

Medicine, Law Draw Students

Growing numbers of graduates from MIT are seeking careers in medicine and law, according to a former MIT dean of student affairs who has taken on the job of organizing formal programs to help undergraduates who choose medical or legal professions.

Professor J. Daniel Nyhart, himself an attorney as well as a professor in the Sloan School of Management, said 88 seniors out of this year's graduating class of 750 sought admission to medical schools while 92 took the law school admission test required for law school application.

Of those who applied to medical schools, he said, 68—or 77 percent—obtained admission. No comparable statistic is available for law schools, he said, but the impression is that the percentage who applied and were admitted is even higher than for medical school.

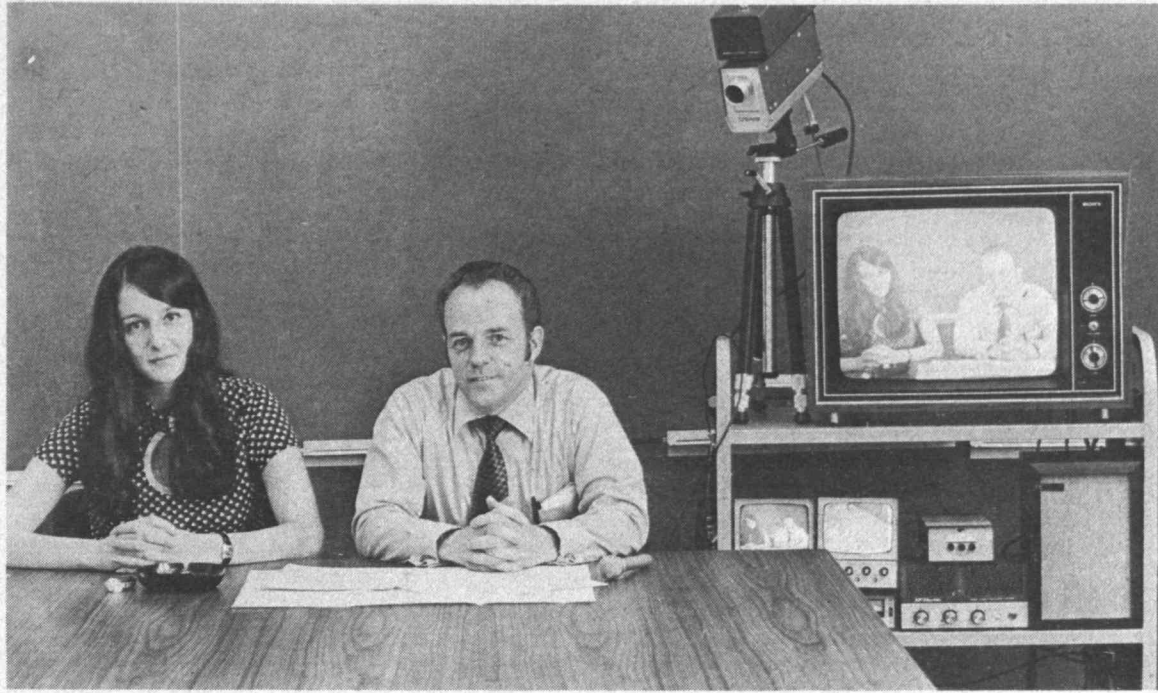
Some MIT graduates have always sought admission to graduate studies in medicine or law—the chief of surgery at the Massachusetts General Hospital, Dr. W. Gerald Austen, is a 1951 MIT graduate who was recently elected to MIT's Corporation.

In the last four years, however, the numbers have increased dramatically. The seniors applying for medical schools in 1969, for example, numbered 70, while 30 seniors took the law test that year.

"MIT students, in common with college students throughout the country, are increasingly concerned with finding ways in which they can become involved in public service, in improving the quality of life," Professor Nyhart said. "What those who choose medical or legal careers are finding, perhaps a few unexpectedly, is that their MIT undergraduate work has uniquely prepared them for medical school or law school."

Nationally, he pointed out, 35,000 students sought 13,000 places in

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Judy Loewenberg and James Roberts of UNITEL pose with their images on the large screen of one of two UNITEL mobile telecommunications units. The other unit is at Harvard, where it can receive closed-circuit telecasts over a new direct microwave link between the two institutions. Miss Loewenberg,

a Radcliffe senior, is Mr. Roberts's assistant for the summer. Their picture on the screen is taken by a TV camera at the further end of the table, and in actual operation with the new system would appear on the screen at Harvard, rather than the one shown.

—Photo by Marc PoKempner

Direct Harvard-MIT TV Link Successfully Tested by UNITEL

A low-cost, two-way, direct television link between MIT and Harvard that may one day carry joint seminars and classes held simultaneously at each institution has just been successfully tested by the University Information Technology Corporation (UNITEL), a joint MIT-Harvard project.

The television link uses the video portion of a new direct microwave system which has recently been installed by the Information Processing Center at MIT and the Harvard Office of Information Technology. The microwave system, which creates a direct data link between the two computation centers, beams signals from a new dish antenna on top of Building 39 at MIT to a similar antenna atop William James Hall, Harvard's tallest building, from which it is transmitted by cable to the Aiken Computation Laboratory at Harvard.

Since the data link has a built in capacity for video transmission, it can be used simultaneously for

closed-circuit television and data exchange. To conduct the recent tests, UNITEL assembled two mobile units, one at MIT and the other at Harvard, which include TV cameras and small monitoring TV sets as well as full-sized TV screens.

According to James B. Roberts of UNITEL, the recent tests made possible by the direct data link, have proved far more satisfactory than tests conducted last fall using a more circuitous route between the two institutions.

"The new system seems to be not only more direct, troublefree and less expensive," Mr. Roberts said discussing the recent tests, "but also seems to simplify the interactive quality that users of the system find attractive. And it also falls within UNITEL's assignment to find ways of using existing mechanisms to facilitate telecommunication between the two institutions."

UNITEL, launched in 1968 by MIT and Harvard to explore ways of sharing educational technology

with particular emphasis on the use of film, video tape and TV transmission, is under the direction of Carl F. J. Overhage, who is also the director of Project Intrex, MIT's experimental computer-based library system. President Jerome B. Wiesner of MIT and President Derek C. Bok are president and vice president of UNITEL respectively.

A working conference on educational videotapes July 11, which included a dozen people at MIT and Harvard, marked the first conference by telecommunication with the new system. Those participating at MIT were located in a conference room in Building 39, while their Harvard counterparts sat in the Aiken Computation Laboratory. A lively interactive discussion ensued, and tapes of the session were made to study user reaction.

Mr. Roberts said that user studies would continue. "We don't know very much about the ways people react on an open inter-

(Continued on page 2)

Housing Allowances JCUS Topic

Under what circumstances would it pay the nation to pay low-income families cash allowances that would allow them to obtain adequate housing on the private housing market?

This is the central question in a two-year analytical study on the potential effectiveness of direct housing assistance that is being launched by the MIT-Harvard Joint Center for Urban Studies.

The Joint Center has just been awarded a \$360,000 contract from the federal Department of Housing and Urban Development to conduct the housing allowance study. It will assess the benefits and limitations of direct housing assistance in contrast to present housing subsidy programs. Part of HUD's Housing Assistance Research Program, the study has the ultimate purpose of helping to define an overall national housing policy.

According to Bernard J. Frieden, professor of city planning at MIT and director of the Joint Center, direct housing allowances have recently attracted increasing support as a strategy for reforming the country's housing policy. "In part this is the result of recent unfortunate findings on current housing programs," he said. "And in part it reflects a growing trend toward client-centered programs in a number of fields, such as education and health care."

Professor Frieden said that a recent study, completed by several Joint Center staff members for a Congressional subcommittee, indicated that housing program administration and investor profits use up a considerable percentage of appropriated funds and that present housing programs exhibit a duality of purpose that leads to conflicts.

"Housing policy has recently had two aims, both laudable," he said. "One has been to give support to low-income families who might otherwise not be able to afford decent housing. The other has been to stimulate housing starts by providing incentive and subsidy to the building industry. While both of these goals should clearly be reflected in any enlightened overall housing policy, it is questionable whether programs can be devised which will accomplish both simultaneously."

Recent Joint Center studies have concluded that elements in programs designed to aid the construction of new housing often work to the disadvantage of the families who live in the buildings. For example, tying rent subsidies to the housing unit acts as a spur to building construction but restricts the freedom of tenants, who

(Continued on page 2)



Dr. Holland.

Dr. Jerome Holland Appointed to New York Stock Exchange

Dr. Jerome H. Holland, US ambassador to Sweden and member of the MIT Corporation, is the first black to be appointed a director of the New York Stock Exchange in its 180-year history.

Dr. Holland's appointment was ratified by the membership of the exchange July 5. He serves as a representative of public investors on a board of directors that has been completely restructured to reflect a greater public orientation. The new 20-man board with

ten public representatives replaces the former 33-man governing board.

Dr. Holland, one of the nation's leading black educators, was elected to a five-year term membership on the MIT Corporation in 1969 while he was president of Hampton Institute, Virginia. He was Hampton president from 1960 to his appointment as ambassador to Sweden in 1970. Before going to Hampton, Dr. Holland was president of Delaware State College, Dover, Delaware,

for seven years.

At MIT, Dr. Holland serves as chairman of the Corporation Visiting Committee for the Center for International Studies. He is also a member of the Visiting Committee for Humanities and for Student Affairs.

A former All-American football player at Cornell University, Dr. Holland recently received the Theodore Roosevelt Award. The award is presented by the NCAA annually to a distinguished citizen of national reputation.

Tech Tailor Takes Long Awaited Trip

Michael C. Egiros, better known like his father before him as Charlie the Tech Tailor, has closed up his shop in the basement of the Student Center to take a long-awaited trip to Greece.

"I've been looking forward to it since I was a kid," he said on the eve of his departure.

As a first generation American brought up in a Greek family, Charlie has always been intrigued by Greek culture and mythology. In 1937 his plans to visit his parents' homeland were thwarted by war.

Charlie, his wife and son have a busy schedule ahead. Charlie says it is difficult to decide which relatives and friends to visit first. He will wait to see who greets him at the airport before deciding.

There will be no language barrier for Charlie. Even though he was born and raised in New England—"I'm a Yankee," he says—when he first attended school, he had to learn English since his family spoke only Greek at home.

Charlie the Tech Tailor has been at MIT for 27 years, starting first as a helper for his late father,



Charlie the Tech Tailor looks quite happy at the prospect of taking his vacation in Greece. —Photo by Marc PoKempner

Charles Egiros. Charlie's last day on campus was Friday, July 14, but he'll be back August 14 when his shop will reopen.



HARD HATS were worn and refreshments served on a walking tour Tuesday, July 18, at the construction site of the 180-unit Hamilton Street housing for the elderly, one of three such apartments being built by MIT for the Cambridge Housing Authority in the nation's largest federal turn-key project. The tour included some 30 members of Senior Haven, a Cambridge club for the elderly, and was organized by Marie Dottin, staff member of Cambridge Community Schools. Shown here (left to right) are:

James Govatris, Peabody Construction Company; Mrs. Dottin; Mrs. Alfreda Simpson, Cambridge Committee of Elders; Joseph S. Collins, MIT; Nellie Pelletier, president, Senior Haven; Thomas H. D. Mahoney, State Representative and professor of humanities at MIT; Mary Castrietta, Cambridge Housing Authority; Daniel Clinton, Cambridge City Councillor; Catherine Hanley, Cambridge Council on Aging; Walter L. Milne and Leigh Woodward, MIT.

—Photo by Marc PoKempner

Obituary Wyman Fiske

Wyman P. Fiske, 72, of Greenwich, Connecticut, a former management consultant and professor at MIT and Harvard, died July 13.

Before joining the MIT faculty in 1925 as assistant professor of accounting, he taught at Harvard. From 1939 to 1944, Mr. Fiske served as director of the Sponsored Fellowship Program of the Department of Business and Engineering Administration (now the Sloan School of Management).

Mr. Fiske was a management consultant for 20 years until his retirement in 1965. He also served as a national president and as executive secretary of the National Association of Accountants.

He is survived by his wife, Ruth, two children, John Wyman Fiske of Boxford and Esther Doherty of Louisville, Kentucky, and five grandchildren. Memorial services were held in Greenwich, Connecticut July 17.

Who's New in the News

Professor Morris Adelman of economics has been awarded one of two NATO (North Atlantic Treaty Organization) research fellowships given to US scholars for the 1972-73 academic year.

Dr. Kerson Huang, professor of physics, has been awarded a Fulbright-Hays grant for the purpose of lecturing in physics at the Latin American School of Physics in Caracas, Venezuela.

Dr. Salvador E. Luria, Sedgwick Professor of Biology at MIT and 1969 Nobel Laureate, will speak on "From Molecular Biology to Cancer" at a symposium dedicating the Given Institute of Pathobiology at the University of Colorado.

Ann Peterson, formerly a technical assistant in the Department of Nutrition and Food Science and an administrative assistant in the Office of the Provost at MIT, has been appointed director of the Katharine Gibbs School in Boston.

Unitel Tests TV Hookup

(Continued from page 1) active system such as this," he said. "Partly to improve the mechanical aspect of the system and partly to familiarize users with the system, we hope to interest some one at MIT or Harvard in using the system in a teaching situation. It seems ideally suited, for example, for use in a seminar which has students cross-registered from the two institutions. But we won't know how effective a teaching device it can be, or what improvements are needed until the system is experimentally tested in a practical situation. The recent tests have, however, convinced us of the system's reliability."

At present work is going forward to interconnect several locations at each institution so that telecommunication between other rooms and buildings at MIT and Harvard will be possible.

Joint Center Receives \$360,000 HUD Grant

(Continued from page 1) cannot move from the building without losing their subsidy.

"Direct housing allowances are by no means a panacea, however," Professor Frieden said. "Experience with direct payments in the Medicaid program, for example, has shown that a large share of the program's funds have gone to pay simply for inflated costs, rather than expanded medical care. Our study, therefore, will try to determine the conditions under which direct housing assistance will help low-income families and also discover what factors may limit its effectiveness.

"We will be interested in finding answers to three main questions. First, can added income buy good housing? In other words, is the housing market open enough to provide the kinds of housing you would expect to become available if a family's income were increased for this purpose?

"Second, does the source of income make a difference? That is, are renters and sellers of housing willing to do business with families whose housing money is the result of subsidy? An earlier study at the Joint Center indicated that welfare families frequently get poorer housing than the working poor even when they have more money to spend on housing, a

reflection of landlords' reluctance to take the risks associated with welfare income.

"And third, we will be trying to see how the administration of the program affects the kind of housing people can obtain. At present a variety of administrative rules and regulations seem to restrict a family's options, as well as use up some percentage of the program's funds."

Principal investigator of the Joint Center's housing study is Arthur P. Solomon, assistant professor of Urban Studies and Planning at MIT, who has just been named associate director of the Joint Center for Urban Studies. Other researchers in the study include: Professor Frieden; Martin Rein, professor, Department of Urban Studies and Planning at MIT; David J. Austin, associate professor, Florence Heller Graduate School for Advanced Studies in Social Welfare at Brandeis University; and Joseph Ferreira, Jr., assistant professor of operations research and urban studies at MIT.

According to Professor Solomon, the housing study is divided into 11 sub-tasks and will involve frequent consultations with HUD officials. "We will be conducting intensive studies of the data generated by welfare programs, which remains the largest database in present experience," he said. "We will also conduct a sub-study on the direct housing assistance experiment in Kansas City to see how this early experiment in housing allowances worked in practice.

"It is noteworthy that of the 150 families involved in the experiment a good proportion left their own neighborhoods when their allowances began. That indicates considerable capacity in the housing market to offer low-income families a choice of where to live, at least in the Kansas City area."

The study, which began June 1 of this year, will use a variety of modeling techniques, case studies, and interdisciplinary research tools to back up HUD's experimental programs with theoretical analysis. It will be concluded in late 1974.

European Tour Ahead for Freeman

The audience at the July 11 Summertime Music concert heard the preview of a program pianist Robert Freeman of the music faculty and cellist Luis Leguia of the Boston Symphony will perform during their forthcoming European tour.

The program which Freeman and Leguia performed here included a variety of modern works by Berger, Webern and Barber and was described in the *Christian Science Monitor* as "illustrating the effectiveness of many voices for many styles before a large, enthusiastic audience." On the tour, the duo will also perform other contemporary works including *Piano Variations* by David Epstein, MIT professor of music.

While in Europe, Professor Freeman will attend two major conferences. At the International Musicological Society meeting in Copenhagen, he and his colleagues will discuss a system he has devised for cataloging early operatic arias by computer. Later he will participate in the Cini Foundation conference on early Italian operas in Venice.

Professor Freeman and Mr. Leguia will perform 20 concerts in four countries during the tour. Their tour will include the Berlin Festival later this summer.

The final concert in the Festival of Summertime Music will be next Tuesday, July 25, at 8pm in Kresge. The program consists of Mozart works for chamber orchestra, conducted by Klaus Jiepmann, Professor and Director of Music Emeritus at MIT. Professor John Buttrick of the music faculty will be the featured pianist. The program includes *Eine Kleine Nachtmusik*, *Piano Concerto Number 11*, K. 413, and *Piano Concerto Number 14*, K. 449. The concert is open to the public, free of charge.

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

Tired of Apartments, the Devanneys Set Up Housekeeping on A Tugboat

The following is a reprint of an article which appeared in the Boston Globe Friday, June 30.

By George L. Croft

An MIT Professor and his wife are the envy of every free soul locked inside a shirt and tie, housedress and/or apartment.

John Devanneys, an Ocean Engineer, and his wife, Connie have purchased a 65-foot tug and are living aboard it with a dog and three cats.

Devanneys, 32, and Connie, 29, married for six years, got tired of "banging around apartments." They thought a house in Hull might be the answer but it was too far away from the going ons in the city so they went shopping for a barge to live on.

John wanted a barge because his brother lives on one tied up in the Hudson River above Hoboken, New Jersey and likes it.

Connie wanted something different, more dramatic, so when they ran across the tug "David B. Curwen" they were intrigued. They purchased it from Joe Gallant, who did odd jobs with it about Boston Harbor.

Who "David B. Curwen" is or was is not known, but it doesn't matter because they are changing the name to the "Charles Cawley" in memory to Mrs. Devanneys's father, a Salem native.

The Devanneys and their tug are at Munro dry dock in Chelsea to have the ship's rudder repaired.

It is a strange sort of tug with flowers growing from a window box placed outside the wheel house and candlesticks, cosmetics, and hair rollers cluttering the chart room.

Living space is minimal. The Devanneys are busy tearing out walls and repaneling while raising their eyes to the heavens over unforeseen problems.

One of them is a lack of a heater. The original system seems to have disappeared. An old salt, who also marvelled at the rug in the sparkling clean galley (kitchen to you landlubbers), thought the heating system might have been



Professor John Devanneys stands in the wheel house of his new floating home.

torn out and sold because of the high price of copper.

Toilet facilities need improving, also needed is a new and larger hot water tank. Most everything is in the planning stage.

Their wide bed is one of only a few pieces of furniture aboard.

One favorite piece, given by an aunt in the antique business, is a cast iron turtle which hides a spittoon under his shell. You step on his head to open the contraption. Everyone coming aboard tries it.

Closet space is at a premium but they intend to build more, along with some cabinets.

The forty-year-old tug is powered by 10-year-old twin diesel engines. They can push the ship at a maximum speed of 10 knots, at

—Photo by Ed Farrand, Globe photographer

the cost of a gallon of fuel per mile—about 15 cents.

John intends to keep the tug in working order and do odd jobs during the summer. Many research groups could use his services, he believes, for their field studies in oceanography and exploration.

Professor Devanneys, who received his masters and doctorate at MIT, teaches Ocean Engineering there.

He is now involved in a study of the consequences of oil drilling off the New England coast.

His happy, slim and vivacious wife sings with the "Ill Wind" group. They have appeared at prominent clubs and have been featured in Hatch Shell and Symphony Hall Concerts.

Astronauts Chapman, England Leave NASA

Two MIT alumni have resigned their posts as scientist-astronauts at the National Aeronautics and Space Administration's Manned Spacecraft Center in Houston.

Dr. Philip K. Chapman, 37, and Dr. Anthony W. England, 30, were appointed scientist-astronauts in 1967. Dr. Chapman was an MIT staff physicist at the Experimental Astronomy Laboratory at the time of his appointment. Dr. England was a graduate student just completing the requirements for the Ph.D. in Geology and Geophysics when he became the youngest man to be named an astronaut.

Dr. Chapman, whose resignation was effective July 14, will take a research job with Avco Everett Research Laboratory in Everett and will also be a senior research associate at MIT. He received the S.M. degree in Aeronautics and Astronautics in 1964 and the Sc.D. degree in instrumentation in 1967.

Dr. England, whose resignation

is effective August 14, will be working with the US Geological Survey's Geophysics Group in Denver. He received both the S.B. and S.M. degrees in geology and geophysics from MIT in 1965 and the Ph.D. in geology and geophysics in 1970.

Both astronauts had served as flight scientists during their five years with NASA, Dr. Chapman on Apollo 14 and Dr. England on Apollo 13 and 16. Dr. England also served as flight communicator on Apollo 16.

Cristopher Kraft, Jr., director of the Manned Spacecraft Center, expressed appreciation to Dr. Chapman and Dr. England for their contributions over the past five years. "All of us at the Manned Spacecraft Center," he said, "wish them every success in their future endeavors in the scientific community."

MIT Entry in UVDC Performs Poorly in Test

The MIT entry in this August's Urban Vehicle Design Competition performed poorly in pollution emission testing carried out over the weekend at the Environmental Protection Agency's facilities in New York City.

The car, a Japanese Mazda R-100 with a Wankel rotary combustion engine modified to burn liquid propane gas, emitted double the amount of pollutants allowed by the 1976 federal standards.

"We were very disappointed in the car's test score," said Michael K. Martin, a senior from Bedford, Indiana, one of the MIT students who are building the car.

"Our pollution emission was less than half what the average automobile puts out, but we were hoping to meet the federal standards this time around."

The problem, according to Martin, was a faulty carburetor

that varied the air-fuel ratio during different modes in the testing. Thus as the engine decelerated the mixture became too lean, lowering the combustion temperature and increasing the emission of unburned hydrocarbons.

"The problem isn't very serious," Martin continued. "We can either replace the carburetor or add a valve to inject extra propane when the car decelerates. In addition, we haven't installed our catalytic reactor yet, and that will reduce hydrocarbon emission by another 60 to 90 percent. So we expect to be considerably below the standards within the next couple of weeks."

The car will return to New York for further testing next Monday. The actual competition is scheduled to begin August 9 at the General Motors proving grounds in Milford, Michigan.

MIT's Kuh Reports

McGovern Advisor Says Jobs Are Top Priority

The following article appeared in the New York Times on Sunday, July 9, prior to the beginning of the Democratic National Convention in Miami. Professor Edwin Kuh of the MIT Department of Economics was at the Convention as chairman of Senator George McGovern's economic advisory panel. ©New York Times Company. Reprinted by permission.

By H. Erich Heinemann

The first priority in economic policy of an Administration headed by Senator George McGovern would be to spur the economy back to full employment, a key adviser to the South Dakota Democrat said yesterday.

Edwin Kuh, professor of economics at the Massachusetts Institute of Technology who is chairman of Senator McGovern's economic advisory panel, said that the controversial tax reform and income redistribution proposals put forward by the front-running contender for the Democratic Presidential nomination were being scheduled for implementa-

tion in 1975.

"If you're talking about major reforms," Professor Kuh said, "you don't do them instantaneously."

At the same time, he charged that the Nixon Administration was contemplating policies "that would maintain unemployment well above 5 per cent."

The details of Senator McGovern's reform program are still to some degree uncertain, but in essence they involve increased taxes for corporations and upper income individuals and more redistribution of income to the poor.

Professor Kuh made his remarks during an interview in which he attacked an analysis by Michael K. Evans, president of Chase Econometric Associates, Inc., that contended that one of the principal "economic implications of President McGovern" would be "a recession in 1974 and a rate of unemployment of 7 per cent."

The MIT economist charged that Mr. Evans—whose company is a wholly owned subsidiary of the Chase Manhattan Bank—had "grossly distorted" Senator McGovern's program to achieve his

result.

The analysis "seems to miss the mark almost completely," Professor Kuh said. "You might think that it's a McGovern plan," he added, referring to Mr. Evans's definition of "the most likely McGovern program." In fact, he said, "it's Mike Evans."

Professor Kuh charged that Mr. Evans had made a "series of assertions which he doesn't back up;" that his analysis was full of "meaningless" statistical tables, and that Mr. Evans's concept of Mr. McGovern's proposals for tax reform were "absolutely and completely at variance" with what those proposals actually were.

"The basic point to realize is that McGovern and his economists are sketching out a program that is internally consistent and that is aimed at the year 1975," Professor Kuh said.

That year, he asserted, would be a date "by which we could return to full employment," and in the meantime, the Federal Government's tax and expenditure policies should be geared "in ways to obtain full employment."

Professor Kuh also indicated that in the short run at least he

would be reluctant to repeal or cut back the investment tax credit and increased corporate tax writeoffs that the Nixon Administration has used to spur the economy. Such repeal or reduction are key elements in Mr. McGovern's long-range program.

"I would certainly touch them only at times," he said, "when there are compensating activities, so that you didn't create unemployment, or damage corporate profits, to no avail."

A McGovern Administration, he said, would have an "interim target" for an unemployment rate nationally of "no higher than 4 per cent."

The economy is considered to be at a "full employment" level when it is using its human and material resources to capacity, so that additional demands tend to be translated into higher prices rather than increased output.

From the point when 4 per cent unemployment was reached, he said, "you would put very strong emphasis on particular programs to get unemployment well below 4 per cent." "You use general policies to get you to 4 per cent—plus some specifics—and

then the emphasis is more and more to particular pockets and areas of unemployment," he said.

By contrast, many private economists—and some in the Nixon Administration as well—believe that "structural" changes in the labor force in recent years (for example, the rising number of teen-agers and women who are seeking work) have increased the unemployment rate at which the economy can be said to be at "full employment."

The interim target for full employment was 4 per cent in the Kennedy and Johnson Administrations, and while President Nixon and his advisers have never defined precisely their full-employment target, many private analysts assume that it is a rate of between 4½ and 5 per cent. In June, unemployment dropped to 5½ per cent, the lowest since 1970.

Professor Kuh said that at the present time "real growth" in the economy—that is, total output adjusted for price changes—was going at a "good clip." But he cautioned that in his view the "Nixon program would begin to taper off in its effect on the economy in January of 1973."

THE INSTITUTE CALENDAR

July 19
through
July 28

Please notify the Calendar Editor, X3279, Rm 5-111, of any activities which have been suspended for the summer. Thank you.

Seminars and Lectures

Friday, July 28

New Phases in Liquid He³ Below 3mK*
Prof. David Lee, Dept of Physics, Cornell University. National Magnet Lab Seminar. 4:15pm, 2nd Floor Conference Rm, NML. Coffee, tea, 4pm.

Women's Forum

Women's Forum**
Every Monday, 12n, Rm 10-105.

MIT Club Notes

Ethiopian Cultural Night*
African Students Association. Saturday, July 22, 1pm-12midnight. Sala de Puerto Rico. Admission \$3.

Classical Guitar Society**
Concert guitarist Hugh Geoghegan is available for private instruction for intermediate and advanced students. Call Vo Ta Han, 661-0297.

Hobby Shop**
Open weekdays, 10am-4:30pm, duPont Gym basement. Fees: students \$6/term, community \$10/term. Call X4343.

Tiddlywinks Association*
Every Monday, 8-11:15pm, Student Center Rm 491.

Classical Guitar Society**
Special summer lessons for beginners, group and private. Mondays and Tuesdays. Call Vo Ta Han, 661-0297.

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.

Fencing Club**
Every Tuesday, 6-9pm, duPont Fencing Rm.

Beginning Mandarin Classes**
Chinese Students Club. Lectures on Tuesdays, 7:30-9pm; recitations on Thursdays, 7:30-8:30pm; through August 17. Rm 3-442. Admission \$5.

Glee Club**
Every Tuesday, Wednesday, Thursday, 5-6:30pm, Kresge. New members, especially tenors, welcome. Call Cyra Draffin, 247-8691.

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

Urban Vehicle Design Competition
Volunteer meetings. Every Wednesday, 3pm, Rm E40-250.

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

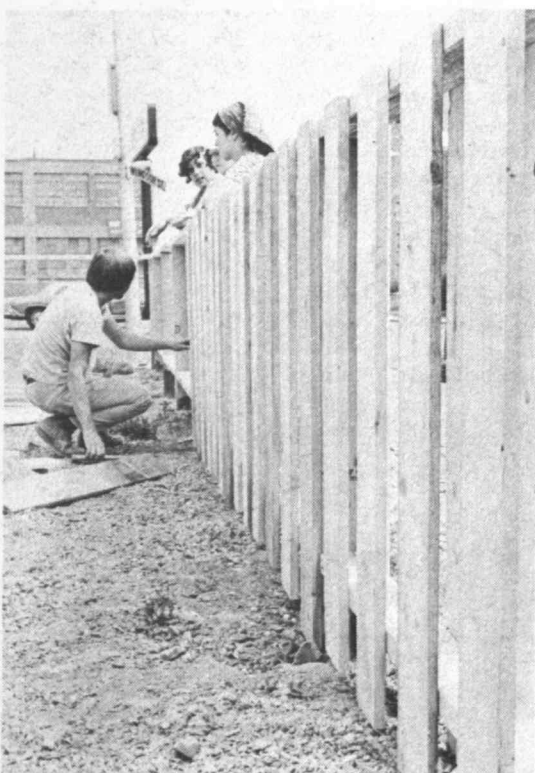
Science Fiction Society*
Every Friday, 5pm, Student Center Rm 421.

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.

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



Photographs by Marc PoKempner



Just-A-Start Features Work, Education, Fun

Two MIT students are spending the summer working with other college and high school students on a neighborhood rehabilitation and work training program in nearby East Cambridge.

As recipients of a grant from the MIT Student Summer Projects program, sponsored by the President's Fund for Community Affairs, the Undergraduate Research Opportunities Program and the Community Service Fund, Ellen Reintjes, a junior in urban studies and planning, and David Kinel, a graduate student in architecture, are working for Just-A-Start—an aggressive work-study program administered by the Cambridge Redevelopment Authority (CRA).

Just-A-Start provides various community services including home rehabilitation, landscaping, recreation and education. The program's target area is the Wellington-Harrington neighborhood, with its tightly packed old wooden houses, limited open spaces and multi-lingual families.

More than 100 city and suburban youths spend each day constructing playgrounds, painting or re-shingling houses, cleaning out cluttered backyards and vacant lots, planting gardens, building fences and supervising neighborhood playgrounds.

Both Ellen and Dave worked for Just-A-Start last summer and continued their involvement during the school year. Combining their architectural and urban studies interests and skills, they initiated and supervised the landscaping program.

As assistant supervisor on a landscaping crew, Dave and his crew clean up backyards, plant flowers and shrubs, install window boxes, etc., in consultation with neighborhood residents. He also is involved with the design of several landscaping projects and playgrounds.

Ellen is concentrating on the educational aspects of Just-A-Start through a seminar program which uses the "school without walls" approach. She has organized two seminars—one dealing with job opportunities, the

other with urban life. In the first, Ellen discusses possible careers and trades with the students and takes them on field trips to learn more about the opportunities available to them. On a recent trip, she took several students interested in teaching to the Massachusetts Department of Education to find out what the prospects for employment are in that field.

In the seminar on urban life, which Ellen calls a "gaming simulation of urban life," she and the students create a situation, act it out and then discuss the various interrelations found in urban living.

Just-A-Start, which is coordinated by Gordon N. Gottsche of the CRA, has three goals: to rehabilitate old homes and tenements for low to moderate income occupancy; to improve the quality of living and environmental conditions by upgrading services; and to involve and educate residents in constructive community participation. The program's success can be seen by walking through the neighborhood—several houses boast fresh

Special Events

Friday Afternoon Club**

Music, conversation and all the cold draft Budweiser you can drink. Every Friday, 5:30pm, Ashdown basement Community Rm. Admission: men \$1, women 50 cents. Must be 21.

Muddy Charles Pub**

Join your friends at the Muddy Charles Pub, 110 Walker, Cambridge. 11:30am-7:30pm. Call X2158.

Movies

Antonioni's Red Desert*

Modern Fiction Film Series. Thursday, July 20, 7:30pm, Rm 10-250. Free.

Notchka**

Friday, Saturday, July 22, 7pm and 9:30pm, Rm 10-250. Tickets 50 cents. Must show ID.

Bad Sleep Well**

Kurosawa Retrospective. Sunday, July 23, 8pm, Rm 10-250. Tickets 50 cents. Must show ID.

Gold Rush and Laurel and Hardy Short*

MIT Film Society. Monday, July 24, 8:30pm, Rm 10-250. Tickets \$1.

Music

Festival of Summertime Music*

Program of works for chamber orchestra by Mozart, conducted by Klaus Liepmann with pianist John Buttrick. Friday, July 25, 8pm, Kresge. Free.

The Music Library will be open from 9am to 10pm every Monday during the summer.

Dance

Folk Dance Club*

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

Summer Dance Classes*

Dance Workshop. Beginning modern, Tuesday and Thursday, 12n-1:30pm; beginning ballet, Tuesday and Thursday, 3:30-5pm; intermediate/advanced modern, Monday and Wednesday, 7-8:30pm. McCormick Gym. Admission \$1.75/class. Hannah, 547-0398.

Folk Dance Club*

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

Modern Dance**

Tuesday and Thursday, 7-8:15pm, McCormick Gym.

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

Graphics*

Exhibition of graphics by Boston artists. Hayden Corridor Gallery, June 26-July 21.

Hart Nautical Museum*

Exhibits include "Naval Undersea Research and Development Center," and "The Art of Rigging." Bldg 5, first floor.

Religious Services and Activities

The Chapel is open for private meditation from 7am to 11pm every day.

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 4-145. Call 369-1603 (Concord).

Ananda Marga Yoga Society*

Group meditations. Every Tuesday, 5pm, Rm 14E-303. For information, call X3664.

Christian Bible Discussion Groups*

Every Thursday, 1pm, Rm 20B-031. Call Prof. Schimmel, X6739, or Ralph Burgess, X2415.

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 July 26 through August 4 to the Calendar Editor, Room 5-111, Ext. 3279, by noon Friday, July 21.



paint, there are neatly kept gardens, litter-free yards, and new playgrounds filled with children.

Mr. Gottsche says, "One definite result of Just-A-Start has been a renewed community interest and participation at all levels in trying to solve neighborhood problems of long-standing duration. It's heartening to see a resident working in his garden or mowing his lawn, keeping up the work that Just-A-Start began."

Since Just-A-Start began in 1968, more than 450 persons—young and old, paid and volunteer, city and suburban—have participated in the program. They have received training and education in housing rehabilitation, planning and operations, recreation, community services, urban beautification, as well as constructive approaches to solving urban ecological, pollution and municipal problems.

MIT has been a key supporter of Just-A-Start for several years by making available dormitory space for program participants in the years when Just-A-Start featured a residence program, through the Community Service Fund, and in other ways. Other funding comes from the federal Department of Housing and Urban Development, private foundations, businesses, universities and many individuals.



Clouds Ruin Eclipse Experiments at Gaspé

Heavy clouds over most of eastern Canada hid the sun and ruined a series of solar eclipse experiments planned by a group from MIT's Planetary Astronomy Laboratory on July 10.

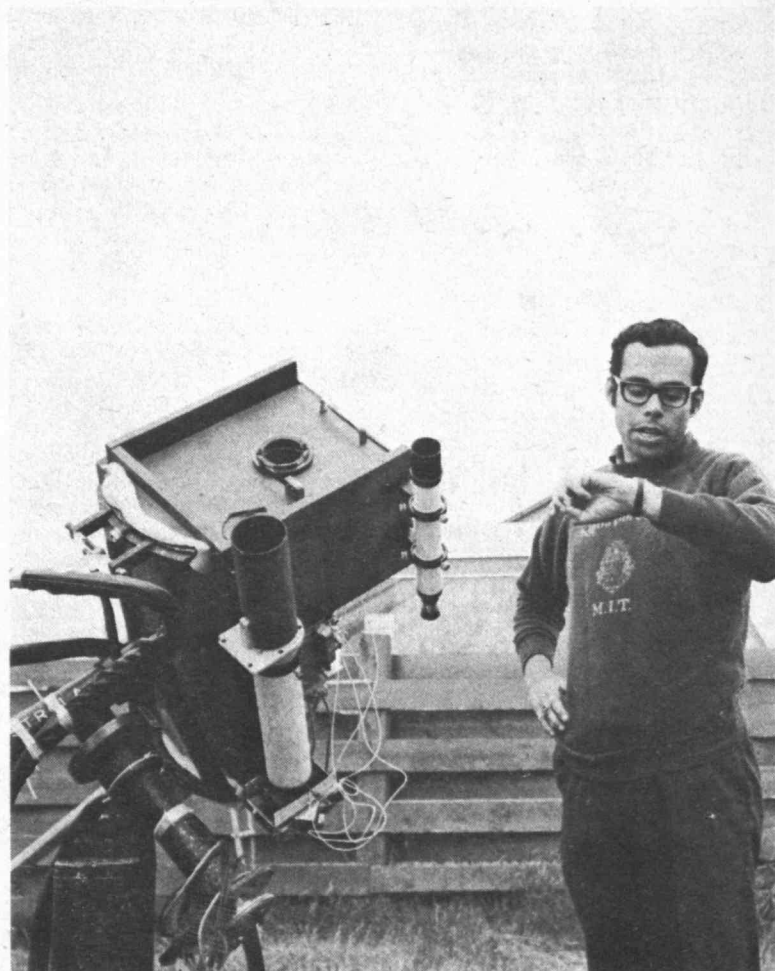
The expedition, headed by graduate student Alan Goldberg, of Providence, Rhode Island, had travelled to the tiny village of Cap-Chat-Est on the Gaspé Peninsula in Canada to study the 90 percent-total solar eclipse. The group had planned a series of four experiments, all to take place during the 2½ minutes of maximum coverage.

However, overcast skies which had threatened throughout the day

obscured the sun only 30 seconds before totality and all four experiments were cancelled.

Harold E. "Doc" Edgerton, professor of electrical engineering and Institute Professor Emeritus, who also travelled to the Gaspé Peninsula, reported a similar cancellation. However, his primary experiment, a light intensity study, was completed successfully in spite of the cloud cover.

The MIT group was among several hundred scientists from throughout North America who went to Gaspé for the eclipse. The location was selected because it offered the best chance for good weather and a clear view.



Will the weather clear? Graduate student Alan M. Goldberg checks the time as the eclipse nears totality. Though the clouds parted briefly for observers a few miles away, the MIT site remained covered.

Interest Rises in Medical, Law Careers

(Continued from page 1)

medical schools for a national acceptance rate of 37 percent.

"A majority of the MIT students going to medical school take chemistry or biology as an undergraduate major," Professor Nyhart said, "but a surprising number of successful applicants from the Institute were majors in engineering or in humanities—some of whom elected to try for medical school after their undergraduate majors had been fixed."

Equally significant numbers of MIT graduate students and alumni also are applying for—and being admitted to—medical schools and law schools, Professor Nyhart said.

There were 70 graduate students and alumni who applied to medical schools this year, while 132 graduate students and alumni—including one out of school 35 years—took the law school test.

Growing interest in medical and legal training among MIT undergraduates led to Professor Nyhart's new assignment. He was dean for student affairs from 1969 until July 1 of this year when he became a special assistant to the chancellor for pre-professional non-curricular programs, including those for students headed for medicine and law, and coordinator of MIT's law related studies.

In his new position, Professor Nyhart will have a broad spectrum of duties in four major areas—law, medicine, secondary school education, and public administration—areas in which social change can be initiated. He will work to improve the Institute's resources for advising students, helping them prepare academically for the professional careers they plan to enter and providing them with a realistic picture of what to expect when they do enter their chosen profession.

"Field programs," Professor Nyhart said, "will allow the students to get more hooks into the real world—supplementing their classroom education and giving them more information upon which to make a career choice." "We also plan to spend a great deal of time," Professor Nyhart said, "in helping students answer basic but very important questions about themselves, who they are, how they can mature as complete human beings."

In his special area of law, Professor Nyhart will be working with other faculty members in a number of departments helping to develop new curricula designed to explore the interaction between law and other fields in solving today's social and environmental problems.

CLASSIFIED ADS

For Sale, Etc.

Titan accordian, 120 base, exc cond, w/loads of music, best offer. Purpura, X572 Draper 11.

Univox guitar amp, model U45, 10w output, 12" hvy duty Jensen spkr, 3 input channels, gd cond, \$40. X4070.

Drop leaf tbl, seats 8, \$5; 2 ladder back chrs w/rush seats, \$3 ea; pink shag rug, 9'x12', \$5; 3 shelf wd bkcase, \$2; 3 dwr wd chest, \$3. Dailey, X2725.

Queen size bed, box spring, matt & base, \$125; sofa bed, \$95; 19" port TV w/stand, \$100; K cab, \$35; washing mach, \$15; other items. Hoomes, X5764.

Trailer, 6'x9', utility & camper, rack body w/canvas cvr, 2 spares, dining canopy w/poles, nylon screen wndws, slps 3. X2720.

Melamine dishes, 45 pc, \$13; gourmet tbl top rng, \$15; elec ice crusher, \$3; 4 person wtrpipe, \$4; records, \$1 ea; VW snows, \$25/pr; misc hshld items, negotiable. Susan, X6320.

Ground speed computer, to compute roll & pitch, no memory, gd electronics, new \$50,000, yours for \$25. John, X315 Draper 7.

Evinrude 50 hp, elec start, used in fresh water, \$295. Wright, X4659.

Coleman 1 gal thermos, \$20. Dave, X4849.

GE gas dryer, 3 mos old, hardly used. X3468.

Dbl bed spring, metal, gd cond, free. X6261.

Hallicrafters hurricane all-band amateur transceiver, best. Judy, X7328.

Infant seat, high chr, playpen, carriage, stroll, back-carrier, jump seat, scale, bumper pads, gd cond, reas priced. Gary, X5293.

Blk star sapphires, 2, 8.70 & 3.5 carats, \$200 or best. X5461.

Sony TC-366 tape deck, 1 1/2 yrs old, used very little, best offer. Peter, X4626.

Brand new 8 ft blk tufted vinyl bar w/3 match stools, \$200; Hamilton Beach chrome mixer w/timer, \$35. Doris, X7155 Linc.

Twin beds, 2, \$20 ea; 4 dwr bureau, \$15. Michelle, X2921.

Wal veneer desk, 29x40x20, \$10; 2 3-way loudspkr systems w/12" Jensen Flexair woofers, \$40/pr. X6430.

Wal exec 5' desk w/swivel chr; 2 vinyl chrs; elec Royal typwrt; old Underwood typwrt; oval wal DR tbl w/6 chrs, cane & gold nylon; frpl basket & tools; brass frpl set; clarinet; dehumidifier. Arlene, X6010.

Tires, 2, slightly used, 6.95x14, best offer. Pat, X5004.

Drapes for Westgate apt, \$10, \$20; wd playpen w/pad, \$1; 6 place stainless flatware, \$3. Call 547-1168 before 7/22.

Maytag elec port clothes dryer, copper-tone, \$45. X7182.

Wh ceiling tiles, 180, 12x12, \$10. Bill, X7414 Linc.

Lowrie organ, Holiday Deluxe TLO, walnut cab, 2 yrs old, asking \$850. Ray, X7632.

Wheel rims for pre 1968 VW bug, 5 bolt, \$5/pr. Heggestad, X5809 Linc.

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. 3270 or mailed to Room 5-105. The deadline is noon Friday.

Dyna stereo 120, Dyna PAS-3X; 4 man inflat boat & all access, Evinrude 2 hp outbrd motor, both lk new. Dave, X446 Draper 11.

Exec desks, 2 mahog, 1 steel, make offer. Clark, X4765.

Converter lens, 2x-3x, for Nikon F, Nikkormat, Nikkorex, very gd cond, \$20. Frank, X7425.

Auto washing machine; child's toys, bikes, fire engines, etc; Danish wing chr, orig \$250, now \$60; tbls, pictures. Gunderson, X6085.

Furn & hsewares, moving, must sell, couch, bed, tbls, chrs, 9x12 rug, dishes, pots, pans, etc, cheap. X2739.

Fender Vibrolux amp, 35w, 2 10" spkrs, gd cond, \$125. John, 661-3197.

Woman's bike, 3-spd, gd cond; twin bed, gd cond. Judi, X3148.

Couch, desk, other used furn, cheap. X6664.

Used bureau, 5 dwrs, gd cond, \$15. Donald, 321-6230.

Zenith 12" b/w TV w/outdoor antenna, exc cond, \$60. Jean, X2961.

Bicycle chain & lock, best offer. Kien, X4972.

BASF tape, 3 reels, 1800 ft ea, \$2.50 ea; used fluorescent desk lamp, \$5. Chip, X1587.

Sgl beds, 2, box springs, matts, \$10. Uzvi, X3374.

Armchrs, 2, 1 rocker, Danish, maple wd finish, olive grn, \$30. Lamb, X5350.

Twin bed, matt, box spring, frame, gd cond, \$25. X4612.

Free: Hotpoint auto washer, nds agitator shaft, gd motor & pump. Jim, X2691.

Crimson Shield sgl bed, box spring, matt, hd brd, almost new, best offer. Cathy, X2285.

Vehicles

'61 Mercedes Benz 220S, \$200. X2921.

'63 Pontiac Catalina hrdtop, orig owner, 43K, best offer. X7474 Linc.

'64 Corvair Monza, 4 dr, 4-spd, 110 hp, \$220. X3223.

'64 Ford Falcon, new tires, radiator, batt, general gd cond, nds trans work, now driveable, \$95 or best. Joe Daniele, X6903 lv message.

'64 Volvo 122S, runs well, nds muffler, \$200. X4177.

'64 VW, sunrf, newly rebuilt eng w/extractor, R&H, asking \$450. Call 661-8136.

'65 Chevy Impala, 4 dr, wh w/bl int, clean body, no rust or dents, rebt 283 cu in eng, 4 barrel carb, 41K, nds auto trans, have many parts, \$150. Rick, X5845 Linc.

'65 Ford Custom 500, 4 dr, \$200. Torun, X6339.

'65 Plymouth Belvedere, pwr st & br, auto, exc mech, body nds slight repairs, \$125 firm. Frank, X7027.

'66 Chevelle Super Sport 396, auto. Mary, X6487.

'66 Chevy II Nova, gd cond, hydro-matic, 2 dr, R&H, \$550. Linda, X5357.

'66 VW bug, 55K orig miles, AM/FM, sunrf, new red paint, gd mech, fair body, asking \$700. Sturgis, X368 Draper 7.

'66 VW sedan, reliable. H. Canning, X206 Linc.

'67 TR Spitfire, eng gd, body rough, gd top & tonneau, make offer. Irv Englander, X7813 keep trying.

'69 Mercury Marauder X-100, fully equiped, low mil, \$2100. X7395.

'69 Ply sta wgn, V8, auto, 35K, exc cond, warranty, 4 new tires, 2 new snows, \$1650. Webster, X1735.

'71 Datsun 240Z, air cond, 11K, silver w/blk int, other extras, \$4100. X4472 or 4475.

'71 Fiat 128, dk bl, htr, tape deck, 15K, std trans, 4-spd, \$1500. Pam, X6486.

'71 Toyota Corolla coupe, exc cond, \$1500 or best. Gayle or Steve, 666-9531.

'71 Volvo sta wgn, wht, 8.5K, fold away 3rd seat, AM/FM, \$3150. Kay, X4441.

Housing

Allston/Bri, 6 rm apt nr Comm Ave in 2 fam hse, exc cond, 3 BR, nr T, avail now, \$225/mo. Tasos, 787-0026.

Back Bay, lg rm, lt-hsekeeping, all util, elec hotplate, refrig, grad student or MIT employee, avail 7/24, \$28/wk, nr Pru. Mrs. Grande, X2569.

Camb, 2 BR apt sublet, 1039 Mass Ave, MIT affiliate, avail now, \$150. X5069.

Camb sublet, betwn Cent & Harv Sq, rm avail in lg apt for Aug or indefin, furn, fl K, \$60. Dick, X4170 lv message.

Som, 3 rm apt, 320 Union Sq, \$115/mo. Victor, X5181.

Winch, furn 3 BR hse nr schools & T, avail 9/1 for yr. Speyer, X582 Draper 7.

Jay Peak, Vt, lakeside hse rental, all seasons, on 200 priv acres. Denny, X5606.

Rangeley, Me, new lux contemp 3 BR hse on lg lake, mtn view, priv, hike, swim, fish, canoe, wilderness, wkly rental. Jeannie, X5177.

Animals

Free: kittens, m tiger, f blk, f blk/wh. Becky, X6707.

Free: beautiful gray kitten, owner going to Calif, shots, trained. Haviland, X6635.

Home nded for 6 mos old altered m kitten, pretty lt gray tiger. X2201.

Kittens, beautiful, loving, free. X1471.

F kitten, all gray, 3 1/2 mos old, very friendly, gd w/kids, free. Marsha, X2572.

Lost and Found

Found: gold wedding ring w/6 diamond chips, flr of Sloan Bldg elevator, July 6. Identify at Physical Plant lost & found, E18-210.

Wanted

Daily ride Gloucester vicin to MIT & return, 9-5, wl share expenses. Anne Hanks, X4896.

Sunfish. Dave Crocker, X383 Draper.

Furn hse for Swedish physician & family nded for 1-2 wks, pref 9/1-10/15. X5518 Linc.

Any 4 wheel drive, pref seats 4, to rent for 6 wks, Aug & 2 wks Sept. Kathy, X6672 or 3632.

Tires, 2 or 4, 6.50x14 or 7.00x14, reasonable. George, X7213.

Refrig/freezer, fairly new. Don, X1827.

Wooden barrel, 50 gals. Arthur, X3463.

Ride to or from Canada, bet Toronto & Montreal, end of July. X1587.

Noller's Chemistry of Organic Compounds. Mark, X6737.

Enertial Guidance Engineering by Macomber & Fernandez. Madelaine, X280 Draper 7.

TV, gd wrking cond, at least 18", will pay up to \$50; 10-spd man's bike, 23". Ralph, 261-2065 evgs or wkends.

Fem rmmate, 25+, to share 6 rm apt in magnificent fam hse in Camb, \$150/per, no pets, avail 8/1. Audey, X2030.

Male rmmate to share 2 BR apt, \$100 incl util, Brkline, tennis next door. Mark, X5644.

Miscellaneous

Thesis, term paper typing. Marsha, X2572.

Grad st wife babysit. Lilia, X3942.

Positions Available

Senior Secretary V for Director and staff member of a computer center. Requires initiative to work with numerous organizations inside and outside MIT, and to carry on independent projects and investigations. Maintain full calendar of appointments, receive visitors, answer routine correspondence, organize complex files. Candidate must have superior typing skills.

Secretary IV to executive officer of expanding interdisciplinary program. Ability to become familiar with the program to answer or redirect inquiries regarding activities and operations; direct work of other employee; assist with budget records; maintain calendar and complicated program files. Shorthand, dictaphone, good typing for correspondence. Good opportunity for advancement.

Secretary III or IV for three professors requires familiarity with technical typing for manuscripts, class notes, exams and quizzes. Secretary will maintain student files, statistics; set up appointments and travel arrangements.

Biweekly, Ext. 4251

For Lincoln Laboratory:

Security Clerk: For various security procedures, including fingerprinting, photographing and making badges for new employees; also to assist in other security functions as required. Experience not necessary. Some typing ability required. Pleasant personality and ability to meet people essential.

Senior Technical Typist: For Millstone Hill site in Westford: Technical typing and proofreading of journal articles, technical reports, and some administrative correspondence. Familiarity with IBM Selectric (magnetic card) typewriter desirable but not essential.

Technical Typist: Experienced technical typist or good typist willing to learn. Interest in learning varityping and minor drafting would be helpful.

If further information required, telephone Jane Notaro, ext. 7305 (811), Linc.

At the Coop

The Tech Coop will continue their weekly Sidewalk Sales for the rest of the summer. The sales are held Fridays in front of the Student Center between 10am and 5pm. Brand name items—most are purchased especially for the sale—are offered at exceptionally low prices. This week \$8 pants will be featured at \$1.99.

Man Aids Computer In Seismic Analysis

Seismometers have come a long way from smoked drums that recorded squiggles to equipment that instantly digitizes the rumblings of the earth so that computers can digest them.

Unfortunately, it is still infinitely easier for a person visually to analyze a graph full of squiggles than a list of numbers.

Computer scientists at MIT's Lincoln Laboratory have developed a Data Analysis Console designed expressly to allow man and computer to do what each does best in performing seismographic analysis and processing. According to a report written by Philip L. Fleck and Leslie J. Turek, both of the Lincoln Laboratory staff, "This man-machine system has a human analyst performing pattern recognition and decision making based on his judgment as an experienced seismologist. He performs only those tasks which are very difficult for a modern electronic computer to effect; the computer does only those tasks which it can execute faster or more efficiently than a man."

The Data Analysis Console was originally developed to help perform rapid analysis of the huge amounts of seismic information required to discriminate between underground explosions and earthquakes—necessary to police a nuclear test ban treaty. Large seismic arrays have been established in Montana, Alaska, and Norway—Montana's alone is one hundred miles square and contains 525 seismometers.

In the field, analog/digital converters transform the movement of the earth as measured by seismometers into digital information that can be transmitted by telephone lines to Washington, D.C. The data gathered in these arrays is of such fine quality that they are a boon to seismologists throughout the world, who are allowed free access to them. Just the precision in the ability to correlate the ar-

rival times of the waves at the various stations, for example, has been increased from several seconds, the level of accuracy in the past, to a few tens of milliseconds.

The console is actually an analytical tool. It transforms the digital information back into a graphic form by plotting one point on a screen for each digit. The operator can communicate with the computer using a light pen, control knobs, and a teletypewriter. He can call for up to 32 specific graphs to appear, compare them, hold a few on the screen while deleting the rest, and then add new ones. He can then line them up with one another to determine, for example, the time that each arrived at its station.

By turning a knob, a seismologist can observe all the graphs moving from the top to the bottom of the screen, or in reverse. As a graph moves off one end, another comes on at the other, as though they were on a scroll. After the operator decides that a particular graph is of interest, he may blow up the most important section and then have a hard copy printed out by the machine.

As a research tool, the Data Analysis Console is extremely flexible. Although constructed initially for seismographic data analysis, it is useful for analysis of any digital data that is more easily understood in graphic form.

Physicians could use the console to compare and analyze the electrocardiograms of many patients. The console has already been used to analyze graphically the data collected on atmospheric pollutants.

Yet, in spite of the ease with which the data can be analyzed and inspected by a person, it remains within the computer memory in precise digital form, ready to be called forth for computer analysis once the operator decides exactly what the computer should do.



Lenny Wamboldt, 17, a student from The Group School who is helping two MIT students develop a new chemistry curriculum, is here preparing plants

for a terrarium, which he will use in studying the chemistry cycles of living things.

—Photo by Marc PoKempner

Practical Chemistry Course Devised by Undergraduates

Ice cream, rubber, nylon, and soap are among products that have been made in a new high school chemistry course two MIT undergraduates are developing this summer to teach young people how chemistry affects their day-to-day lives.

The new course is being readied and tested for The Group School, a low-cost, private, alternative high school in North Cambridge accredited by the Cambridge School Committee and attended mainly by students from low income families. Most of the students have had problems with the high schools they had been attending. The Group School gives them the opportunity to complete their high school education and, if they become interested enough in education and certain enough of their own abilities, to continue.

Eight students from The Group School are taking the short summer course, helping the two MIT undergraduates develop the chemistry curriculum they plan to teach at the school starting in September.

Most of those at The Group School find it difficult to be students—especially chemistry students. For one thing, they all seem to shy away from scientific courses. Also, most have a weak mathematics background and math is a necessity for con-

ventional chemistry courses.

The Group School students also have little motivation to learn anything that they cannot see as having practical value. Many must work to help support their families, which makes studying even more difficult.

The two MIT undergraduates developing the curriculum are Kathy Cole, 21, a senior majoring in life sciences, from Greenville, South Carolina, and David Cincotta, 21, a senior chemistry major from Winchester. Robert Langer of Albany, New York, an MIT graduate student in chemical engineering is supervising the chemistry curriculum program.

One way to start answering the question most of the students ask—why study this?—was to make ice cream. To make ice cream in an old-fashioned freezer, the students had to use ice mixed with rock salt.

Discussions about this "experiment" brought out the important point that salt depresses the freezing point of water, and the students began to understand why salt is spread on icy winter streets. From this, the course leads to a more general picture of how salts depress the freezing points of liquids other than water.

As part of gaining an understanding of the chemistry of living things, each student has con-

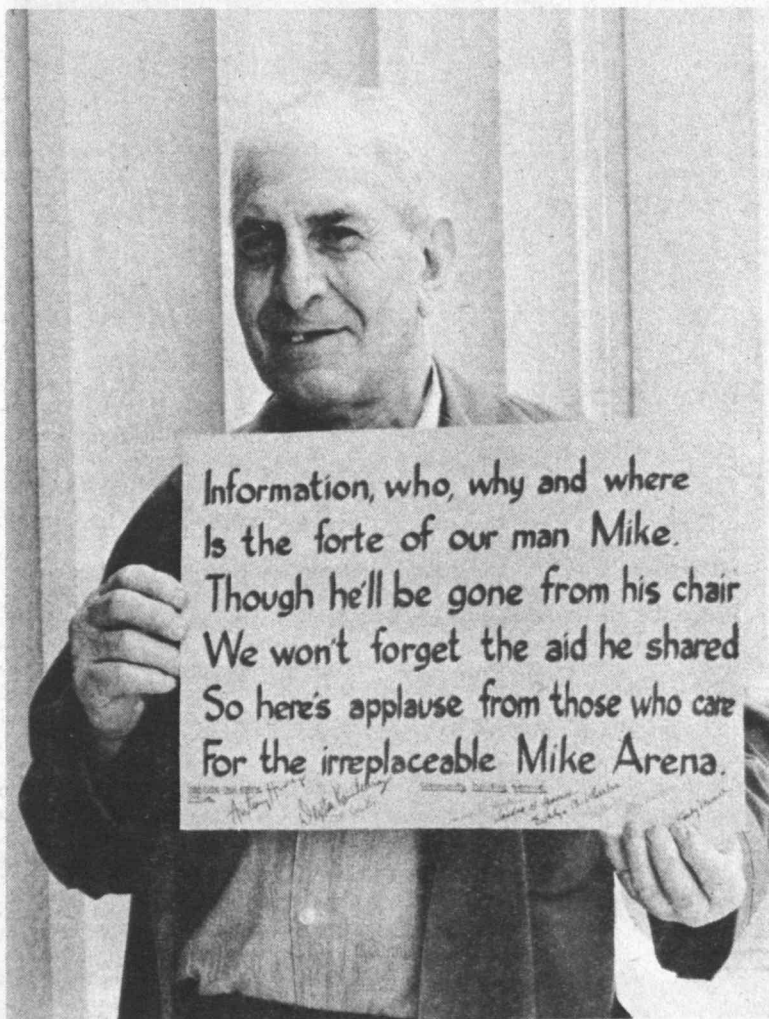
structed a terrarium which is sealed closed. These will serve as a focal point for study of the various chemical cycles that are necessary for living things to exist.

The chemistry curriculum is one of 15 Student Summer Projects in Community Affairs involving some 54 MIT students who are working with established community groups. The projects range from landscape planning for public housing projects to the development of fund-raising activities for community groups.

Summer salaries for participating students are provided, in part, by MIT—through its President's Fund for Community Affairs, through the MIT Community Service Fund, and through the MIT Undergraduate Research Opportunities Program—and, in part, with grants from the National Science Foundation intended to help finance worthwhile student projects for the summer.

MIT and The Group School are together paying the high school students who are testing the course. Without these funds, those students, who must make money over the summer, would be unable to attend classes.

Co-ordinator of the program at MIT is Timothy Bird, a special assistant in the office of the provost.



Information, who, why and where
Is the forte of our man Mike.
Though he'll be gone from his chair
We won't forget the aid he shared
So here's applause from those who care
For the irreplaceable Mike Arena.

Mike Arena of Physical Plant displays a poem presented to him by the Institute Real Estate Office and the Community Housing Service. Mike was stationed at the desk in the lobby of Building 7 before the Information Center expanded its hours recently.

—Photo by Margo Foote



Postal announcement cards are now available to advise callers of the new Centrex numbers. The card shown will be used by those at MIT. Cards are also available for Draper Laboratory with the new 258 prefix. Departments that have not received cards or need more may call Ext. 3651 at MIT or Ext. 216 at Draper 7.

Announcement Cards Are Now Available for Mailing

Effective August 12, 1972

The new telephone number(s) for this office will be:

(617) 253-_____

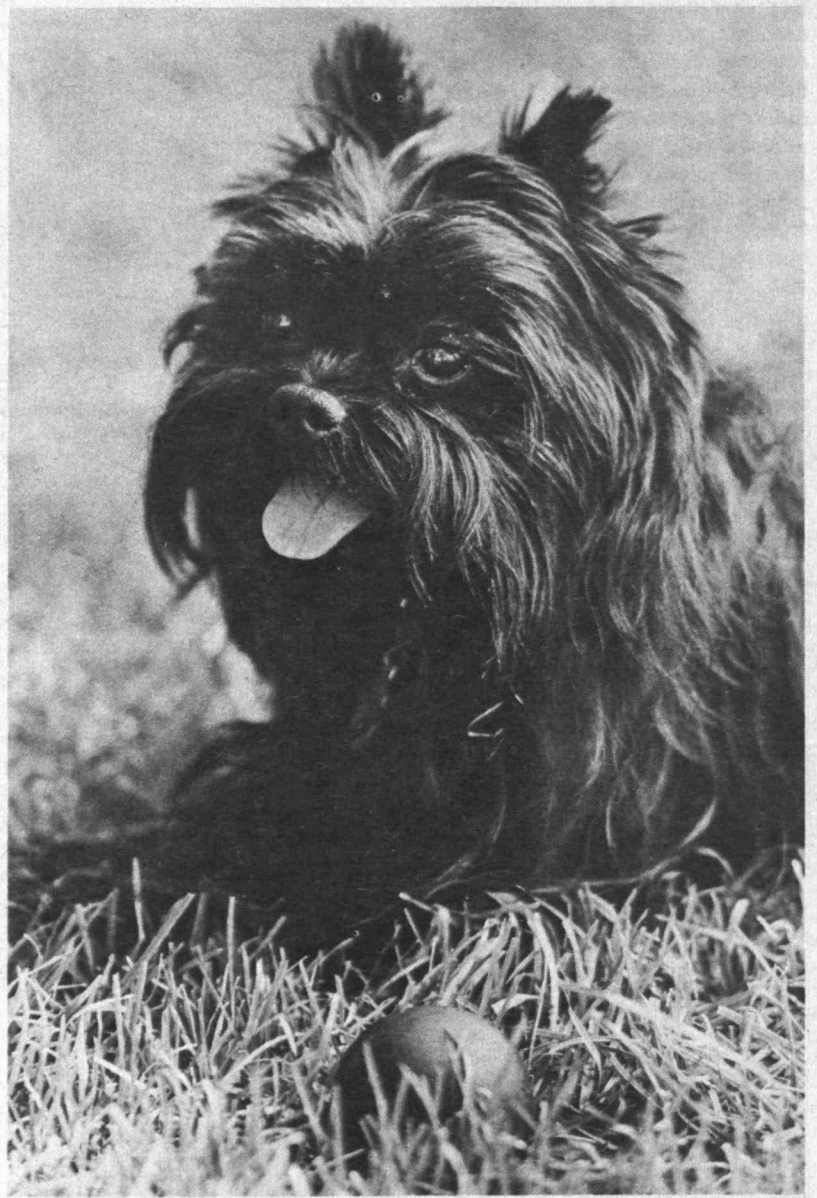
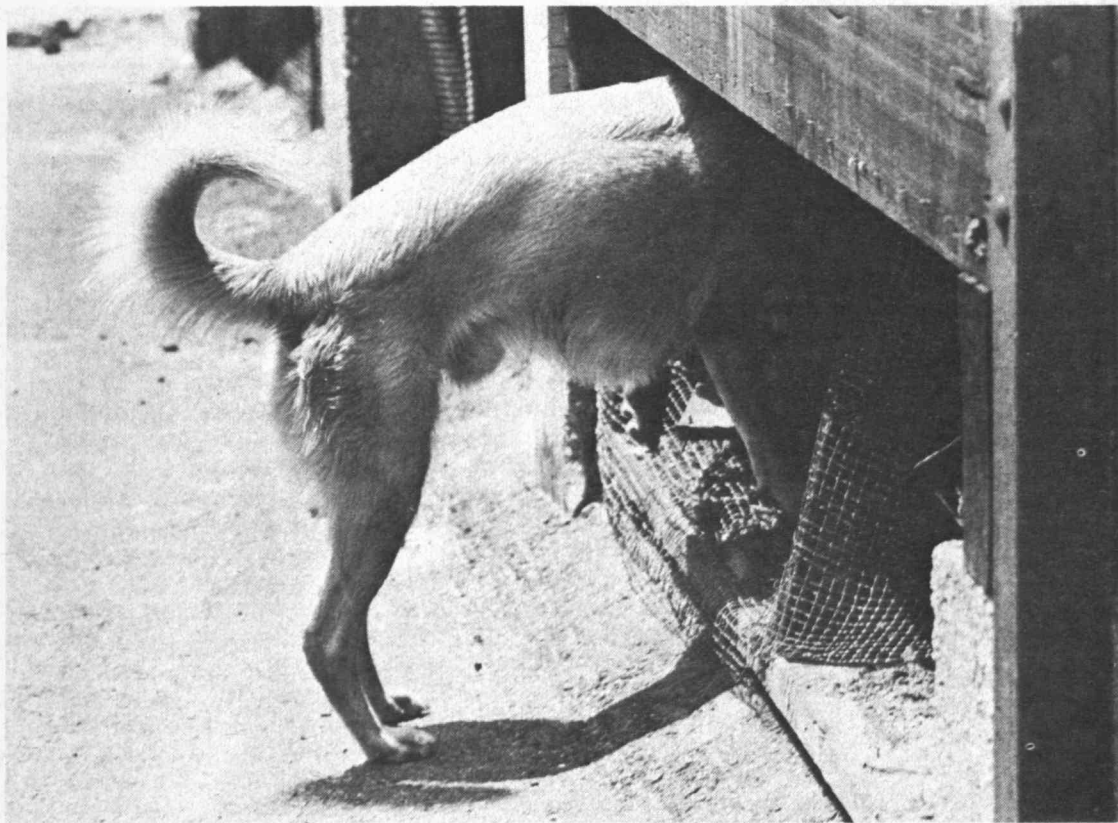
(617) 253-_____

(617) 253-_____

Please use them for faster direct service.



Dog Days



*Photographs
by Margo Foote*

