

## Davenport to Be Head of CAES

Dr. Wilbur B. Davenport, Jr., associate head of the Department of Electrical Engineering has been appointed director of the MIT's Center for Advanced Engineering Study effective February 1 and will serve in that capacity as Professor of Engineering.

Announcement of the appointment was made by Dean Alfred H. Keil of the School of Engineering.

CAES, begun in 1963 with the encouragement and support of the late Alfred P. Sloan, Jr., is concerned with the continuing post-collegiate education of working engineers, scientists and technical managers in industry and government.

Dean Keil said Dr. Davenport, who has been a member of the MIT teaching and research staff since 1946, will continue to enlarge and enrich various activities at the Center designed to help working professionals refresh and renew their own education on a continuing basis.

At the same time, Dean Keil said, Dr. Davenport will explore ways the CAES can contribute to and draw from current efforts within the School of Engineering to broaden the scope of teaching at all levels, particularly with respect to systematic application of technology to such large areas of social concern as transportation, energy, communications, environmental control and utilization of natural resources. In these efforts, Professor Davenport will have the support of a strong advisory board with representatives from the Sloan School, the School of Humanities and Social Science and the School of Architecture and Planning.

Professor Davenport will serve as a member of the Engineering Council and participate in the Council's decisions with respect to tenure and promotion.

"As broadened interests in undergraduate and graduate teaching within the School of Engineering evolve," Dean Keil said, "we can expect a corresponding growth in the programs of the Center for the continuing education of professionals who are at work in industry and government.

"Likewise, developments within the Center organized around technological aspects of large social issues and aimed at practicing engineers, scientists and technical managers can have important impact on programs offered by the School of Engineering."

The Center had its origin in a suggestion by the late Mr. Sloan, then chairman of the Alfred P. Sloan Foundation and honorary chairman of the board of General Motors Corporation and an 1895 graduate of MIT, who often encouraged new and innovative programs at the Institute. In a 1962 to then MIT Chairman James R. Killian, Jr., Mr. Sloan identified "a

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January's mild weather and the relaxed rink schedule brought out this group of hockey players for some practice during IAP. A full page of pic-

tures documenting the mood of IAP appears on page 7.

-Photo by Margo Foote

## Institute's Second IAP Ends Friday, Mirrors Success, Popularity of '71

The Institute's second Independent Activities Period (IAP) draws to a close on Friday and all indications are that it was just as successful as the first.

"Nearly all planned activities took place," commented Joel Orlen, Assistant of the Provost and IAP Planning Officer. "Not only that, but in the spot checking we did, everything was operating at capacity." Many were oversubscribed. Checks of residence halls and fraternities showed that fully 70 to 75 percent of the undergraduates were on campus.

As another indication that things are going well, Mr. Orlen said that all the money allotted for student-

run projects had been used. "One such project was the course in cacti, which was very popular," he said. "In fact, the students showed so much interest in plants that a group of them are investigating the possibility of getting a greenhouse for the campus."

A week-long, interdisciplinary series on "Coordinating Energy Strategies" was not only well attended but "may be one of the most significant events of this year's IAP," according to Mr. Orlen. The IAP Library, billed as a "browse and borrow" room near the main entrance, was such a success that it may be continued on a permanent basis.

to earlier and better planning on the part of students for this year's program. In most cases, students had decided what they want to do before they went home for the Christmas holidays. "But," he pointed out, "there's always a danger of getting it overorganized, so that it might become a "mini-term."

The IAP Policy committee will conduct another survey of faculty and student participation this year, "but it may not be published as last year's was," according to Mr. Orlen. "We will hope for some cross-correlation with the results from 1971," he said, "and we will augment what we find with discussions among various groups."

"We think there may have been wider participation in this year's IAP than just faculty and students," Mr. Orlen points out. "There is no formal way to find out if this is true, but if employees and staff members have comments they would like to make, we will be happy to receive them.

## Investment Committee Established

President Jerome B. Wiesner has announced the formation of an Advisory Committee on Shareholder Responsibility to advise the executive committee of the Corporation on matters concerned with MIT's votes and other actions as a stockholder.

The committee was formed in accordance with recommendations made by the summer study "University Investing and Corporate Responsibility," by Professor Edward H. Bowman of the Sloan School, and under guidelines suggested by the Corporation Joint Advisory Committee.

Dr. Wiesner has appointed Jephtha H. Wade, '45, a member of the Corporation and a Boston attorney, as chairman of the new committee. Other members appointed by the president are William R. Dickson, '56, Director of Physical Plant; Rebecca A. Donnellan, '72, a member of CJAC and a participant in the summer study; Kenneth J. Germeshausen, '31, Chairman of the Board and Director of Research at E G & G,

(Continued on page 6)

## Applications Rise for '72

Though figures will not be final for another two weeks, Roland B. Greeley, Director of Admissions, reports that it appears MIT has recovered noticeably from last year's slump in applications for admission.

Preliminary estimates are that the number of applications is up approximately five percent over the same period a year ago.

Exact figures are impossible to determine because of two changes in application methods this year. Final application forms were mailed earlier this year, for one thing, and many candidates received only the final form. (In previous years applicants were sent both preliminary and final forms.) The other factor is that the due date for final applications was

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### Inside This Week's Issue

The final entries for IAP and the updated IAP Timetable appear with the Institute Calendar on pages 4 and 5.

One day not far hence, computers may become as common in homes as telephones and television sets. How this new Utility might work is explained in a story on page 2.

Just before Tech Talk's deadline, Dr. Wiesner announced two important improvements in Tuition Assistance—an increase in the maximum reimbursement for both staff members and employees, and a provision whereby employees may under certain conditions be reimbursed if they take job-related MIT courses.

Announcements of these changes have been sent to all Department and Laboratory headquarters. Full details are also available at the Office of Personnel Relations, Ext. 4263 (staff plan) or 4276 (employee plan). Tech Talk will carry further details next week.

## Computer Power

We've taken to reading the Institute's bulletin boards on the way to work of recent mornings and were forcibly struck by the question posed on a poster announcing the demonstration of an on-line commercial computer last week. "A computer in every home?" seemed to us something of a leading question. We didn't know if such a state of affairs would be good or bad, and since the small print had a faintly ominous tone ("Get your hands on a computer terminal—it will never let you go!"), we thought it would bear looking into.

What we looked in on turned out to be a one-morning IAP seminar sponsored by the Mechanical Engineering Department. At the appointed time (10am, Wednesday, January 19) the appointed place (Room 1-107) was absolutely empty. But a chalked message directed us around the corner to 3-157, where we found Kenneth Mulholland, a research associate in mechanical engineering, focussing a TV camera on a small portable teletypewriter while a colleague adjusted the image on a nearby screen. When the picture was fairly clear, Dr. Mulholland left to scout up some extra chairs as students began drifting in. As every one settled down, he remarked that the demonstration was an example of time-shared computer service on a commercial basis and introduced his colleague as Roland Chaput, a representative of Com-Share, Incorporated.

Mr. Chaput, a brisk and genial man, perched himself on a stool at the front of the room. "I'm not actually selling Com-Share today," he remarked with an engaging smile, "But don't tell my boss that." He then introduced his own colleagues, a young man wearing dark glasses named Bill Chung and an extremely pretty blonde named Carolyn Colla. "Much of the ground work on time-sharing was done right here at MIT," Chaput began. He went on to cite the work of MIT's Project MAC (for Multiple Access Computer) in demonstrating conclusively the ways in which simultaneous and independent user access to the same computer could overcome the frustrations and delays of batch processing data.

"What made commercial development in this field possible," Mr. Chaput went on, warming to this aspect of his subject, "was the invention of the computer language called BASIC, which was developed, I'm sorry to say to this audience, at Dartmouth. I understand, incidentally, that Dartmouth now requires a compulsory course in computers for every freshman." (Did we detect in this a potential cornucopia of new subject matter for curriculum reformers? We conjured up visions of hordes of highschoolers mastering something to be called "Basic BASIC.") The emergence of a simple language in which just about anyone could converse with a computer was what elicited a host of new concerns to explore the business applications of time-sharing, and by 1968, Mr. Chaput said, there were some 60 firms in the field, although the recent economic downturn eliminated a good many of the weaker ones. A representative of one of the survivors, Chaput thought this was probably a healthy thing, and we agreed.

As he went on to describe the means by which Com-Share delivers computing power to users in some 200 cities throughout the country, it slowly dawned on us that we were witnessing the first stages of the birth of a new utility. Various types of terminals allow operation at different orders of

speed. Teletypewriters send data back and forth letter by letter, whereas more sophisticated devices can transmit punched data a card at a time, and broad-band transmission terminals send signals at tape speed. Other terminals incorporate cathode ray tubes and handle graphic displays on TV screens. Ever more rational consumers of the future, we reflected, would order up batches of augmented logic power with the same ease that they now helped themselves to electric power to cook their morning toast! The prospect dazzled.

Adjuring the class to watch the operation rather than the operator, Mr. Chung invited us to see the system at work and Miss Colla sat down at the console to dial the Com-Share number. The connection made, she logged in, rapidly typing her name, account number, and password. The password did not, Chung pointed out, appear on the teletypewriter output, a safeguard against unauthorized use of one's account.

"Why should you sweat out a series of gear ratios for homework," Chung asked the class with contagious enthusiasm, "when you can just dial the computer's gear-ratio program at night and astonish your professors in the morning? There are 16K words available to the user at any one time, and a variety of languages." He ticked them off: FORTRAN, SNOBOL, BASIC, NEW BASIC. CAL turned out to be a special calculating language for engineers. In this new world, QED stood for Quick Editing.

"If Mother Bell disconnects you by any chance," Mr. Chung went on, "use the command-word RESTART when you next log in and your program will run from the point of disconnection. XTRAN is an extension of FORTRAN that allows rapid debugging. Suppose you go into an infinite loop in two statements. Don't wait around wondering if the system is down because nothing is happening. Type WHY, and debug the logic. If you're in serious trouble, type HELP. Or you can use the program TUTOR to learn on the machine itself." Miss Colla demonstrated by typing Tutor. And as fast as one could say "How's the weather out there in Ann Arbor," the computer typed back: HI! IS THIS YOUR FIRST LESSON? WELCOME TO THE COM-SHARE FORTRAN TUTOR SERIES ....

As the class gathered to watch the ensuing lesson emerge with literally inhuman speed, we took the opportunity to introduce ourselves to Dr. Mulholland and ask him how he got into the computer biz. "I don't actually know anything about computers," he told us in a pleasantly modulated British accent. "But I do use them a lot in my work. I thought taking a look at time-sharing from the user's point of view might interest some students during IAP. Time-sharing services or computer utilities if you prefer, are bound to become more pervasive, I think, as we move toward a moneyless, checkless society. A check, after all, is only an instruction to a bank clerk to change some figures in an electronic ledger. Why shouldn't you pay your bills by computer? Or your income tax? Or even get your morning paper printed by computer in your own home?"

We wondered aloud if a computer in every home wasn't still a pretty far-fetched notion, and Mulholland agreed that it wouldn't happen overnight. "But then the phone system is a fairly complex arrangement," he remarked, "and it wasn't too long ago that one might have said the same thing about the telephone,"

## Walker's Dining Hall to Serve New Menu—Natural and Organic Foods

Beginning next Wednesday (February 2) there will be a new "natural" look in the dining hall at Walker Memorial. An appealing array of natural foods will be served Monday through Friday during the regular dinner hours of 5 to 7pm.

Diners will be able to choose a traditional meat and potato meal or sample the new flavors of health, organic and natural foods. David Cantley, general manager of dining services, remarks, "Our goal is to serve simply prepared meals that are high in nutritional value and natural flavor. Many of the ingredients—honey, beans, grains, seeds, wholewheat spaghetti and macaroni—are

organically grown. The term 'natural' applies to fresh vegetables, fruits, fish and poultry that are prepared simply, without additives."

The natural food menu at Walker will include several vegetarian dishes—mung bean casserole, vegetable sukiyaki, carrot and soy bean loaf, lentil roast, stuffed cabbage, hearty vegetable soup, for example. Side dishes will range from brown rice and fresh vegetables to organic peanut butter and crunchy grenola. Some of the organic foods, which are especially good for nibbling or mixed with salads or yogurt, include peanuts, chestnuts, sunflower seeds, sesame seeds,

dried fruits, honey, wheat germ or brewer's yeast.

Dieters who want to try natural foods but can't afford the extra calories contained in bread, macaroni or rice will find plenty to choose from at Walker. Stewed chicken, unbuttered fish, fresh vegetables and salad are weight watchers' delights. Nonfattening beverages like unprocessed natural apple juice, herb tea and peppermint tea complete the menu.

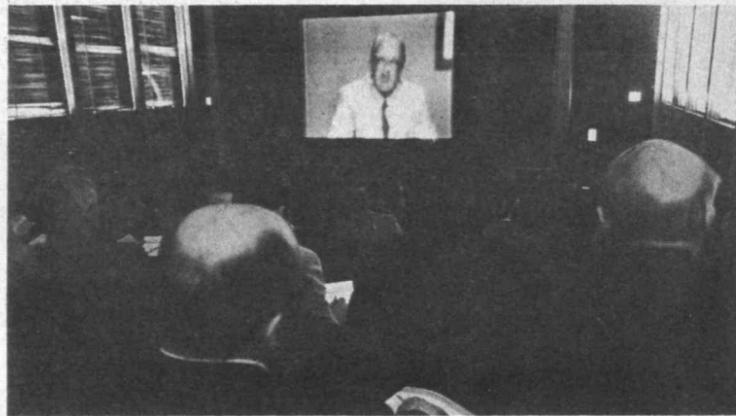
Essentially, Walker's new food line is a natural food restaurant, open to students (commons are transferrable) members of the MIT community, and the public. Everything is served a la carte and prices are comparable to regular cafeteria fare.

Planning for the natural food service began about three months ago. Helen Doherty, administrative dietician, started by reading books on health, organic and natural foods. She chose several recipes and asked Joseph Principe, Walker's kitchen supervisor, to prepare them for tests. A small group of "food tasters" were recruited to sample each recipe as well as different kinds of yogurt. After studying the test results, Miss Doherty adapted the best recipes for the large quantities which will be needed in the cafeteria.

"Preparing natural foods is new and different," Miss Doherty explains. "Cooking time is generally decreased, but advance preparation sometimes take longer. For example, if a casserole calls for stewed tomatoes, we don't just open a dozen cans of tomatoes and pour them into a pot. We stew fresh tomatoes. Beans are another example—most organic beans have to be soaked in water for several hours before they can be cooked."

Adding a natural food line to other campus dining halls depends on demand. Mr. Cantley says, "If students at MacGregor, for instance, decide they'd like to have familia and crunch grenola for breakfast, they'll get it. Right now we're just experimenting, trying to appeal to the growing market for natural foods."

He continues, "We're very interested in hearing reactions about the new service. Cards will be available in Walker for people to make suggestions, criticisms, or comments. I hope everyone will take time to fill out a card and let us know what he thinks."



Landmark teleconference in Room 54-100.

—Photo by Margo Foote

## Structural Engineers See Teleconference

MIT was the host for more than 180 engineers from the Boston area last week during a landmark closed circuit television conference sponsored by the American Concrete Institute (ACI) and the Portland Cement Association.

The occasion of the conference, which was screened in Room 54-100 last week, was the explanation of the 1971 ACI Code, the prime technical resource for engineers involved in the design of concrete

construction. The 1971 Code required more than seven years of preparation and includes design requirements and standards for structural engineers.

The conference was broadcast from the Portland Cement Association's Cement and Concrete Center in Skokie, Illinois, to 18 major metropolitan areas in the US and Canada. In addition to six hours of televised activities, the conference included 30 minutes of local presentations.

## Missing Books May Be in Purchasing Office

Tucked away in a corner of the Purchasing Office in Building E18 are hundreds of dollars worth of books and magazines ordered by MIT personnel that never made it to their buyers. Some have been sitting there for years and more arrive every day. Most of them are destined to gather dust on the shelf until the people that ordered them tell the Purchasing Office.

The problem, according to Bruce Kelly of the Purchasing Office, is not with MIT but with the com-



Bruce Kelly is laden with part of the collection of homeless books.

—Photo by Margo Foote

panies selling the books. In this situation the normal procedure is for the vending company to send the material along with a packing slip giving the number of the purchase order which it received. The Purchasing Office can then find its copy of the purchase order and send the material and the bill to the correct office.

"The difficulty with these books and magazines is simply that when they arrive here their packing slips give no purchase order numbers. This happens with about 25 percent of all books and magazine subscriptions ordered, and when it does, we're helpless. We can make a quick check of our records with the particular vending company, but searching through thousands of purchase orders would cost us more than the books are worth. So, although we occasionally find the purchaser, the books usually end up on our shelf.

"Any one who has ordered books or magazines and has not received them in a reasonable length of time should write to me at the Purchasing Office, Room E18-360, giving the exact names of the books or magazines, the vending companies' names, and the purchase order numbers. With that information, we can do something to help them."

### TECH TALK

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

# New Book Probes Consequences of World Resources Depletion

A soon-to-be published book, *The Limits of Growth*, written by members of the Systems Dynamics Group at the Sloan School of Management and describing the ultimate consequences of continued depletion of world resources as revealed by computer modelling is the subject of a major article in the January 24 issue of *Time* magazine.

The book will be published March 6 by Potomac Associates, a Washington-based issues analysis firm, through Universe Books of New York. Authors are Dennis L. Meadows, assistant professor of management, his wife, Donella H. Meadows, a research associate in nutrition, Jorgen Randers and William W. Behrens III, all staff members with the Systems Dynamics Group.

The study, which has been underway on the second floor of the Webster Building (E40) for more than a year, has been supported by the Club of Rome, an organization of 70 distinguished international leaders headed by Aurelio Peccei, famed Italian economist and former head of the Olivetti Company. The Club was formed in 1968 with the purpose of exploring large issues confronting society and received a large grant from the Volkswagen Foundation toward that end. The Club, in turn, commissioned the studies by the MIT Systems Dynamics Group which are based on the computer modelling and simulation principles set forth by Professor Jay Forrester of the Sloan School in his book, *World Dynamics* (Wright-Allen Press) and his *Industrial Dynamics* (MIT Press) and *Urban Dynamics* (MIT Press).

Meadows, 29, a student and colleague of Professor Forrester, and his associates in the Systems Dynamics Group, gathered and analysed information having to do with world population growth, natural resources, food consumption and production, industrial output, death rates, etc. Said *Time*:

"Forrester's model begins with the recognition that all these factors are interlocked. Human population cannot grow without food for sustenance. Since just about all the globe's best land is already under cultivation, farm

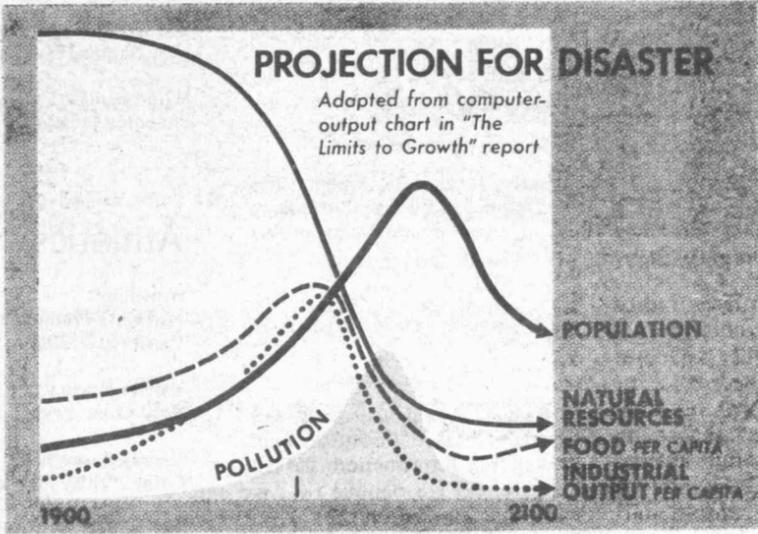
production can rise only through use of tractors, fertilizers, pesticides—all products of industry. But more industrial output not only demands a heavier drain on natural resources than are scarce even now; it also creates more pollution. And pollution ultimately interferes with the growth of both population and food.

"The question Meadows had to answer was: How long can population and industrialization continue to grow on this finite planet? Unlike the doomsday ecologists who predict that man will drown in pollution or starve because of overpopulation, Meadows' system concludes that the depletion of nonrenewable resources will probably cause the end of the the civilization enjoyed by today's contented consumer.

"The sequence goes this way: as industrialization grows it voraciously consumes enormous amounts of resources. Resources

products (like medical equipment and fertilizers). Because of the lack of health services and food, the world's population dwindles rapidly. . .

"The Meadows' team offers a possible cure for man's dilemma—an all-out effort to end exponential growth, starting by 1975. Population should be stabilized by equalizing the birth and death rates. To halt industrial growth, investment in new, nonpolluting plants must not exceed the retirement of old facilities. A series of fundamental shifts in behavioral patterns must take place. Instead of yearning for material goods, people must learn to prefer services, like education or recreation. All possible resources must be recycled, including the composting of organic garbage. Products like automobiles and TV sets must be designed to last long and to be repaired easily.



—Time magazine diagram

become scarcer, forcing more and more capital to be spent on procuring raw materials, which leaves less and less money for investments in new plants and facilities. At this stage, which might be about 2020, the computer's curves begin to converge and cross (see chart). Population outstrips food and industrial supplies. Investments in new equipment falls behind the rate of obsolescence, and the industrial base begins to collapse, carrying along with it the service and agricultural activities that have become dependent on industrial

"As the report presents it, the result is a sort of utopia—not the stagnation of civilization. 'A society released from struggling with the many problems imposed by growth,' the report says, 'may have more energy and ingenuity available for solving other problems.' Research, the arts, athletics might well flourish in a no-growth world. Nor would developing nations necessarily be frozen into everlasting poverty. Without the burden of an increasing population, they might provide fewer citizens more amenities. . ."

*Time* concluded the report has one weakness.

"It lacks a description of how a society dedicated to upward and onward growth can change its ways. Dennis Meadows, thoroughly aware of the problem is trying to raise funds for a computer study of the possibilities. To date, he has had little success. Why? Mainly because Americans still tend to believe that continual growth is the solution to all problems."

## Personnel Procedures Probed at IAP Forum

Miss Dorothy Blair and Mrs. Sally Hansen, representing the Office of Personnel Relations, spoke at a crowded session of the Women's Forum last Thursday.

Miss Blair opened the meeting by outlining the administration of the office bi-weekly section of Personnel. Each of the personnel representatives is responsible for a cross section of offices and positions within the Institute, she said. In this way, the personnel representatives have an opportunity to become familiar with both the supervisors and the requirements of various positions in their purview.

Altogether there are some 2,200 persons employed in office bi-weekly positions, including 1,650 on campus. In a secretarial survey conducted last year by a student at the Sloan School, more than three-quarters of some 460 respondents reported that they found MIT an above-average employer. "The response was more favorable to the Institute than we had expected," Miss Blair said.

Nevertheless, the turnover among this group reached a high of

50 percent in 1969. The figure dropped in calendar 1970 to 45 percent, and again in 1971 to 33.8 percent—the lowest level in ten years.

The high turnover figure caused concern to personnel people and led them to see how they might improve their service. Among steps encouraged by the office were an improved job-counseling service and the filing of job descriptions by secretaries themselves, rather than by their supervisors. The number of grade level promotions has also increased recently.

Mrs. Hansen described the situation with regard to exempt and professional female personnel. Until recently, she said, 80 percent of the Institute's administrative and research staffs have been male. However, among staff appointments made within the past year or so, approximately fifty percent have been women. Among recent promotions to exempt, 65 percent have been women.

The final IAP meeting of the Women's Forum will take place tomorrow (January 27) at noon.

## Factual Study of MIT Available in Libraries

*Facts About MIT*, the statistical profile released earlier this month, is now or will very soon be available to the community in all of the Institute's libraries.

Prepared for the Commission on MIT Education, the study was not originally intended for general distribution because of its limited interest. Later it was decided that a limited edition should be published and made available to the community in the libraries. Copies of the book have been undergoing processing and cataloging procedures since it was released and should be on the



Standing before the world map which decorates his office, Dean Hazen describes foreign opportunities. —Photo by Bob Lyon

## Dean Hazen Advocates Foreign Study, Travel

"If you'd like to broaden your horizons and expand your educational experience, foreign study may be just what you're looking for," says Professor Harold Hazen, foreign study advisor and dean emeritus of the Graduate School.

Many opportunities for study and travel in countries around the globe exist for both undergraduates and graduate students. Dean Hazen is the Institute's advocate for these opportunities. A world-wide traveller himself, he knows the ins and outs of study abroad. Whether a student is interested in a junior year abroad, summer foreign study or a graduate fellowship, Dean Hazen will eagerly help him explore all the possibilities.

"The most important question," he says, "is whether foreign study makes sense for the student, and if so, what particular kind of experience makes the best sense. I've enjoyed working in and with foreign universities as well as travelling abroad, so I naturally try to pass my excitement on to students. But, spending a year abroad requires a lot of serious planning, motivation and adjustment. I can make suggestions, offer advice and even try to ignite some kind of excitement in a student, but if he is to be successful overseas, he has to be motivated from inside."

The most popular foreign study program for undergraduates is the Junior Year Abroad (JYA). During the past several years some 50 undergraduates have participated in programs administered by existing organizations and other colleges. Dean Hazen remarks, "The overwhelming enthusiasm of students returning from a year abroad emphasized the rewards that foreign study offers—it's a great influence in broadening a student's outlook and in deepening

his understanding of his own country as well as that of a different people, country and culture."

Planning a Junior Year Abroad should begin during the freshman year. Competence in a necessary foreign language may require the student to adjust his course program to include language classes as early as second semester freshman year. Also, JYA students have found it advantageous to plan their four-year program in a way that emphasizes professional work at MIT and humanities while abroad.

Dean Hazen says, "Major reasons for going abroad are to learn about the country visited, its people, institutions, culture, history, literature, and especially to develop real and enduring competence in its language. You want to learn what is distinctive and different, what characterizes the country, its culture and its people" Not least are the new insights and understanding about your own country that result from the inevitable questions asked by people of another culture about social ills, politics, history and culture in the United States."

A JYA student arranges through Dean Hazen to maintain official MIT registration as "undergraduate on foreign study" and thus retains his student aid and Selective Service status. Total cost, including transportation and normal vacation travel, are usually no more expensive than a year at the Institute.

In addition to helping undergraduates plan a Junior Year Abroad, Dean Hazen also advises graduate students who are interested in obtaining fellowships to support study or research overseas. He says, "I can provide sources of information, application forms, and some personal advice, but obtaining a graduate fellowship depends greatly on the applicant's individual effort."

Dean Hazen is the MIT representative for a number of foreign fellowship programs, including Churchill scholarships, Fulbright-Hays grants, Marshall scholarships, Rhodes scholarships are handled by Professor David Ness of management.

"In general," Dean Hazen says, "foreign study can be an unforgettable and exciting experience, but if it is to be profitable, it calls for serious thought, early investigation and careful planning. I urge students who are interested in exploring the possibilities of studying abroad to do so."

The Foreign Study Office is located in Room 10-303, Ext. 5243. Just discussing foreign study with Dean Hazen can be an unforgettable and exciting experience.

# THE INSTITUTE CALENDAR

January 26  
through  
February 4

## Seminars and Lectures

### Wednesday, January 26

**An Interpretation of the PDP-11 Design\***  
Prof. F. F. Lee, Electrical engineering. CIPG Seminar. 12n-1pm, Rm 20B-220.

### Thursday, January 27

**An Analysis of the Dynamics of Towing Cables\***  
Millard Sherwood Firebaugh, graduate student, ocean engineering doctoral thesis presentation. 3pm, Rm 5-218.

### Friday, January 28

**Finite-Element Analysis of Large Transient Elastic-Plastic Deformations of Simple Structures with Application to the Engine Rotor Fragment Containment/Deflection Problem\***

Richard Wei-Han Wu, aeronautics and astronautics doctoral thesis presentation. 2:30pm, Rm 33-206.

### Monday, January 31

**An Adaptive Technique for a Redundant-Sensor Navigation System\***  
Tze-Thong Chien, aeronautics and astronautics doctoral thesis presentation. 2pm, Rm 33-206.

### Friday, February 4

**Confinement of High Beta Plasma in a Steady State Bumpy Torus**  
Dr. G. E. Guest, Oak Ridge National Laboratory. RLE Plasma Dynamics Seminar. 4pm, Rm 26-214.

**Chemisorption: The Confluence of Physics and Chemistry at Solid Surfaces\***

Prof. J. R. Schrieffer, University of Pennsylvania. Center for Materials Science and Engineering Colloquium. 4pm, Rm 9-150. Refreshments, 3:30pm.

## Student Meetings

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

**Thursday Staff Meeting\*\***  
Every Thursday, 8pm, 2nd floor, Walker.

**Technique Staff Meeting**  
Every Saturday, 11am, Student Center Rm 457.

**ERGO Staff Meeting**  
Every Sunday, 6pm, Student Center Rm 443.

## MIT Club Notes

**Baker House SPAZ Jogging Club\*\***  
Daily, 10:45pm, Baker 2nd Floor West.

**Hobby Shop\*\***  
Open weekdays, 10am-4:30pm, duPont Gym basement. Fee: students, \$6/term or \$10/year; community, \$15/year. Call X4343.

**MIT/DL Duplicate Bridge Club\*\***  
Every Sunday, 2:30pm, Walker Blue Rm. Every Tuesday, 6pm, Student Center Rm 491.

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

**Classical Guitar Society\*\***  
Every Monday and Thursday, 3:30-7:30pm, Student Center Rm 491.

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

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

**Tiddlywinks Association\***  
Every Wednesday, 8-11:15pm, Student Center Rm 407.

**Soaring Association\***  
Ground school, first Thursday every month; general meeting, third Thursday every month. 7:30pm, Student Center Rm 473.

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

### Student Homophile League\*

Meeting and mixer. Every Friday, 7:30pm, Mission Church, 33 Bowdoin St, Boston.

## Mixers

### Muddy Charles Pub\*\*

Join your friends at the Muddy Charles Pub, 110 Walker, daily 10:30am-7:30pm. Call X2158.

### Friday Afternoon Club\*\*

Music, conversation and all the cold draft Budweiser you can drink. Featuring folk singer Rich Holloway. Every Friday, 5:30pm, Ashdown basement Games Rm. Admission: men \$1, women free. Must be over 21.

## Movies

### The Letter

William Wyler's masterpiece. Wednesday, January 26, 7:30pm, Rm 10-250. Free admission. Students interested in the phenomenology course given during spring term, or those interested in cinema phenomenology should attend.

### Bedazzled\*\*

LSC. Friday, January 28, 7pm and 9:30pm, Rm 10-250. Tickets 50 cents.

### China: A Revolution Revisited\*

Program includes **China: Roots of Madness** by Theodore White and CBS News documentary **Red China Diary**. Friday, January 28, 8pm, Rm 26-100. Tickets: \$1 adults, children free. Ray Eng, dorm X9710 or 354-2789.

### Casablanca and Maltese Falcon\*\*

LSC. Saturday, January 29, 6:30pm and 10pm, Rm 10-250. Tickets: 50 cents.

### Anand\*

SANGAM. Sunday, January 30, 3:30pm, Rm 26-100. Tickets: \$1.50 club members; \$1.75 non-members.

## Music

### Electronic Music Seminar\*\*

All-day seminars from Wednesday, January 26, through Saturday, January 29, Sala de Puerto Rico.

## Theatre and Shows

### Community Players\*

Business meeting and program of 5 short scenes performed by members of Community Players Acting/Directing Workshop. Monday, January 31, 8pm, Faculty Club Penthouse. Cocktails in Faculty Club Lounge, 7pm.

## Dance

### Turkish Students Club\*

Folk dance practice. Every Sunday, 4-7pm, Student Center Rm 473.

### Folk Dance Club\*

International folk dancing. Every Sunday, 7:30-11pm, Sala de Puerto Rico.

### Modern Dance Technique Class\*\*

Elementary/Intermediate. Every Monday, Wednesday, Friday, 5:15pm. Every Sunday, 1pm. McCormick Gym.

### Tech Squares\*

Every Tuesday, 8-11pm, Rm 10-105. Call dorm X0888 or 492-5453.

### Folk Dance Club\*

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

### Folk Dance Club\*

Folk dance classes. Every Tuesday and Thursday, 3-6pm, Student Center Rm 407.

### Folk Dance Club\*

Israeli folk dancing. Every Thursday, 7:30-10pm, duPont Gym T-Club Lounge.

## Exhibitions

**Water Colors by Karen Vournakis**  
Exhibited at Faculty Club through February.

### The Innermost House\*

Photography exhibition. Hayden Gallery, January 14 through February 14.

### Student Art Exhibit\*

Student art works produced during IAP including photographs and drawings. Friday, January 28 through mid-February. Hayden Corridor Gallery.

### Exhibition of Paintings by Susan E. Schur

On display at the Faculty Club.

### Photographs by Josh Collins\*

On display in the Rotch Library through February 4.

### Art LaZar Exhibition\*

Creative Photography Gallery (3rd floor duPont Gym), 12n-7p through February 1.

### The Art of Rigging and Buoy System for Air-Sea Studies\*

Hart Nautical Museum, Bldg 5, 1st floor.

### Main Corridor Exhibitions\*

Presented by students and departments. Bldgs 7, 3, 4, 8.

## Athletics

### Wrestling\*

Amherst. Wednesday, January 26, duPont Gym. JV/F at 6pm. Varsity at 7:30pm.

### Varsity Hockey\*

Holy Cross. Friday, January 28, 7pm, Skating Rink.

### Varsity Basketball\*

Colby. Friday, January 28, 7:30pm, Rockwell.

### Varsity Indoor Track\*

Bowdoin. Saturday, January 29, 12:30pm, Rockwell.

### Gymnastics\*

Yale, Chicago. Saturday, January 29, 1pm, duPont Gym.

### Varsity Squash\*

Stony Brook. Saturday, January 29, 1pm, duPont Squash Courts.

### JV/F Hockey\*

Bryant & Stratton. Saturday, January 29, 2pm, Skating Rink.

### JV/F Fencing\*

Concord High School. Saturday, January 29, 2pm, duPont Fencing Rm.

### Wrestling\*

WPI. Saturday, January 29, varsity at 3:30pm, JV/F at 5pm, duPont Gym.

### Varsity Fencing\*

Dartmouth. Saturday, January 29, 4pm, duPont Fencing Rm.

### Freshman Basketball\*

Huntington School. Saturday, January 29, 7pm, Rockwell.

### Varsity "B" Basketball\*

Stevens College. Wednesday, February 2, 6pm, Rockwell.

## Religious Services and Activities

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

### Roman Catholic Mass\*

Every Sunday, 9:15am, 12:15pm, 5:15pm, Chapel.

### Christian Worship Service\*

Every Sunday, 11am, Chapel.

### Christian Discussion Group\*

Bible study and discussion of Christianity today. Every Sunday 9:30-11am, McCormick Seminar Rm A. Call Ron Gamble, X6712 or 547-4279.

### Hillel Religious Services\*

Monday-Friday, 8am, Rm 7-102; Fridays, 7:30pm, Chapel; Saturdays, 9am, Chapel.

### Christians for Dinner\*

United Christian Fellowship. Every Tuesday, 6-7pm, Walker Dining Hall (under sign of the fish).

### Praying, Singing, Sharing Meeting\*

United Christian Fellowship. Every Tuesday, 7-8pm, East Campus Lounge.

### Christian Science Organization\*

Meeting includes testimony of healings. Every Tuesday, 7:15pm, Rm 8-314.

### Christian Bible Discussion Groups\*

Every Wednesday, 12:30pm, Rm 4-343; every Thursday, 12:30pm, Rm 20B-031. Call Prof. Schimmel, X6739 or Ralph Burgess, X2415.

### Islamic Society Prayers\*

Every Friday, 1pm, Kresge Rehearsal Rm B.

### Vedanta Services\*

Every Friday, 5:15pm, Chapel; discussion hour, 6pm, Ashdown Dining Hall.

### Free Draft Counselling\*

Hillel, 312 Memorial Drive, X2982. Call or visit 10am-5pm.

## Announcements

### Tutoring Opportunity

Anyone interested in earning credit for tutorial/discussion or teaching a course or craft (from basket weaving to stereo) to disadvantaged boys at Boston High School, please call Steve Morgan, 776-0516 or 332-4588.

### Creative Writing

Experimental creative writing course without a teacher will meet every Monday during the semester. For information call Wanda Adams, X7078.

### Christian Faculty Fellowship

All faculty members interested in Christian Faculty Fellowship please call Prof. James Bruce, 259-9509 after 7pm.

## IAP Listings

### Wednesday, January 26

**Attenuation of Shock Wave Generated by High Speed Tube Vehicles**  
Visiting Prof. J. H. T. Wu. ME Staff Seminar Series. 9:30am, Rm 1-146. Followed by coffee, Rm 1-114.

### Electronic Flash Lamps and Their Uses

Dr. Bruce Newell. Stroboscopic Experiments and Seminars. 11am-12n, Rm 10-275.

### To be Announced\*

Prof. P. C. Parks University of Warwick, England. Decision and Control Sciences Group IAP Seminar Series. 1:30-2:30pm, Rm 10-105.

### High Molecular Weight Poly (vinyl alcohol) for Biomaterials\*

Tim Burke, graduate student. Chemical Engineering Seminar. 11am-12n, Rm 12-142.

### The Developing Field of Solid State Electronic Devices

Dr. David G. Thomas, executive director, Electronic Materials and Processes Division, Bell Telephone Labs. Research Highlights in EE Seminar. 3-4pm, Rm 10-105.

### Advanced Energy Converters: Improved Gas Turbines and Magneto-hydrodynamics

Prof. J. F. Louis and Prof. W. S. Lewellen. Aero and Astro IAP Seminar. 3-4:30pm, Rm 33-418.

### Spy Who Came in from the Cold\*

Humanities IAP Film Series. 6pm, Rm 2-190. Free admission.

### Early Versions of Robert Schumann's "Dichterliebe"

Lecture-recital by Rufus Hallmark of Brown University. 8pm, Music Library. Free.

### Thursday, January 27

### How Mechanical Energy Is Generated in the Human Body

Prof. I. V. Yannas. ME Staff Seminar Series. 9:30am, Rm 1-146. Followed by coffee, Rm 1-114.

### Algebraic Methods in Control System Design\*

Prof. A. S. Morse, Yale University. Decision and Control Sciences Group IAP Seminar Series. 1:30-2:30pm, Rm 10-105.

### Microcomputers Built with Electron and Ion Optics

Prof. C. K. Crawford. Research Highlights in EE Seminar. 3-4pm, Rm 10-105.

### The Threepenny Opera\*

Humanities IAP Film Series. 6pm, Rm 10-250. Free admission.

### A Comparison of Bach's "E Major Prelude for Violin Alone" with the First Movement of "Cantata 29" and Schumann's "Pianoforte Accompaniment"

Lecture-recital by Joel Lester of City University of New York. 8pm, Music Library. Free.

### Friday, January 28

**The Energy Crisis and Its Implications for Engineering Education**  
Prof. Peter Griffith. ME Staff Seminar Series. 9:30am, Rm 1-146. Followed by coffee, Rm 1-114.

### Enzyme Engineering

Bing Van Dyke, graduate student. Chemical Engineering Seminar. 11am-12n, Rm 12-142.

### Application of Extended Kalman Filtering Methods to Target Tracking\*

Dr. John Tabaczynski, Lincoln Lab. Decision and Control Sciences Group IAP Seminar Series. 1:30-2:30pm, Rm 10-105.

### The Problems of Using Computers in Large Organizations

Edwin Jacks, director of technical development, information systems activities, General Motors Technical Center. Research Highlights in EE Seminar. 3-4pm, Rm 10-105.

### Mother Nature and Other Light Motifs: Notes on Musical Unity in Wagner's "Ring"

Illustrated lecture by Steven Ledbetter of New York University. 8pm, Music Library. Free.

\*Open to the Public

\*\*Open to the MIT Community Only

\*\*\*Open to Members Only

†Freshmen encouraged to attend

Send notices for February 2 through February 11 to the Calendar Editor, Room 5-111, Ext. 3279, by noon Friday, January 28.

## IAP Timetable-Revisions and Additions

### New Offerings

J02-22 Computer Movies .....	R 10-5 .....	4-370 .....	1/27
J18-19 Special Seminar .....	F 2:30 .....	2-151 .....	1/28

### New Scheduling—This Information Supersedes that in the IAP Timetable and the Previous Revisions

J21-32 Songwriting .....	W Eve (7-9pm) .....	4-160 .....	1/26
J22-6 One Day Sem in Est of Fuel Resources .....	cancelled		

### Miscellaneous

Exhibition of Student Art Work .....	all day .....	Hayden Gallery .....	1/20-1/28
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Banisters were made for sliding down, as this young man demonstrates.

—Photo by Margo Foote

# Winter Teams Compete at Home This Week

The true sports fan can get his or her full bag of collegiate sports action this coming weekend and they won't have to go very far to get it. Seven of MIT's varsity winter teams will show their wares this Friday and Saturday at the friendly confines of the du Pont Athletic Center.

Tech Fencers reeled off two impressive victories over the weekend, dropping Norwich, 21-6 and Southeastern Massachusetts University, 23-4. The wins evened Tech's record at 3-3.

Tech's Hockey team can't get rolling. After battling in losing causes, Queens College, 5-4, Lafayette, 6-4 and Nichols, 5-3, the engineers dropped their eighth decision of the season in a 10-0 rout to St. Anselm's. Senior wing, Jerry Horton (Malvern, Pa.), has been Tech's major offensive threat thus far this year. Jerry has scored five goals in the past three games, including the hat trick against Nichols College.

Tech's Track team gave it the old college try against heavily favored Tufts last Saturday. The engineers led Tufts, 23-16, in the field events, with Williams trailing in third with six. Junior, Brian Moore led the Tech weight men with firsts in shot and the 35 lb. weight. Moore has been beaten only once in the 35 lb. weight (Boston College) in eight outings.

Tufts talented running stable altered the outcome, however, outscoring MIT 48 to 30 followed by Williams with 13. This gave the Jumbo's a final 64-53 victory over Tech. Williams was next with 19. MIT's record is now 4-2.

177 pounder, Senior Co-captain Paul Mitchell paced the Tech Wrestlers to a 52-0 rout over R.P.I. last Saturday. Mitchell, 5-0 on the season, including three pins, will be Tech's prime threat in the upcoming New England Championships.

MIT's Ski team got into action over the weekend, placing second in a Greater Boston Four Team Alpine meet at Intervale Ski Area, New Hampshire. Sophomore, John Nabelek placed second in both slalom and giant slalom events while teammate, Steve Nadler placed fourth in the giant slalom. Nadler ran into bad luck, as he straddled a gate and was disqualified despite being timed in three full seconds ahead of his nearest competitor.

Coming off their IAP Florida trip, in which they were 2-2, the

## Suggestions, Ideas Sought for Calendar

Last spring the weekly Institute Calendar ceased separate publication and was incorporated in *Tech Talk* as a part of the paper's new format. The change was made both to reduce printing costs and to provide a central source of information for the MIT community.

Reactions to the Calendar's new look have been varied, but one continuing comment is that it does not stand out as much as when it was published separately. We would like to remind readers that in most issues the Calendar is located on the two center pages so that it can be removed and posted after the paper has been read.

The Institute Calendar is meant to serve you. Any suggestions for improving that service would be most welcome. Please write to *Tech Talk*, Room 5-111, with your comments.

Page 6, *Tech Talk*, January 26, 1972

basketball team has played its best of the year to date. The team upset R.P.I., 65-58, and then rolled over Lowell Tech, 83-62, to give them a 6-4 record. Probably the chief factor in the team's recent success, is the point distribution among the starting team. Instead of relying on a "big" night from high scoring forward Harold Brown, the Tech five have been spreading the offensive effort to a point where, as of this writing, four starters, Brown 22.2, Jerry Hudson 18.8, Minot Cleveland 14.3 and Bill Godfrey 10.5, are all in double point per game figures.

# Number of Applicants Shows Noticeable Rise

(Continued from page 1) moved up by five days.

"This, however, does not really help us in coming up with a firm number," Professor Greeley notes. "It is well known that MIT is permissive about the deadline. As many as 25 percent of applications are not completed until after the deadline."

One item which does seem certain is an increase in the number of minority applications. Whereas the number of blacks and women seeking admission is about the same as last year, the number of candidates from Spanish-speaking backgrounds has more than doubled. Peter Richardson, Associate Director of Admissions, cautions that "though there has been an increase, part of it may be because we were more diligent in trying to identify these candidates."

The Admissions Office is continuing an experiment started last year aimed at increasing faculty participation in the selection of students. Nine teams composed of two faculty members and one admissions officer will make decisions on 150 cases each.

The remainder of the applications will be considered in the



Professor Davenport.

traditional way. The Admissions Office will circulate these applications to interested faculty members for comments but decisions will be made during the annual admissions roundup.

Letters of decision are scheduled to be mailed by March 22 so that successful candidates may have an opportunity to get in touch with present students while they are home for spring vacation.

Some 240 high school students have already been accepted for the Class of '76 through a process similar to but different from "early decision." Early decision, as commonly known, applies to a high school student who elects to apply to only one institution. He files his application early and in early December board scores are known, the admissions office of the College makes its decision. If he is accepted by his chosen college, he agrees to make no further applications.

This method is handled differently at MIT where it is called "early action." The applicant follows the same procedure, but is not firmly committed to entering MIT until May 1 acceptance date which applies to all admitted students.

# Davenport Appointed New Head of CAES

(Continued from page 1)

national need and opportunity by which graduate engineers could increase their competence by intensive education in the modern concepts and discoveries of science."

The Sloan Foundation, following a study led by Professor Gordon Brown who was then Dean of Engineering, made a \$5,000,000 grant to the Institute to establish the Center, including construction of a building for the Center especially designed to support continuing education programs.

Under its first director, Dr. Harold S. Mickley, professor of chemical engineering who resigned as the Center's director last year, the Center made important strides both in providing opportunities for practicing engineers, scientists and technical managers to return to the campus and study and in providing continuing education systems used in the field at or near their places of employment.

Among campus programs, the Center's Practicing Engineer Advanced Study Program enables engineers and scientists nominated by their companies to spend a sort of "industrial sabbatical" for one or two terms at the Institute working at depth in technological areas pertinent to their professions through study programs structured to their individual needs. Nineteen such professionals are presently studying under the program which has had more than 150 enrollees since it began in 1963.

A second campus program, this one dealing with systematic analysis, began in 1967 and provides similar mid-career opportunities for government employees at the federal and state levels. Ten to 15 such individuals take advantage of this program each year.

CAES also has developed, and is continuing to develop, self-study subjects for the larger numbers of working professionals who cannot spend one or more academic terms on campus. Each subject is a multi-media package whose principal elements include a pretest, a study guide, lectures and demonstrations on film or videotape, lecture notes, a text, detailed solutions to problems, and a certificate of satisfactory

completion. The system is flexible and can be used separately by individuals for self-paced studies or in the form of regularly scheduled classroom sessions.

During 1971, CAES offered its first four subjects in the self-study format to industry. Enrollments climbed rapidly during the second half of the year and totalled almost 1,000 by year's end. The Center expects to complete four additional subjects and begin development on as many more.

Professor Davenport is a specialist in communications systems and is the author of "Random Signals and Noise," published in 1958 with Professor William L. Poot of the University of Michigan, and of "Probability and Random Processes," published in 1970. He has participated in teaching programs at the Center for several years and the latter book grew out of his lectures to students in the Practicing Engineer Advanced Study Program.

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

Dr. Davenport returned to campus as Professor of Electrical Engineering in 1960 and from 1961 to 1963 was associate director of the Research Laboratory of Electronics. From 1963 to 1965 he returned to Lincoln as assistant director, but came back to the campus in 1968 and served until 1971 as Undergraduate Academic Officer and Chairman of the Undergraduate Educational Policy Committee of the Department of Electrical Engineering. He was appointed associate head of the department for electrical science and engineering in June 1971.

# Committee to Study Proxy Issues for MIT

(Continued from page 1)

Inc.; Frank S. Jones, professor of urban planning and director of the Whitney Young Community Fellows Program; Robert M. Solow, professor of economics; and Martin Y. Tang, a graduate student in the Sloan School of Management.

The committee will serve in an advisory capacity on proxy issues

the Institute as a responsible shareholder. It will report its recommendations directly to the Corporation executive committee.

Mr. Walter L. Milne, Assistant to the Chairman of the Corporation, will continue to serve as staff support for the new committee in receiving questions, suggestions, and proposals relevant to the interests of the committee from the Institute community.

# Joint Medical Program Offers Spring Courses

The Harvard-MIT Program in Health Sciences and Technology is offering six courses during the spring semester beginning February 7. Students interested in applying for admission to the courses may pick up application forms from the Office of the Director of the program in Room 16-512.

The following classes are being offered: HST-090 Cardiovascular Pathophysiology, Professor W. H.

Abelman; HST-060 Endocrinology, Professor J. B. Stanbury; HST-020 Musculoskeletal System and Skin, Professor D. R. Robinson; HST-070 Reproductive Biology and Human Sexuality, Professor D. G. Porter; HST-080 Hematology, Professor W. S. Beck; HST-120 Gastroenterology, Professor P. Snodgrass.

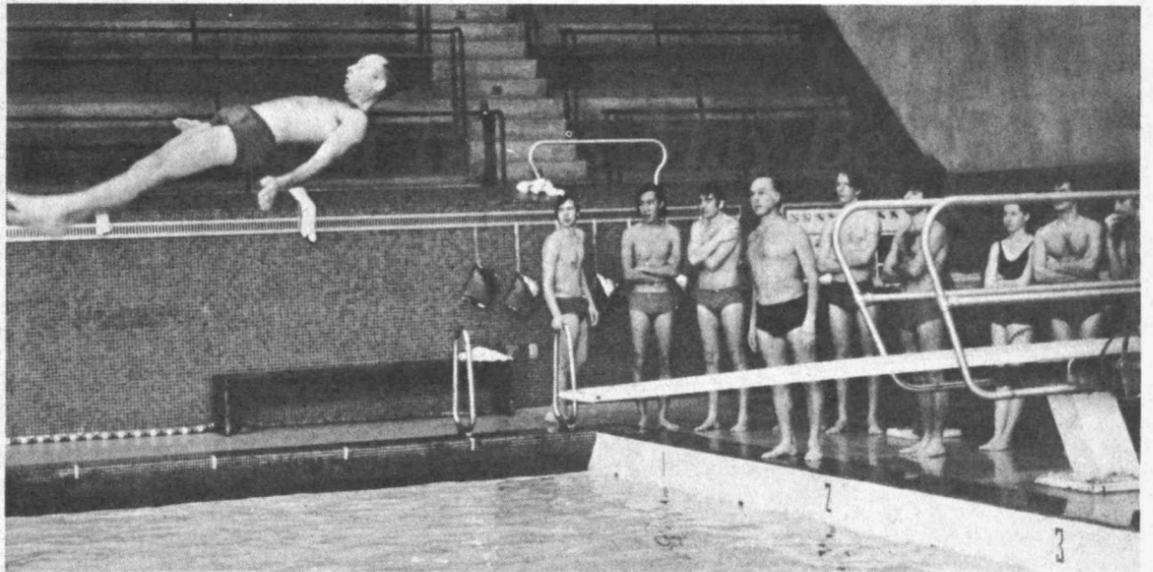
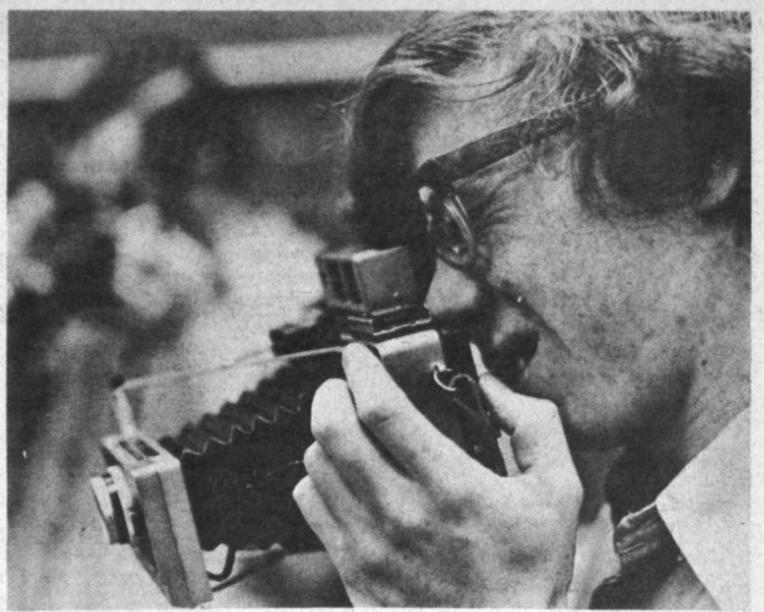
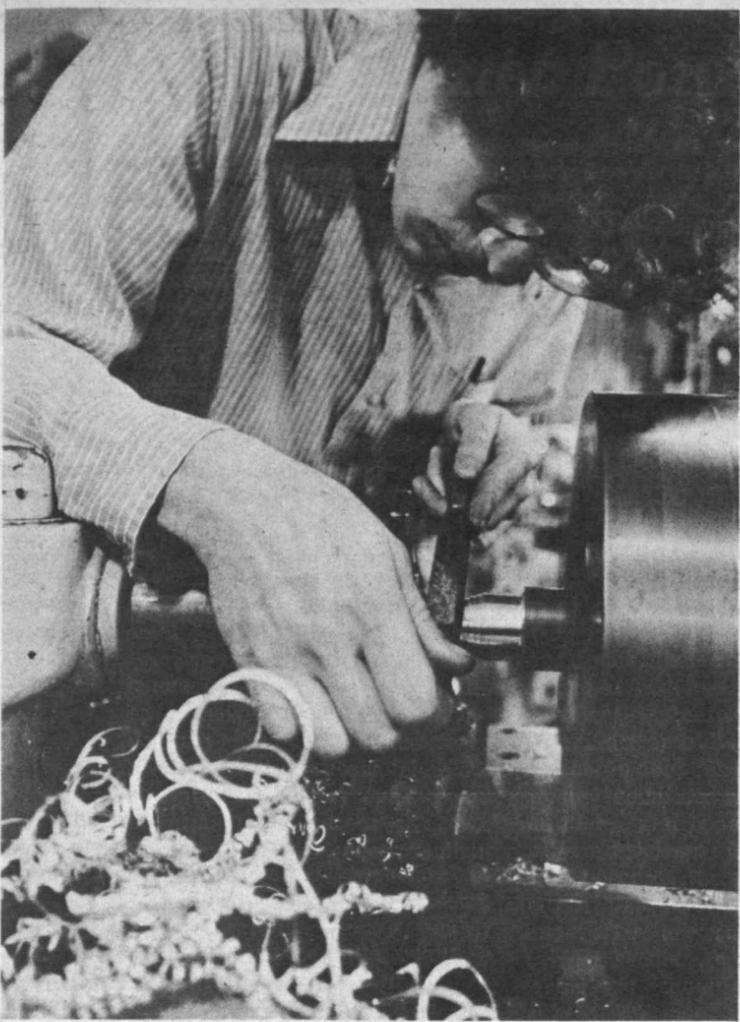
The application deadline is Tuesday, February 1.



Russell DeYoung, left, watches as a sign is placed naming the Junior Achievement Center in Akron, Ohio, in his honor. Mr. DeYoung, chairman of the board of the Goodyear Tire and Rubber Company and a member of the MIT Corporation, has long been an active supporter of Junior Achievement activities. With Mr. DeYoung is William C. Richards, Jr., president of the company which made the sign.

# IAP '72

—Photos by Margo Foote



# CLASSIFIED ADS

## For Sale, Etc.

New Hart Javelin skis, 210cm, nvr drilled for bndgs, \$100 or best; Head Master 105cm skis w/Cubcos, \$45 or best. X105 Draper 7 or 358-7659 Wayland evgs.

Rims, 3 13" w/4-hole pattern, 1 w/tire mtd. Page John Golis, 247-8250.

Man's La Dolomite lace ski boots, 12M, used 4 times, like new, orig \$45, now \$18 incl boot tree. Steve Broughton, X1860 or 868-5744 evgs.

Pr 42" ski poles, \$3. Joan, 495-6497.

Short curly brown synthetic stretch wig, worn 3 times, M, was \$30, now \$15. Connie, X5243 or 536-5987.

Coleman gallon thermos, \$5. Dave, X4849.

Dick Stabile top qual profes tenor sax, exc cond, \$250. X5076.

Ski boots: custom made super stiff Molitor racing, 8-8½, wide toe, narrow heel, outgrown after 1 seas, \$60; Lange competition, 7½M, outgrown after 2 seas, \$40. R.B. Adler, X4651.

Antique gilded wrought iron sofa w/wh vinyl foam matt, \$80. Call 646-3319.

Portable TV, 18", sofa-bed, bkshelves, etc. All in gd cond. Shirley, 661-0595.

Elec space heater, 1200 watt, \$5. Kenneth, X3750.

Refrig-freezer, 9 cu ft, \$75; 20" fan, \$15; small car luggage rack, \$6; etc. Call 523-3047 evgs.

Queen foam matt, wh K cab, bl/wh/gray couch, 15 gal fish tank, 4 dwr dresser, 9x12 gold rug. Call 547-0683.

Waterbed, exc cond, bought 10/71, 7'x6' matt w/5 yr guar, heater w/2 yr guar, finished walnut frame, vinyl liner, \$90. Call 783-3942.

GE 16" b&w TV, \$50. Bob, X5358 or 646-5026.

Hunting bows, new, 1 Ben Pearson 40-lb, 1 Wing 55-lb, both w/reverse curl pistol grip hndls, cases, arrows, quivers, targets, all for \$50; autoharp, exc cond, w/case, \$50; wanted, man's med scuba wet suit, complete. Don, 275-1259 evgs.

K tbl, w/drop leaf, chrome legs, formica top, 2 chrs, \$15. Mrs. Barclay, X4787.

English china, Leeds (by Mason), copper luster scenic pattern, serv for 12 w/extras, \$150. Call 944-3860.

Lady's brown ski gloves, M, never worn, or \$10 credit at the Ski Market on Comm Ave, for \$9. Bill Swedish, X2152 or 277-5028.

Jaguar skis, in orig wrapping, 67" long, best offer. Call 961-1698.

Port Singer sewing mach, \$35; ductless range hood, best offer. X5326 Linc or 667-7070.

Raichle Roughouts, woman's Swiss hiking boots, 9, like new, \$12. Carla, X6036.

Olympia pica typewriter, almost new, \$75; Persian rugs, \$400, \$35, \$30; 9'x12' hooked rug, \$350; lthr top bridge tbl, \$45. X5057 or 491-6434 evgs.

Kitchen Aid port dishwasher, like new, \$110. Wanted: tech typing on IBM executive by MIT secretary. X7163 Linc or 491-4312.

Gold rug, 6'x9' oriental style, made in Belgium, gd cond. Paul, X6389.

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 or room number. Ads may be telephoned to Ext. 3270 or mailed to Room 5-105. The deadline is noon Friday.

Remington elec knife, new, \$8.50, Berlitz French records, \$1.50; 2 walnut chrs, \$7.50 ea; sm foot stool, \$1.50. Milton Lavin, 868-5831 after 1:30pm.

Elec adding mach, 1 yr old, \$100 new, asking \$49; Polaroid Colorpack II w/case, asking \$15. Call 731-9776 evgs.

Vinyl reclining chr, emerald green, gd cond, \$30; orange bread box, chrome front, exc cond, \$5; Waring can opener, white, lk new, \$3.50. Call 593-5095.

Bl figure skates, 10, exc cond, \$10 or best. Stryker, X5792, 5796 or 864-3491 evgs.

Hse lot, Buzzards-Buttermilk Bay shores, 90x115', across road from water, 5 min walk to priv beach, paved road w/all util. Call 665-8142 evgs. Beige metal secretarial desk w/walnut formica top, 2x5' w/4 filedrws, exc cond, \$100. Call 321-1442 days.

Canon Pellix 35mm SLR, lenses: 58mm f/1.2 and 55-135mm f/3.5 zoom, extras, \$235. Bob Schlundt, X323 Draper 7 or 261-2530.

Man's ice skates, 9, \$6. Malcolm, X4301 or 491-7774.

Mich X a S tires, 4, 155x15, slightly used, \$35 ea. Andy, X7920.

Slingerland drum set w/Camco access, base, 2 tom-toms, snare, 2 18" Zildian ride cymbals, high hat, \$150-200. X5981.

Selmer-Bundy oboe, used 1 yr, \$165. X2407.

Fisher FM tuner, mono, exc cond, \$30, 500w SSB w/pwr supply, all in 3' bank w/dolly, best offer. Tony, X7611 Linc.

RCA 16" port TV, works at times, \$10. Ray Eng, 354-2789 or lv msg at X2961.

Photo enlarger, other dkrm equip. Call 327-1854 evgs.

Nikkorex 8mm movie cam w/case, zoom lens, 1:4, f/1.8, \$70. Speer, X5241.

Free: 15" TV, sound ok, nds new pic tube. X2948.

Henke 5-bkl man's ski boots, 11, worn 4 times, exc cond, were \$90, now \$50 incl A&T boot tree. Berry, X2181.

Air cond, 12,500 BTU, 8 yrs old, works fine, \$25. Bud, X4710.

Man's fig skates, 10, \$7. Call 862-9251.

Smith-Corona changeable type boxes, Greek & international. Norman, X1909 or 547-3431.

Woman's Gerry parka, down filled, br orange, new cond, asking \$45. X3823.

Coppertone refrig, 10 cu ft, 6 mos old, \$100; couch & chr, \$50, 2 oriental rugs, 6x8', \$15, 9x12' w/pad, \$30, misc other items. Call 776-0798.

Sofabed, gd cond, \$75; 600 BTU air cond, \$50, BR set, best offer, lving country, must sell. Call 661-0595.

Cradle, like new, \$10; 3 wd bed sides, \$2 ea. Call 861-8070.

Deer head, 3-pt antlers, exc cond, \$50 or best. Ivan, X368 Draper 7.

Bl vinyl recliner, 2 yrs old, \$38, baby carbed, used twice, \$6; top qual car-seat, nvr used, \$6. Call 876-3508 evgs.

New Honeywell thermostat; lg solid core door; oil storage tank w/oil; mel-mac dishes, best offers. Arlene, X6010.

Pr Firestone Supersport wide ovals, F70-14, both \$5. Jeff, X4091 after 4pm.

Kitz 200cm metal skis, \$30, man's lace ski boots, 11B, \$10. X5826.

North Hickory early Amer stuffed arm chrs (2): green tweed arm chr, \$110 print swivel rocker, \$125; Philco window air cond, 6000 BTU, seldom used, \$75. Gibeling, X4233 or 491-8616.

Hoover vac clnr, \$5; Pfaff sew mach, \$30; fencing equip, best offer, all prices negotiable. Sandy, X3533 or 354-4005 evgs.

Hotpt 40" elec stove, timer, push buttons & clock, \$40. X7263 Linc or 862-2987.

Zerographic repro paper, 12 cases, high qual, reas. John, X7237.

HiFi, \$30, 6 mod chrs, \$30, medicine cab, \$10, file cab, \$10; dbl bed w/ frame, \$40, baby carbed, \$7; stroller, \$10; misc items. Call 491-7027.

Muntz 25" color TV console w/solid state AM-FM stereo & rec player, maple finish, exc cond, 4 yrs old, \$350 or best. Frank, X206 Draper.

Lady's Henke buckle ski boots, 8 or 8½, used 4 times, \$15. GE 18" b&w TV w/stand, v gd cond, \$50. Call 491-2385.

\*71 proof sets, \$6.25 ea. Ed, X5309.

## Vehicles

'65 Ford Custom, gd cond, \$325. X3895 or 623-1491.

'70 Mustang 2-dr, buckets, V-8, p st, auto, 27K, exc cond, lime green w/bl top & int. Ann, X5734 Linc.

'69 VW bug, new tires, reconditioned eng, R, rear window defrost. X5754 Linc or 924-7370.

'71 Vega hatchback, fully equipped, exc cond, \$1900. Mayo, X6048 or 1-475-7529.

'69 Ford Galaxie, auto, p st, factory air, transm lock, rear speakers, other extras, \$1450. Call 492-5583.

'69 Karmann Ghia, exc cond, 28K, new br, R&H, red, asking \$1250. Call 965-0451 9-10 am.

'62 Impala, 6 cyl, auto, \$75 or best. Dean, X3624 or 247-8764.

'64 VW sedan, rebt eng, sun roof, 50K, snows, exc cond, X7500 or 876-8105.

'64 Valiant, 2-dr, Hurst stick trans, 273 V-8, nds work, best offer. Al, X1663.

'63 Volvo 122F, 4-dr, gd mech cond, body rust, \$300. Ken, X7654 Linc.

'66 Mustang, 6 cyl std, rebuilt trans, recent front end work, new shocks, tires, dk gr, best offer. Lance, X7792 or 281-1763 evgs.

'70 VW bug, 22K, orig warranty, R&H, back window defrost, exc cond, lt blue. Carol, X3906 or 661-8054.

'63 Chevy II, 63K, fair/gd mechanics, body poor in rear, trunk nds lock, exc tires, \$100. Ann, X5366 or 492-3937 evgs.

## Housing

Bridgewater, 3-BR ranch, LR, fam rm w/frpl, ct bath, redeco, immed occup, low \$20s. Call 492-6692.

Brighton mod 1-BR apt, \$175 sublet. Nigel, X5046.

Ntn, custom built 5-rm ranch + fam rm w/frpl, 1½B, prof landscaped w/swim pool, \$43,900; Woburn, 3-BR col, mod K, reas price for quick sale, \$27,900. X2136.

Newton Corner, finished 1-BR apt, exc location, \$235 w/all util. X5760 or 527-3761.

Will exchange furn 4-BR farmhse by the sea, 32 acres, all utils, barn, shed, beach, lighthse, for furn or unfurn house or apt in Boston area for academic year 72-73. Write Prof. George Thomas, Margaree Harbor, Cape Breton, Nova Scotia.

Burlington 2-BR apt, ww carpet, air cond, disp, dish, avail 3/31, \$220/mo. Joe Katz, X5825 Linc or 273-0538.

Apt sublet, 2-BR, dish, ww carpet, heat incl, MIT person only, avail 2/10. Call 491-3582.

Jay Peak, Vt, lkside ski lodge for rent, sleeps 11, on 200 acres, plenty of snow. Denny, X2430 or 665-6220 evgs.

Bcn HI sublet, sunny 2½-BR apt, all mod K w/dish, DR, lg LR w/frpl, lg sundeck, comp furn incl cat, avail 2/1-end of July, \$300/mo + mgmt of 3 other apts. Call 523-3591.

Exeter, NH, 5-BR ranch, 3½B, attach 2-car gar, new stable for 4 horses w/deed rights to 7-acre comm pasture, by owner, mid \$50s. X7794 Linc.

Bcn St, nr Pk Dr, furn apt, mod K&B, \$185/mo. Dale Jones, X5355 or 926-2110.

Wat, 1-BR apt, mod w/all extras, 15 min from MIT, sublet 2/1 or 3/1-5/31, \$210/mo. Chris, X2431 or 924-7896.

## Animals

Free: bl male, grey female cats, both neutered; 2 prs old skis, also free; 3-pr ski rack for Triumph, \$15. Call 876-4602.

Sealpt Siamese kittens, shots, gd type & eye color but for pets only. X3380 or 776-2347 evgs.

Free: long-haired, dbl-pawed kittens to good homes, also grown fem cat, w/spay. Laura, X2195 or 547-1834.

## Lost and Found

FOUND: leather gloves nr Bldg 24. X5258.

## Wanted

MIT seniors wld like to rent 3-6 BR house, 10-25 mi outside Boston, June or Sept '72 to June '73. Alex Makowski, X1541 or 267-2180 evgs.

Chevy 283 or 307 cu inch engine, late model, reas price. Rick, X5845 Linc.

Will buy 1 ticket to March 5 Bruins game, any seat. X7497 or 864-6047.

Harpsichord lessons. Larry, X1960, X5763 days or 547-9791 evgs.

Daily ride Melrose to MIT, 9-5. Maureen Mack, X3801.

HiFi. Paul Lee, X8606 dorm.

Visiting professor desires 2-BR house or apt, pref Brkline or Newton, 7/72-6/73. X6302.

Fem rmmate for furn apt, w to w carpet, own rm, close to bus line, \$70 plus elec. Call 327-2408 after 9:30pm.

Wood-burning stove. Call X3120 or 241-9387.

Low cost roto tiller, any cond. Jack, X5811.

Fem rmmates, 2, for newly remod 4-BR apt nr Cleve Circ, Bri, own rms w/w carpeting, mod K w/d&d, tile B, laundry in bldg, nr T, avail 2/1. X5076

Console piano, cheap, wl move. Call 536-7924 evgs.

Ride from campus, to Linc, Mon, Wed & Fri, normal wkg hrs. Fred, 876-0484.

Reverb for Fender amp. Joe, X7671 Linc.

Male rmmate for Brighton apt, own room, convenient to T, \$75. Mike, X6429 or 254-6926.

## Miscellaneous

French student wife wl teach French, translate articles, reports, papers. Call 547-7421.

Local & long distance moving, reasonable rates. Ron, 254-2203.

Will give gd care in my Quincy home to child w/working mother, pref 2 yrs or older, full or part time. Call 472-8735.

WI do gen & tech typing. Stephanie, X2138.

Professional Santa Claus, Jim Lopez, avail yr round. Call X443 Linc or 372-5295 Haverhill.

WI do typg, all kinds, reas rates. Barbara, X5408 or 825-3033.

Light and heavy moving. Call 267-9235 evgs.

Expert typist will type theses, law briefs, anything unique, short notice fine. Wtd: pt-time research position in law, social science or education. Call 491-6434 after 5pm.

WI do gen/tech typg. Call 661-1929 or X6470 evgs.

Anyone in vic of Wood St, Lex want to try carpooling? C. Therrien, X7262.

WI do gen & tech typing on IBM Selectric. Call 891-5531 or X6470 evgs.

Student w/jeep wl snowplow, residential & commercial, reas, free estimates. Call 323-8472 evgs.

## Reminders

--The Bursar's Office will begin charging a 15 cent fee for cashing checks next Tuesday, February 1. Checks will be cashed only in Room 10-180, and not in E19-215.

--There are still spaces available in the Lowell Institute School's special COBOL class scheduled to begin February 8. Those interested in applying should telephone the Lowell School on Ext. 4895 before February 1.