduate Student Council. The Technology Matrons will distribute GAMIT to new members of the faculty and staff. However, HoToGAMIT is available to all members of the community, including parents. Copies are available for \$1 each in the TCA Office in the Student Center (Room W20-450).



Tommy Freeman reaches for a shot during the ATA tournament held here last week.

—Photo by Margo Foote

Tennis Courts Re-Open after ATA Tournament

The duPont Tennis Courts and the J.B. Carr Indoor Tennis Courts are open to members of the community again following American Tennis Association (ATA) play here last week.

MIT hosted most of the semifinals and finals in which Horace Reid beat out the more experienced Arthur Carrington for the ATA's 1972 National Tournament title. There were more than 400 participants in the tournament from all over the country. Other

segments of the tournament were played at Harvard and Boston College tennis facilities.

"Everything went very well," said James C. Allison, assistant to the President and Chancellor for minority affairs. "Everybody really enjoyed it," he said, "they even want to come back next year."

The ATA tournament was formally hosted by the Sportsmen's Tennis Club of Boston, a non-profit organization formed in 1961.

Tuition Increase Has Little Effect on MIT Student Aid

How will tuition increase affect the average student aid package of MIT undergraduates? As little as possible, according to Leonard V. Gallagher, associate director of Student Financial Aid.

Technology Loan Fund, which has been making loans to MIT students for 40 years, will undergo two modifications this fall, Mr. Gallagher said. "The first will be to alter loan terms slightly so our loans to students take advantage of the benefits of the Federally Insured Loan Program. The second will be to change the rate of repayment from a flat rate based on the starting median salary of MIT graduates, to a sliding rate related to expected increasing income in the years after college."

This means, Mr. Gallagher said, that a student will begin repaying his loan from MIT at a lower rate and conclude payments at a higher rate when his income can be expected to have increased.

"We are also establishing a formal Loan Review Board," Mr. Gallagher added. "We recognize that the repayment rates are of necessity somewhat arbitrary. What the Board will do, in effect, is ensure that every student's repayment schedule can be tailored to his actual circumstances, providing for departures from the standard schedule on appeal. We also hope that the Review Board will act as a data-gathering device and enhance our knowledge of the income levels of MIT graduates."

The number of MIT undergraduates receiving financial aid is generally between 50 and 55 percent, and is at present at a level of 52 percent of the undergraduate body, according to Mr. Gallagher. Because the Institute does not wish to burden its students with excessive indebtedness after graduation, a limit on indebtedness is established each year. For the past three years this has been maintained, with few exceptions,

at \$1,000 a year, or a total of \$4,000 over the four years of college, he said.

"A typical student aid package begins with a loan and that can range from nothing to \$1,000," Mr. Gallagher explained. "We expect students receiving aid to earn \$500 during the summer. And we then add \$600 for a job at MIT during the term. This brings the package to a total of \$2,100, and if a student needs more than that to meet his total costs at MIT—after the expected contribution from his parents—the remainder is provided by scholarship aid."

Mr. Gallagher expects that the tuition increase may push the \$1,000 loan ceiling upward somewhat. "But we'll do everything possible to keep overall student indebtedness at the lowest possible level," he said. "In the long run, of course, we do believe that more scholarship aid, rather than ever greater loan funds, is the answer to rising educational costs."

THE INSTITUTE CALENDAR

August 30
through
September 8

Seminars and Lectures

Wednesday, September 6

Static and Dynamics of the Intermediate State in Superconductors*
Prof. L. Rinderer, University of Lausanne. Lecture and movie. National Magnet Lab Seminar. 4:15pm, NML 2nd Floor Conference Rm. Tea, coffee, 4pm.

Student Meetings

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

MIT Club Notes

Korean Alumni Association*
Lecture and discussion w/General Shin, director, Korean Army Research Center. Saturday, September 2, 4:30-7:30pm, Student Center Rm 407.

Chinese Students Club*†
Execom meeting. Thursday, September 7, 8pm, Student Center Rm 400.

Hobby Shop**
Open weekdays, 10am-4:30pm, duPont Gym basement. Fees: students \$6/term, community \$10/term. Call X3-4343.

Judo Club**
Every Monday, Wednesday, Friday, 5pm; every Saturday, 1pm. duPont Gym Exercise Rm. Beginners welcome.

Outing Club*
Every Monday, Thursday, 5pm, Student Center Rm 473.

MIT/DL Duplicate Bridge Club**
Every Tuesday, 6pm, Student Center Rm 491.

Rugby Club
Summer rugby. Every Tuesday and Thursday, 5pm, Briggs Field.

Nautical Association**
Basic Sailing Shore School, repeated every Wednesday throughout the summer, 5:15pm, Sailing Pavilion. Non-members welcome.

Science Fiction Society*
Every Friday, 5pm, Student Center Rm 421.

Chess Club**
Every Saturday and Sunday, 1:30-5:30pm, Student Center Rm 491.

Student Homophile League*
Meeting and mixer meets Fridays, 8pm, Odd Fellows Hall, 536 Mass Ave, Cambridge. For gay help (anonymous) at MIT, call the student gay tutor, 492-7871 anytime.

Social Events

Muddy Charles Pub**
Join your friends at the Muddy Charles Pub, 110 Walker, daily 11:30am-7:30pm. Call X3-2158.

Friday Afternoon Club**
Music, conversation and all the cold draft Budweiser you can drink. Every Friday, 6pm, the Thirsty Ear in Ashdown basement. Admission: men \$1, women 50 cents. Must be over 21.

Movies

Orchids and My Love and Home Sweet Home*†
Chinese Students Club. Mandarin double feature w/English subtitles. Saturday, September 2, 7pm, Kresge. Tickets: \$2 adults; \$1 members.

Music

Symphony Orchestra
Rehearsal, Tuesday, September 12, 7:30pm, Kresge. Open to all interested musicians. For more information, call Steve Umnes, X3-2083.

Theater and Shows

Kishore Kumar and Friends*
Sangam presents talented clown of films Kishore Kumar in musical show. Wednesday, August 30, 7:30pm, Kresge. Tickets: students, \$2, \$3, \$4; Sangam members, \$3, \$4, \$5; non-members, \$4, \$5, \$6. For reservations, call 491-0080 or 387-1659.

Dance

Folk Dance Club*
International folk dancing. Every Sunday, 7:30-11pm, Sala de Puerto Rico (exceptions to be posted).

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

Tech Squares*†
Western style square dancing. Every Tuesday, 8-11pm, Sala de Puerto Rico. Admission: \$1; first time free.

Folk Dance Club*
Every Thursday, 7:30-11pm, Sala de Puerto Rico.

Friday Afternoon Dance Break*
International folk dancing on the Kresge Oval, every Friday (weather permitting), 12:30-1:30pm.

Exhibitions

MIT Permanent Collection*
A selection of paintings from the Institute's permanent collection. Hayden Gallery, September 9 through October 1.

Hart Nautical Museum*
"Ocean Engineering Summer Laboratory Projects 1971 and 1972." Bldg 5, first floor.

Religious Services and Activities

Roman Catholic Mass*
Every Sunday, 10:30am, Chapel.

Divine Light Mission*
Discourses on the direct experience of Truth given by Guru Maharaj Ji. Every Monday, Wednesday, Friday, 7:30pm, Rm 1-132. Call 369-1603 (Concord).

Ananda Marga Yoga Society*
Group meditations. Every Tuesday, 5pm, Rm 14E-303. For information, call X3-3664.

Christian Bible Discussion Groups*
Every Thursday, 1pm, Rm 20B-031. Call Prof. Schimmel, X3-6739, or Ralph Burgess, X3-2415.

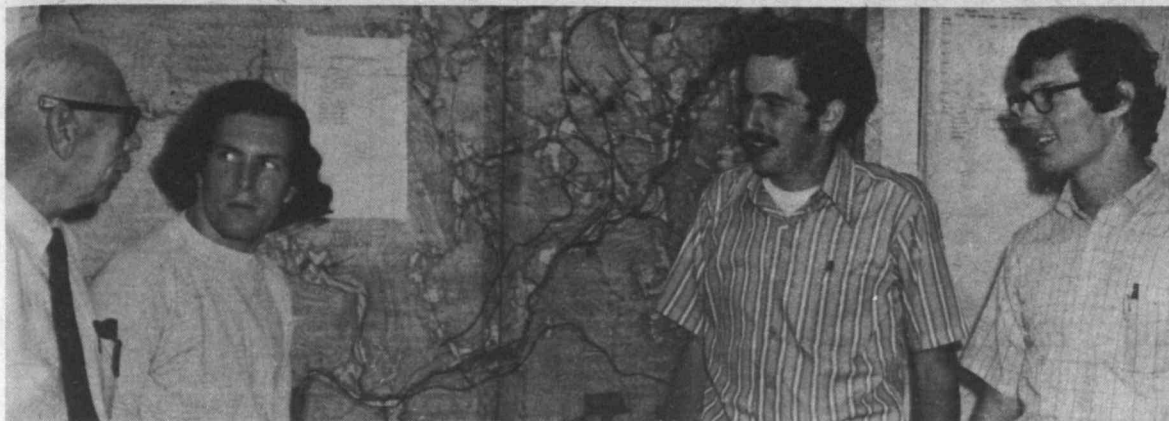
Islamic Society Prayers*
Every Friday, 12n, Student Center Rm 402.

*Open to the Public
**Open to the MIT Community Only
***Open to Members Only
†Freshmen encouraged to attend

Send notices for September 6 through September 15 to the Calendar Editor, Room 5-111, Ext. 3-3279, by noon Friday, September 1.

R/O Week Schedule

THURSDAY, AUGUST 31		3:30pm	Meeting for freshman women in McCormick Green Living Room
9am-10pm	Residence/Orientation Week registration in R/O Center	7 and 9:30pm	APO movie--The Three Stooges Go Around the World in a Daze, 50 cents, Rm 10-250
10am and 2pm	Tour of MIT campus from Admissions Office, Rm 3-108	8pm	Deadline for dormitory preference cards; bring them to R/O Center
7:30pm	Israeli folkdancing in T-Club Lounge, duPont Gym	8:30pm	BSU trip to last performance by Playhouse in the Park
FRIDAY, SEPTEMBER 1		TUESDAY, SEPTEMBER 5	
9am-10pm	Residence/Orientation Week registration in R/O Center	8am-5pm	ESG Open House in Rm 24-612
9am-10pm	Open House in all dormitories	8:30-11:45am	Calculus placement tests in Rm 2-102
9am-5pm	Experimental Studies Group (ESG) Open House in Rm 24-612.		Advanced placement tests are offered today; call X3-4788
9am	Breakfast for foreign students	9am-5pm	Hillel Open House, 312 Memorial Drive
10am and 2pm	Tour of MIT campus from Admissions Office, Rm 3-108	10am	Foreign students get-together in Student Center Mezzanine Lounge
10am-3pm	Hillel Office Open House, 312 Memorial Drive	10am	Tour of MIT athletic facilities leaves from R/O Center
12n	Tour of MIT from R/O Center	10am	Tour of the Freedom Trail leaves from R/O Center
4:30pm	Freshman Picnic in Great Court; bring picnic ticket	1pm	Group meetings with advisors, locations noted on assignment cards
7pm	Fraternity rush begins	2pm	8.01Z orientation meeting in Rm 3-270 for everyone interested; information, tentative assignments
7pm	Black Student Union (BSU) get-together in BSU Lounge, Walker	2pm	Hillel tour of Harvard leaves from 312 Memorial Drive
SATURDAY, SEPTEMBER 2		2-5pm	Freshman Project Year Open House in Rm 20C-117, free beer and pretzels
9am-10pm	Open House in all dormitories	3pm	Tour of Science Museum leaves from R/O Center
11am-3pm	ESG Open House in Rm 24-612	3-5pm	Applied Math Open House and tour of labs in Rm 2-345
1:30pm	BSU orientation meeting in BSU Lounge, Walker	4pm	Dormitory assignments are available in Sala de Puerto Rico
3pm	BSU Topographical Center trip, tour of Roxbury leaves from Student Center steps and East Campus desk	5pm	Tour of Museum of Fine Arts leaves from R/O Center (there is no admission charge on Tuesday evenings)
SUNDAY, SEPTEMBER 3		7pm	BSU discussion in BSU Lounge, Walker
7am	Earliest time a fraternity can extend bids to freshmen	7:30pm	Balkan folkdancing in Student Center Rm 493
9am-10pm	Open House in all dormitories	8pm	Squaredancing in Student Center Lobdell Dining Room
10am-4pm	Blood Drive--any person willing and able to donate blood is asked to come to R/O Center	WEDNESDAY, SEPTEMBER 6	
11am	Hillel brunch	8am-5pm	ESG Open House in Rm 24-612
11am-3pm	ESG Open House in Rm 24-612	8:30-11:45am	Calculus placement tests in Rm 2-102
12n	BSU lunch in McCormick Country Kitchen		Advanced placement exams are being given today; call X3-4788
7:30pm	Folkdancing in duPont Gym	9am-5pm	Individual meetings with advisors
MONDAY, SEPTEMBER 4		9am-5pm	Hillel Office Open House, 312 Memorial Drive
8am	Earliest time freshmen may pledge a fraternity	10am-12n	Core orientation in Kresge
9am-5pm	Hillel Open House, 312 Memorial Drive	10:30am	Transfer student meeting in Student Center Mezzanine Lounge
10am and 2pm	Tour of MIT from R/O Center	12n	Transfer student luncheon in Sala de Puerto Rico
10am-4pm	Blood Drive--any person willing and able to donate blood is asked to come to R/O Center		
11am	Hillel tour of Brookline leaves from 312 Memorial Drive		
11am-3pm	ESG Open House in Rm 24-612		
12n	BSU lunch in McCormick Country Kitchen		
1:30pm	Discussion of Medical Department facilities with Leslie O'Donnell, Kresge Little Theatre		
3pm	Tour of New England Aquarium from R/O Center		



Left to right: Professor Wilbur with students George Smith, Dan Greenbaum and Jim Osborn.

Citizen Participation the Key in Vermont Highway Study

Three MIT seniors under the direction of professor of engineering emeritus John Wilbur have completed an 11-week project studying traffic flow in Vermont's Ottauquechee valley using a novel participatory approach to highway planning.

The project, sponsored by the MIT Department of Civil Engineering and the Ottauquechee Regional Planning and Development Commission, and assisted by the Vermont State Highway Department, was a survey of existing traffic patterns on Route 4, the principal east-west thoroughfare in the valley, and of possible ways to improve future traffic flow.

However, rather than using the traditional approach to this type of highway planning—simply collecting physical and demographic data and selecting a single plan of development—the students emphasized the participation of local citizens in both the planning and selection stages.

"The students didn't go to Vermont to tell the people up there what they should do," explained Professor Peter S. Eagleson, head of MIT's Department of Civil Engineering, who initiated the department's association with the Ottauquechee Commission in 1969.

"Their goal was to use engineering and planning expertise to present clearly to the citizens of the area the environmental and social impacts of a wide variety of alternative solutions to the Route 4 traffic problem. In that way, the local residents could weigh the pros and cons of each alternative and select the one they liked best."

The three MIT students, Daniel S. Greenbaum, an urban studies and planning major from Port Chester, New York, James G. Osborn, of Aberdeen, Maryland, a double major in civil engineering and urban studies, and George F. Smith a civil engineering major from Bergenfield, New Jersey, used a variety of methods to involve local people in the project.

In addition to radio appearances, newspaper articles, and question and answer sessions with business organizations, village selectmen, and clubs throughout the towns in the valley, they worked closely with the Route 4 Study Committee, a nine-man group representing different in-

terests in the area.

"But the job wasn't just public relations," according to Professor Wilbur. "A large part of the project was careful engineering analysis.

The students had to determine many possible alternatives which could improve the traffic problem and compute their cost not only in dollars, but also in environmental and sociological impact. Only after these factors were known could they carry on a public information program."

While in Vermont for the project, the students lived at Talbot House, a gift of the Laurance Rockefellers to MIT, located near Woodstock, Vermont, and close to the center of the Ottauquechee watershed.

The watershed, a typical Vermont valley some 40 miles long and 20 miles wide, was once an important agricultural region, but the scenic old farmland is rapidly becoming a haven for recreational attractions and vacation homes. Route 4 runs through the center of the valley and is sometimes clogged with tourists and vacation travelers in addition to supporting the business traffic for the region.

The MIT student team explored four major alternatives to alleviate the existing traffic problem on Route 4 and to prevent similar problems in the future. These included minor improvements to the present road, particularly dangerous sections and busy in-town sections; an overall improvement program for the eastern two-thirds of the road to match the western third, which was improved several years ago; by-passes around the principal towns in the valley; and a major diversion program to re-route non-local traffic entirely outside the area.

In their considerations, the students analyzed ten separate possible by-passes for Woodstock. Because the valley is so narrow, however, and much of the flat land is taken up with residential and scenic areas, the group rejected five of the proposed routes. The remaining five they labeled "worthy of serious consideration."

In their final report on the project the students avoided any strong recommendation for a single alternative.

"Although many of the Ottauquechee residents favor a com-

plete re-routing of the traffic out of the area, that would be both difficult and expensive. Our group consensus was in favor of a general improvement of the existing routes," Professor Wilbur said. The students expressed that view in their report, but the decision is in the hands of the citizens of the area.

This is the second year that MIT students have worked on regional planning in the Ottauquechee watershed. Last summer three civil engineering majors worked with the staff of the Ottauquechee Commission and did individual research projects under Dr. Wilbur.

Candidates Still Sought for Woman's Position

Women candidates from within the Institute are still being sought for the new position of Special Assistant to the President and Chancellor concerned with the status of women at MIT, according to John M. Wynne, vice president for administration and personnel.

Creation of this position was announced by Chancellor Paul E. Gray earlier this month. (See *Tech Talk*, August 2, 1972.)

In general, the Special Assistant will provide perspectives, advice and recommendations on issues which affect women at MIT. Her immediate responsibilities will include matters of employment, development, promotion, compen-

Duggan Gets New Position in Libraries

William J. Duggan will join the MIT Libraries in the newly created position of Assistant Director for Business Operations on September 6.

Mr. Duggan has been with the Institute since 1961 and was appointed assistant Comptroller in 1971. In his new post in the Libraries he will be responsible for financial control and purchasing procedures of the library system. He will also be in charge of all aspects of the budget and payrolls.

Mr. Duggan received his bachelor's degree in 1953 and his masters degree in business administration in 1971 from Boston College. He came to MIT after three years as Controller of Philco Distributors. For ten years Mr. Duggan served as director of the MIT Comptrollers Data Processing function where his responsibilities included the design, programming and operation of computer systems for many accounting applications at the Institute.

Host Families Needed for Hospitality Effort

The Host Family Program, a special facet of MIT's overall hospitality effort for foreign students, needs several more volunteers to serve as host families.

According to Mrs. Barbara Durland, coordinator of the program and new administrative assistant for the Technology Matrons, some 175 host families have been located, but more are needed. She says, "Using mainly alumni and staff families, the program tries to provide an American family for as

many foreign students as possible.

"The relationship between family and student begins with correspondence, paving the way for the student's arrival in this country," she continues. "The host family usually meets the arriving student and, by sharing family activities, maintains a friendly interest in him throughout his stay."

Started in 1961, the Host Family Program provides an educational experience for both the host family and the foreign student. Many newcomers to this country take great interest in activities that are typically American, such as town meetings or PTA gatherings, but ordinary family doings are the backbone of the program. Each student, on the other hand, can offer a close glimpse of life in his native land to his host family.

In the past the Host Family Program has been coordinated by the Foreign Student Office. This year, however, the Technology Matrons are operating their office on a full-time basis and have assumed responsibility for organizing the program. To meet this new responsibility, Mrs. Durland, wife of Robert Durland of purchasing, has succeeded Mrs. Joan Stockard in the Matron's office.

Mrs. Stockard, who worked in the Matron's office for more than ten years, received the master of library science degree from Simmons College in June and has accepted a job as professional librarian at Wellesley College.

Anyone in the community interested in volunteering as a host family to one or more foreign students is urged to call Mrs. Durland on Ext. 3-3656 or visit her in Room 10-342. She has brochures describing various activities and how they aid newcomers on everything from housing and the Student Furniture Exchange to English classes for wives.



Mrs. Barbara Durland.



NO DOUBLE EXPOSURE—Just lots of reflections as dog meets revolving door. Photographer Margo Foote came across this dog at the Center for Advanced Engineering Study. The dog seems, in fact, to understand the engineering principles behind revolving doors because, not satisfied with merely entering the building, he took a couple of spins before coming out again.

Dean's Office Names Ellison

(Continued from page 1)

who chose an experimental program and those in the regular curriculum. During the spring semester, she also taught a philosophy seminar to freshmen and sophomores in an ERC experimental program.

Before coming to MIT, Mrs. Ellison was a lecturer in psychology at the University of New Brunswick.

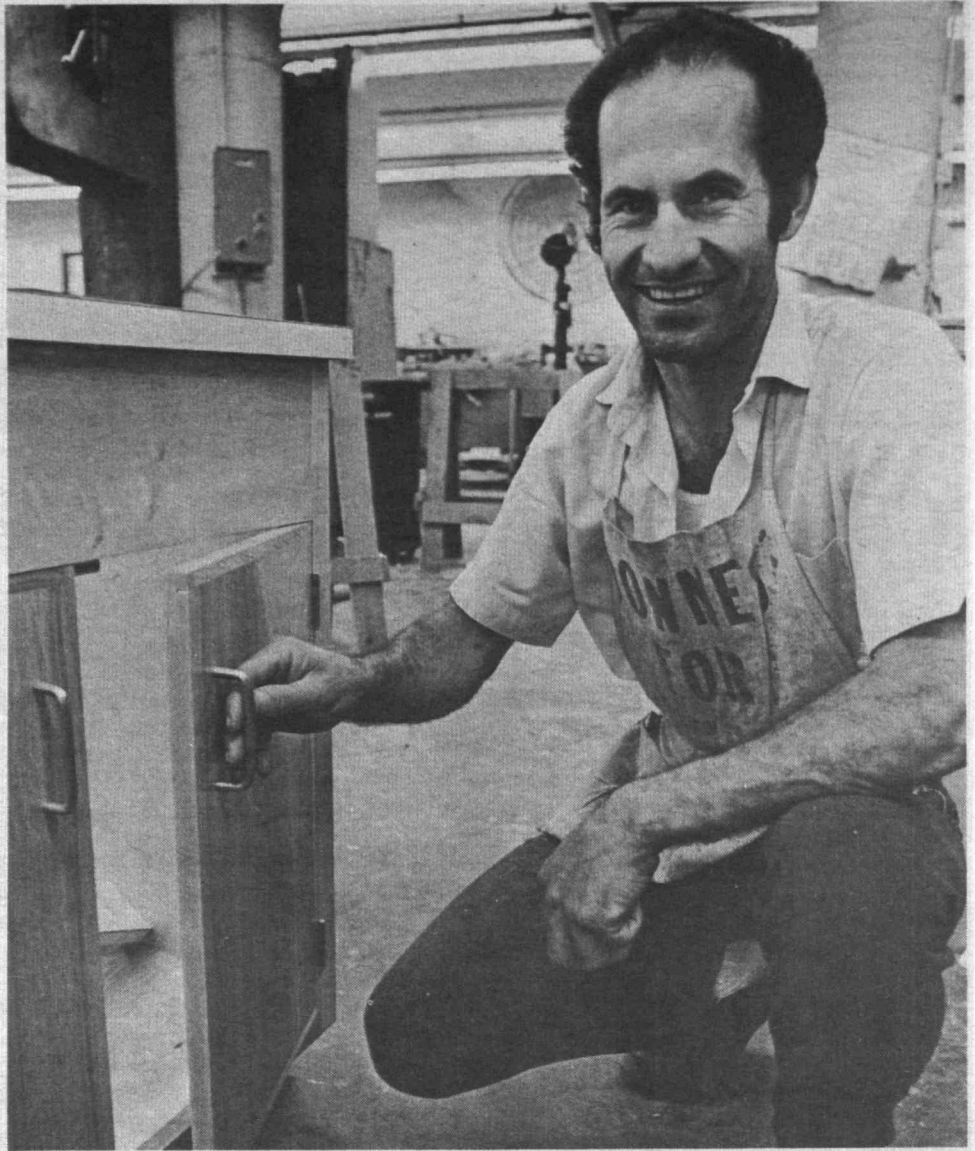
This past spring she presented a

colloquium at Wellesley College based on her research at ERC. In July she and Dr. Bennett Simon, a consultant to ERC, presented a paper entitled "Does College Make a Person Healthy and Wise: A Social Psychiatric Overview of Educational Research" before the panel on higher education of the National Academy of Science at Woods Hole.

Dean Ellison will have an office in Room 5-104, Ext. 3-4861.



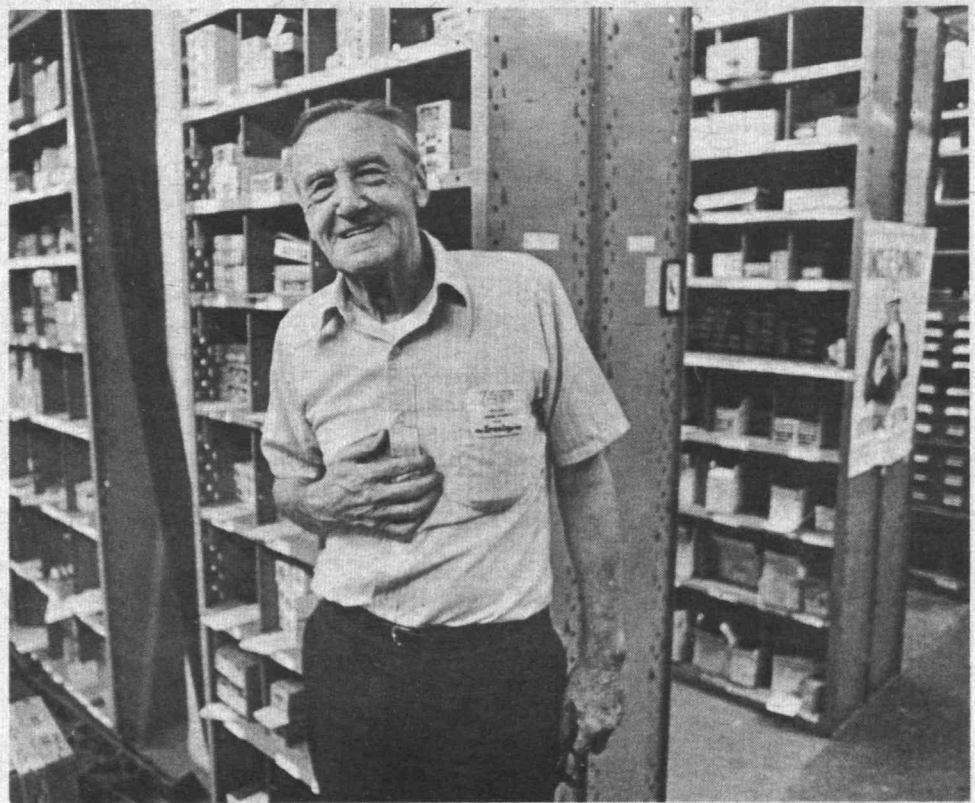
locksmiths Terry McCarthy and Charlie Emerson with general foreman Charlie Ellis...



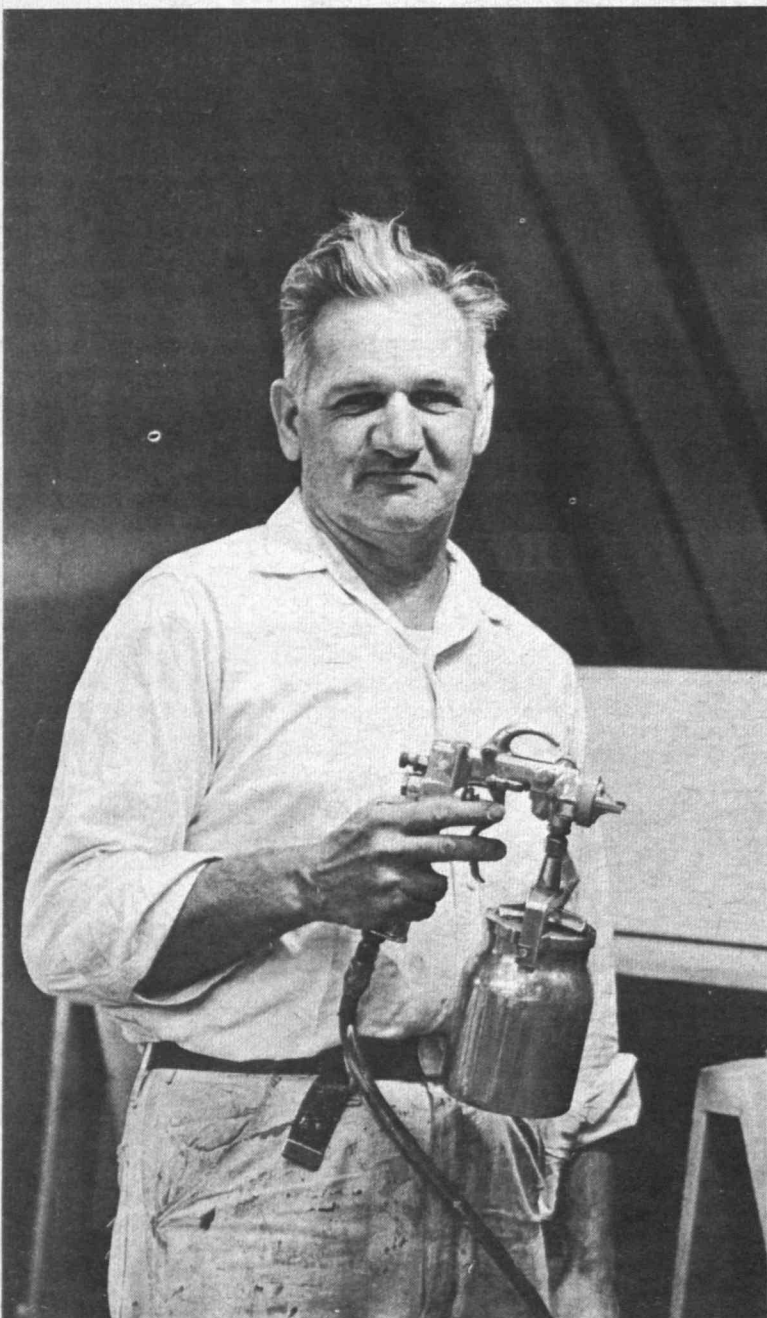
cabinetmaker Luigi Tracanna...

A Walk Through the Shops

in the Ford Building last Friday revealed these craftsmen who were willing to pose for informal portraits by Marc PoKempner...



storekeeper Eddie Perkins...



painter Al Harris...



pipefitters Bill Vanderpot and Leo Webb.

Lincoln Lab Uses Lasers in Monitoring Air Pollution

Although the narrow, monochromatic light beam of a laser seems to have a multitude of uses, lasers have been slow in living up to early expectations—a fact that has prompted some to call the laser a solution in search of a problem.

Now researchers at MIT's Lincoln Laboratory are investigating a very important problem: the identification and measurement of atmospheric pollutants.

Drs. E. David Hinkley and H. Alan Pike, both in Lincoln's Optics Division, are using a tiny laser to measure experimentally how much sulfur dioxide and particulate matter are present in smokestack gases. This work is being supported by the Environmental Protection Agency.

The Lincoln research takes advantage of the fact that each atmospheric pollutant has an optical fingerprint that distinguishes it from all other pollutants. For example, sulfur dioxide, a particularly nasty pollutant because it combines with water to form sulfuric acid, strongly absorbs light with a wavelength of 8.9 microns.

The laser is an ideal tool for optical fingerprint detection. For

one thing, the light it produces is monochromatic, or of one wavelength. Another characteristic of the laser is that the light it produces can be collimated to remain in a tight, thin beam over considerable distances.

These characteristics allow the Lincoln researchers to measure the amount of sulfur dioxide in a smoke stack without having to place a sensing device within the stack itself. They shine the laser light through a viewing port in the stack, allow the beam to bounce off a retro-reflector and return through the stack to a detector near the laser. When they measure the returning light, they find its intensity has diminished. Part of this reduction is caused by the absorption of the light by the sulfur dioxide gas. Part of the light is prevented from returning, however, because smokestack gas contains particulate matter—it is dusty.

To determine how much of the reduction is caused by each of the pollutants, the Lincoln researchers increase the current through the laser. This shifts very slightly, the wavelength of light emitted—just enough to prevent any light from being absorbed by the sulfur dioxide, or any other stack pollutants. The reduction in intensity of light at the shifted wavelength is therefore an indication of the particulate concentration in the stack. A special electronics system based on a ratio of the two readings then determines the concentration of sulfur dioxide and particulates in the stack gas.

The laser that makes this all possible, called a semiconductor diode laser, is tiny—only one millimeter long—and is made of the exact mixture of lead-telluride and tin-telluride that allows it to emit light of the required wavelength. The semiconductor lasers

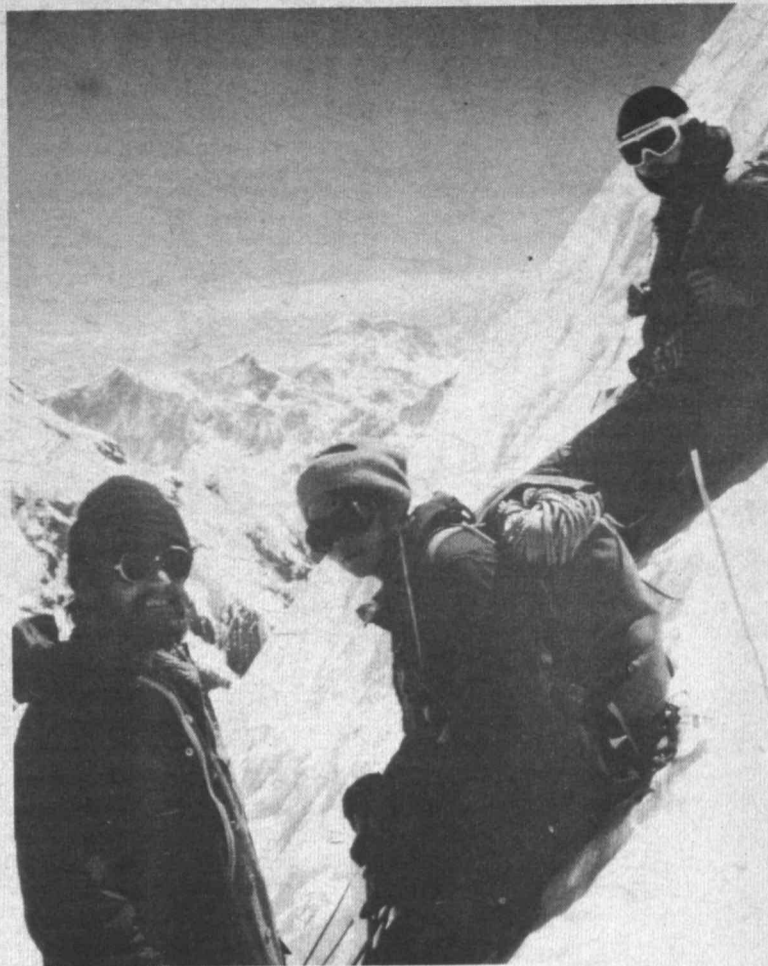
are produced at Lincoln Laboratory's Solid State Division, using techniques developed by Ted C. Harman and Arthur R. Calawa. The minute lasers must be operated at extremely low temperatures, cooled by liquid helium.

Each laser consists of two halves, one of which readily gives up electrons, while the other, with "holes" where electrons are missing in the crystal, readily accepts electrons. When a current is passed through the laser, electrons are injected across the junction, and as they fall into the holes they emit light. This curtain of light produced at the junction bounces back and forth within the laser, from one reflecting end to the other, stimulating other electrons to emit light, and finally resulting in the burst of emission known as lasing.

The light produced by this type of laser is extremely weak, well below the threshold that could damage eyes. Thus, there is no danger to passersby, for example, when the Lincoln researchers use this pollution detection device over long distances.

In one experiment Drs. Hinkley and Pike are measuring the level of an automobile pollutant, ethylene, in the Lincoln Laboratory parking lot as people start their cars to leave for home. Again using a reflector to bounce the beam back to them, for a total beam length of about a quarter of a mile, they can measure the average amount of this pollutant in the whole parking lot, at concentrations as low as one part per million.

The recent development at Lincoln Laboratory of semiconductor lasers that emit light strongly absorbed by carbon monoxide and nitric oxide indicates that these pollutants, as well as others, can be effectively monitored using semiconductor laser techniques.



MIT Students Tackled the Andes of Peru

Three MIT students pause to be photographed during their ascent of the 20,423 foot Chinchey peak of the Cordillera Blanca, of Peru. The students who spent several weeks climbing in the Andes are from left to right Leo Van Swan, a graduate student in metallurgy and materials science from Njmegn, Netherlands, Edmond Lee, a graduate student in mathematics from Cambridge and Tim Ryan, a graduate student in

aeronautics and astronautics from Detroit, Michigan. The three students were accompanied by Joseph Weis, a Division of Sponsored Research staff member at the Center for Theoretical Physics. On Thursday, September 14 at 6:00pm there will be a slide show featuring pictures of the expedition and general pictures of Peru. The place of the showing will be announced in the Calendar.

Information Available

The following materials are available for general distribution in the Information Center, Room 7-111:

Fall 1972 directories for the MIT Undergraduate Research Opportunities Program.

"Introducing MIT 1971-1972."

A brochure describing the Advanced Study Program of the Center for Advanced Engineering Study.

Additional information dealing with the MIT Commission on Education including: "Knowledge & Values" by Thomas Kuhn; written comments by Thomas B. King, Rene H. Miller, Hartley Rogers, Jr., Hermann A. Haus, Alfred H. Keil and Henry H. Kolm; and reports made to the Commission by working groups on the format of undergraduate education, academic research policy and the judicial process.

MIT Libraries Join Information Network

The MIT Libraries have joined the New England Library Information Network (NELINET) as a sustaining member.

NELINET is a subsidiary of the New England Board of Higher Education promoting regional cooperation in sharing new but

costly resources, particularly in the field of computer applications. The NELINET libraries are working together in the coordinated acquisition and joint use of various kinds of research materials, including the use of teletypewriter and other communications facilities for interlibrary services.

Freshmen to Undergo Orientation Program

(Continued from page 1) them. By the end of R/O Week, each freshman will have made two important decisions—where to live and what to study during the first term at MIT.

In a recent letter to all new freshmen, the Residence/Orientation Committee outlined the many events of R/O Week. Arrival is, of course, the freshmen's first concern. Those coming by airplane will find an airport shuttle at Logan to deliver them to MIT. On arrival, each freshman must register at the R/O Center and receive a temporary housing assignment. Friday evening will feature the traditional Freshman Picnic on the Great Court.

On housing, the R/O Committee says: "The period from Friday, September 1, through Tuesday, September 5, is loosely called Residence Week. Housing is unique at MIT—fraternities aren't the party-every-night, hell-raising type. Dormitories aren't the dark, isolated room, every-man-for-himself type. We believe there are many living groups you'd fit into, so don't look for a 'one and only' place."

Adding something new to R/O Week, the Committee has organized a Core Orientation meeting for Wednesday, September 6. Professors will describe all the chemistry, math, and physics options as well as special programs. Wednesday afternoon will feature the Electives Midway where freshmen will get first hand informa-

tion on the many electives and special programs available to them.

R/O Week is not limited exclusively to residence and academic matters. The Committee says: "We sprinkled the schedule with tours, discussions, a coffee-house, social activities and special interest meetings—Black Student Union, Hillel Society, Foreign Student Organization, Selective Service, etc." (See the complete R/O schedule on page 4.)

In closing their letter to freshmen, the R/O Committee says: "We'll give you a little more advice. Come to MIT with tentative intentions of academic plan and living group choice. When you arrive, relax. People here are geared to help you—don't wander around with unsolved problems. We want you to learn a lot and enjoy the week."

Obituary

Robert H. O'Neil

Robert H. O'Neil, 72, of Cambridge, a former Physical Plant custodian, died in Arlington on Friday, August 25.

Mr. O'Neil joined the Institute in 1947 and retired in July 1970.

He leaves his wife, the former Mary Connolly, and a daughter, Mrs. John Eisenmann of Hingham. Funeral services were held yesterday at St. Agnes Church in Arlington.



NEW OFFICERS—Officers for 1972-73 of the Cambridge Business and Professional Women's Club are (L to R): Treasurer, Jean Gross of the MIT Payroll Office; Corresponding Secretary, Norma Loomis of the MIT Medical Department; President, Rose-Claire Levine of Massachusetts General Hospital; Second Vice President, Pauline Boulard of the MIT Accounting Office; and First Vice President, Patricia Moulton of the MIT Division of Sponsored

Research. Recording Secretary Margaret Norton of the MIT Electronic Systems Laboratory was not present for the picture. The Cambridge BPW will hold an open meeting Wednesday, September 6 at the MIT Faculty Club. The Social Hour will begin at 5:30pm, with dinner at 6pm. Business and professional women at MIT who would like to attend are invited to make reservations by calling Patricia Carey, Ext. 3-3134.

—Photo by Margo Foote

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 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. The deadline is noon Friday.

For Sale, Etc.

Porsche parts and repair manual for 912. Jim, X3-2396.

Wood burning parlor stove, exc cond, \$35, delivery possible. Dolbeck, X282 Linc.

Lg steel desk, \$20; wal chr, \$5; 2 baby car seats, \$2 ea. Hamada, X3-2667.

Teac 6010 tape deck, list \$800, asking \$600. David Krackhardt, X3-6683.

Brother straight stitch sew mach, many attachs, very versatile, gd for beginner, \$40 or best. Ann, X3-3637.

Old fash treadle sew mach, legs & bottom, blk iron, gd for cof tbl base, \$10. X3-4561.

Teac 4010 SL tape deck, 1 mo old, \$400 or best; Brother elec calculator, mod 408 w/pwr pack, lk new, \$110 or best; hard case for acoustic guitar, \$15. Dorm X9395.

Antique chest, \$30 or best. Hong Yung, X3-2380.

Mod sofa bed; round K tbl w/4 match chrs; 6' wal desk top. Ann Diran, X3-4430.

Smith Corona port typwr, perf cond, \$45. Susan, 666-9253.

Philco 19" TV, UHF/VHF, \$45; 2 spd, 18" fan, \$10; clock/light/AM/FM radio, \$25; toaster, \$5; waffle iron, \$8; steam iron, \$3. Bob, X3-6759.

Metal wardrobe, \$15; match pr drapes & pr bed springs, twin, \$20; 21" b/w TV, \$15; 12x12 maroon carpet, \$25; fldng bed, \$15. Arun, X3-7425.

Queen sz bed, \$25; Imp & desk, best offer. Watanabe, X3-1637.

RCA color TV, new 21" tube, exc cond, \$50 or best. Del, X8-1392 Draper.

Zenith TV, 20", \$30. Ricardo, X3-2553.

Fender Mustang guitar, used, exc cond hand shell case, \$100 or best. Ed, X3-6124.

Smith Corona port, man, 10" typwr, \$35. X3-4223.

Photo equipment, Hexacon 35mm SLR w/case, Astralux 66/35 enlarg, 75mm lens, 3/4 & 35mm neg car; Kindermann 16 oz stainless steel tank w/2 35mm reels & 1 120 reel; new lgt wght alum tripod; elec flash & safe light, \$100. X8-4488 Draper.

Treadle Singer sewing mach. Mary, X3-5527.

Sofabed, 2 chrs, 3 tbls, 2 Imps, beige carpet, cheap. Carol, X3-4710.

Formica dinette set, 5 chrs, extra leaf, gd cond, \$20. Mary, X3-6304.

Dinette set, \$18; wardrobe, 3x2 1/2 x 5', \$15. Niles, X3-1822.

Crib, high chr, bassinet, infant seat, all gd cond. X5326 Linc.

Depth sounder, Heathkit 0-200 ft, exc cond, \$70; fly fishing outfit, Garcia fly rod, Pflueger reel, scientific anglers line, exc cond, \$35. Delaney, X691 Linc.

Bed frame & matt, 39", used 6 mos, \$40. S. Lazo, X3-5961 after 9/1.

New ww tires, 5.60x13, 5, gd for Datsun, Toyota, Opel, \$14 ea. X3-5330.

Sgl bed w/matt, box spring, frame, \$25; dresser w/mirror, \$20; refrig, \$20. Tom, 628-5745 evgs.

Toolcraft belt flash disc bench sander w/1 hp motor & stand, used less than 15 hrs, was \$135, yours for \$95. X7427 Linc.

AM/FM stereo TV console, 23" b/w, \$100 or best; fl size hid-a-bed couch, \$35; desk, chr & Imp, \$45; end tbls, \$3 ea; approx 70 pc, stainless tblware, \$20; twin bed & matt, \$25. Gayle, X8-4561 Draper.

Polaroid Swinger cam w/3 rolls film, \$10; 4 fiberglass curtains, 72" long, \$8; snow shovel, \$2. Joe, X3-7075.

GE port 17" TV, nds repair, \$20; 6 Kensington 12 oz alum glasses, \$1.50; soccer shoes, sz 7, \$1.50. Wanted: music cabinet. Drouilhet, X401 Linc.

Misc furn: 2 sgl beds, \$25 ea; match dresser, hutch & bkcase, \$50; cof tbl, 2 end tbls, \$15; K tbl, \$15 or best offers. Kal, X8-3333 Draper.

Furn & kit utensils. X3-4894.

Hallicrafters SX-62A, gen cover radio receiv, 0.54-109 mhz, AM/FM/CW, new tubes, gd cond, \$125. Stan, X3-4288.

Wedding gown, orig \$500 now \$300; 2 fl lngth gwns, hot pink, lt pink, 16, \$15 ea; Presto broil/oven nvr used, \$18. John Palmieni, X8-4095 Draper.

Reclining chr, grn, gd cond, \$20; elec blanket for sgl bed, 9 setting control, \$5. Carrie X3-3703.

Minolta cam, brand new, warr, 50% off; Rokor wide angle lens; Wanted: bike. Jan, X3-7828.

Handmade oak dbl bed, \$75; comb desk-bureau, \$25; both in exc cond. X3-6717.

Salton hot trays; GE can opener; Kenmore elec broom; 24" elec fan; dual burner hot plate; Lady Sunbeam elec curlers; bath cab; colonial braid rug, 8 1/2 x 11 oval; couch; free; best or trade for hnd lawnmower, shop tools or sgl bed. Kathy, X8-1584 Draper.

Sofa, v gd cond, \$65 or best. Ashok, X3-6904.

Dbl bed, solid, gd cond, \$35; lg dresser & mirror, \$20. Bob, X3-6385.

Heathkit 10w, mono amp, \$5; almost new 6.00x14 tire, free; Mantel clock, 8 day, 1930's, works, \$12; Gibson air cond, 5000 BTU, was \$125, now \$75. Ron Gamble, X3-6712.

Argus slide viewer, \$12. Ted, X3-6237.

Wardrobe, \$8; metal desk, \$15; stereo, \$60. Jack, X3-6917.

GE stereo rcrd changer, \$10; flr Imp, \$6; hair dryer w/cap, \$2; Wanted: dead storage pking for Sept, Camb area, up to \$15 if safe. Alan, X3-6939.

Vehicles

'59 VW, v gd body, eng nds work, flowered int, '71 buckets, mag whls, 4 new tires, \$200 or best. Kathy, X3-4841.

'63 Ford sta wgn, new batt, gd tires, run cond, body gd, \$150. Maurice, X3-7007.

'63 Ply Valiant, bl, std, \$80. Barbie, X3-6153.

'63 VW sqback, blown eng, \$100. George, X8-1334 Draper.

'63 VW, new brs, rebld eng, radio, gd mech cond, \$175. Paul, X8-4004 Draper or X8-4511 Draper.

'64 Chevy Greenbriar camper, converts to pass or haul, \$500. Zvi, X3-3374.

'64 Dodge Polara convert, auto, p-st, R, gd working cond, new tires, \$220. Phoebe, X3-6276.

'64 Ford Custom 500, 4-dr, V-8, p-st & br, auto, new carb & batt, exhaust nds work, \$225. Call 494-2013 or 491-2128 evgs.

'64 Mercedes Benz 220S, mech perf cond, gd tires, some body work, \$500. X8-2461 Draper.

'64 Ply Sport Fury, auto, R, air cond, asking \$150. Jay Goldman, X3-7958.

'64 Rambler Classic, auto, 6 cyl, 61K, grn w/wht roof, nice body, new brs, v gd cond, \$350. X8-9556 Draper.

'65 Chevy Malibu, red, 2-dr, V-8, auto, p-st, R, exc run cond, \$600 or best. Jim, X8-1270 Draper.

'66 Chevelle 4-dr, V-8, air cond, new brs, carb, shocks & tires. X7516 Linc.

'66 Opel Kadett, std, 4 spd, low mi, v gd mech cond, \$250. X3-7200.

'66 Ply Fury III, gd cond, 2-dr sedan, pwr st, auto, \$450 or best offer. Dan, X3-4620.

'66 Pontiac LeMans convert, 389 cu in eng, 4 spd, gd tires, low mi, v comfort for travel, \$550 or best offer. Jeff, X3-2596.

'67 Triumph Spitfire, nds some body work, \$600. Don, X5300 Linc.

'67 Volvo 122S, 2-dr, gd run cond, \$800; Bass wd chest, \$40; port stereo, \$25. Donna, X3-1962.

'67 VW fastback, sunrf, 45K, gd eng & tires, exc cond, lving country, avail 9/11, \$850, will haggle; clothes: shirts, pants, ties, shoes, cheap. Call 646-4956.

'69 Opel Kadett, 30K, exc cond, 1.9 eng, auto, tape deck, gd tires & snows. Lew, X8-1313 Draper.

'69 Peugeot 404, 4-dr sedan, auto, AM/FM, v gd cond. Mario, X3-5582 or 3-5520.

'70 American Rebel wgn, 34K, V-8, positrac, snows, \$1500. X277 Linc.

'71 Dodge Charger 500, 2-dr, V-8, std, R&H, best. Wayne Brooks, X3-6107.

'70 Triumph Tiger, 650cc w/chain & helmets, \$700, gd run cond. Keeney, X3-3602.

'70 Honda CB 175, low mi, 2 helmets, lock & chain, cloth rain cover. Karen Kinney, X3-5581.

'71 Honda CT70, red, v gd cond, must sell, best offer. Jim, X8-1572 Draper or X8-1503 Draper.

'72 Yamaha R-5 350cc street bike, exc cond, flat bars, gd handle, asking \$775. Paul, X211 Haystack.

New Kawasaki 90cc, exc cond, 250 mi, must sell. Ethel, X358 Linc.

Lightning class 14' sailboat, dacron sails, trailer, ready to go, in Concord Pt, Rye Beach, NH, \$395. Judy Donlan, X7423 Linc.

Tractor Intern'l 330, land plows & bucket loader, all hydraulic, p st, exc cond, \$2000. Dolbeck, X282 Linc.

Housing

Allston, Cambridge St, 4 BR, porches, pking, ht, \$250, direct bus to Harv & Cent Sq. Jeff Lee, X8-5181 Draper.

Back Bay, 3 BR, lg, gd cond, avail 9/1, \$330/mo incl ht. Edward Uchno, X3-2428.

Camb, sublet, 115 Mt Auburn nr Harv Sq, 1 BR, LR, K, B, \$170, avail now. Almeida, 868-7756 evgs.

West Medford, 7 rm, \$180/mo, avail 10/1. Ed Lindon, X3-3116.

West Som, 6 rm apt, cln, nr Tufts, v gd loc, references, adults only. Mary Voner, X8-3423 Draper.

Bedford, 4 BR hse, 2 fl B, eat-in K, LR, huge playrm, 3/4 wded acre in res area, lg fenced bkyd, \$500/mo + util. X3-2825.

Brkln, Chestnut Hill, 8 rm, 2 1/2 B, furn hse, finish play rm, & gar, \$500/mo unheated. Rhoda Goodwin, X3-5763.

Hingham-Cape Cod home, asking \$28,900, exc cond & neighborhood, 3 BR, frpl, LR, sep K w/dish, breezeway & gar, sewer connect. Steven Galanet, X8-3685 Draper.

Ros, JP line, brick twnhse, slate roof, 4 BR, frpl LR, DR, new eat-in K w/dish & disp, new gas ht, \$29,900. Gerry, X3-6115.

Animals

Std apricot poodle, m, 6 mos, gd watch dog, \$50. Pat, X3-4878.

F gray tiger kittens w/wh bib & feet, 3, 4 mos, symmetric markings. Louise, X3-6736.

Norwegian elk hound puppies, champ blood line, males. Kolm, X3-5554.

Free to gd home, blk & wht, f, puppy, 4 mo, mother shepherd, father mongrel collie, exc disposition and great w/kids. X8120 Bedford.

Lost and Found

Lost: MIT class ring, '71, gld, sz 7-7 1/2, name engraved on inside, 8/22 in Stud-Cent base, reward, no questions. Yue, X3-7107.

Lost: zipper make-up bag w/eidelweiss earrings & mirror, in Walker. X3-2210.

Wanted

Rmmate w/apt to share, grad stu, nr MIT, \$60-90/mo. Mason Chang, X3-4337 or 3-7535.

Daily ride, Rte 2A Acton or Rte 2 Concord, reg or irreg basis. Vickie, X3-3795.

Fourth fem rmmate for Harv Sq apt, \$80/mo. Kathy, X3-5659.

Use of or purchase of Canon Tock-tronic batt charger 20A or 10A. Kenneth Dobb, X3-3147.

Rmmate to share-lux 2 BR apt w/male grad stu, own rm, quiet, Cent Sq, \$125/mo, w-w, air cond, heat, grad stu or wrking person pref. Ron, Dorm X9879 after 6.

Porta crib baby bed. Michael Rehtin, X3-6918.

Fem rmmate by 2 males & 1 fem, Camb-Arl line on Mass Ave. Jerry McCafrey, X7580 Linc.

Flute, clarinet or sax in any cond. Larry, X7500 Linc.

Motor home to rent. Jerry, X3-6257.

Fem working person pref for lg, furn studio in dbl studio set-up, Bk Bay, 400 block Beacon St, share eat-in K & mod B, \$95/mo. Kathy, X3-4873.

Apt or house to sublet for Oct only, cpl w/child. Eugenia, X3-5935.

Apt, 6 rm, in Bedford area, 10/1. Carl, X5373 Linc.

Volunteer accurate typists to work on sex ed bklet for MIT stus. Mona Berch, X3-4485 or 3-4486 lv msg.

Apt, 2 BR, 9/1 or later. X3-5820.

Sgl male & cpl w/kids to share spacious Winchester home, \$100/sgl, \$200/cpl incl util, wl exchange rent reduction for day care of 5-yr-old. Dennis, 524-3966.

Ride to Billerica, nr Rte 3a, Mon & Wed nite, will pay, start 3rd wk in Sept, lv at 5. X3-3340.

Miscellaneous

Will give full care to children in my home daily, exc refs. Jerry, X7784 Linc.

Will do thesis or tech typing. Ann, X3-1713.

Will exchange Eastgate pkgng sticker for Kresge. Liz, X3-6808.

Positions Available

The Office of Personnel Relations is seeking individuals from within the Institute to fill the following openings:

Secretary III-IV for Associate Director of section of an administrative office. Much contact with alumni and Institute officers by phone and correspondence. Work relates to fund raising and development; secretary will maintain extensive records and files, handle some statistical work, compose letters, make travel arrangements, type on IBM MTST. Good typing, shorthand desirable, some college training, initiative, a flair for writing.

Secretary III-IV in an academic department for two groups of two professors. Both jobs involve student contact, technical typing of classroom information, quizzes, etc. One professor coordinates two departmental practice schools located out of state; the other professors are active researchers in environmental problems. Pleasant, flexible person needed to deal with variety of duties and numerous students and staff. No shorthand.

Secretary IV to a professor and colleagues in an engineering department. A one-secretary situation requires the talents of office experience and MIT familiarity with academic and accounting procedures. Will compose letters, arrange appointments, meetings and travel. There is a lot of contact with students and advisors. Shorthand would be helpful.

Biweekly, Ext. 3-4251

Accountant-The Student Accounts Office is seeking an individual to assume the following responsibilities: prepare reconciliation of various accounts in the SAR (Students Accounts Reporting) and Cashiering Systems; prepare adjusting and correcting entries to the above accounts and students accounts; maintain computer input/output controls for the SAR System; review accuracy of input/output data; prepare and instruct others on logging procedures. Applicants should have experience in the functions described above or be a graduate of at least a two year diploma program or school certificate in Accounting.

Richard E. Higham
Ext. 3-4278