

Science Magazine Profiles Deutch in Energy Post

(Dr. John M. Deutch, who is on leave from MIT as professor of chemistry and head of the Department of Chemistry, has officially assumed his new post as the first Director of Energy Research in the newly created US Department of Energy [DOE].)

(His nomination to the high-ranking position was submitted by President Carter in September and confirmed by the US Senate on Dec. 6, 1977. He was sworn into office on Thursday, Dec. 29, 1977.)

(Dr. Deutch's role in the new federal agency and the scope of his responsibilities were described in the News and Comment section of the Dec. 16, 1977, issue of Science magazine, published by the American Association for the Advancement of Science.)

(The report, entitled "MIT Chemist, Schlesinger Ally Assumes Energy Research Post" and written by William D. Metz of the Science staff, is reprinted here with permission.)

John Deutch was just 23 when he first came to Washington. Al-

though he was only a part-time whiz kid, he worked closely with the small group of bright civilian systems analysts in the Defense Department who made a national reputation for themselves under then-Secretary Robert McNamara in the early 1960s. Deutch went on to become a successful theoretical chemist (it is said that he could have been any sort of scientist but he chose to be a chemist) at Princeton and MIT. Now only 39, he is returning to Washington to take the most powerful scientific post in the Department of Energy (DOE). . . . Deutch will be the first head of the department's newly created Office of Energy Research.

His nomination has been effusively praised by the scientific community. "Very enthusiastic," "enormously pleased," "extraordinarily good choice," and "uniquely qualified" are some of the reactions given by prominent scientists. "He's a doer" who will "get to the bottom of any problem, technical or political," says one

industrial executive who knows Deutch well. He is widely regarded as a forceful figure who is certain to be an activist in the Department of Energy, moving to straighten out the role of basic research and improve the health of energy R & D. Deutch was reportedly singled out by DOE Secretary James Schlesinger, who "wooed, urged and persuaded" him to take the job.

Because of the force of his personality, the chances are that his scope at DOE will be much wider than expected. ("Trying to profile John Deutch is like trying to catch the stream of a firehose in a teacup," said one of his colleagues at DOE.)

The Office of Energy Research was created because of successful lobbying by research scientists around the country, particularly a delegation that visited Schlesinger last July to press the point that an independent office was needed for basic research (Science, 12 August). But the potency of the office was left in doubt by the legis-

lation that established the department, and the amount of administrative responsibility was left to Schlesinger to decide. "When we heard who had taken the job, we knew the clout would be substantial," says one prominent science administrator. As it turned out, Deutch will have administrative responsibility for the entire, \$400 million per year, basic research program inherited from the Energy Research and Development Administration (ERDA) and will also be charged with coordinating energy R & D throughout the agency. In addition, he will have direct responsibility for five single-purpose laboratories (primarily doing basic research) and an important role in directing the multipurpose laboratories (Science, 2 December). At present, he is more knowledgeable about energy than the DOE Undersecretary, to whom he reports in the chain of command. Without direct budgetary responsibility for the big competing energy R & D programs, Deutch is in a position to

give impartial advice such as the other assistant administrators (ostensibly at the same level) may not be able to give. Particularly because of his close relationship with Schlesinger, there are signs that Deutch is already becoming an influential member of the DOE management.

"The main reason I took the job," he said in an interview with Science, "was to provide a source of independent technical advice to the Secretary on all R & D matters. I consider that a challenge."

Immediately before taking the DOE position John Deutch was chairman of the chemistry department at MIT, and before that he was on the faculty at Princeton. Although he was known as a first-rate chemist who had successfully tackled a number of hoary problems in physical chemistry and statistical mechanics, his academic base was broader than that of many a chemist. He took an undergraduate degree in history and economics at Amherst, and

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Business Leaders Honored By MIT

MIT last month conferred MIT Corporate Leadership Awards on 16 of its alumni who hold responsibilities of top management for major business and industrial organizations in the United States.

Howard W. Johnson, Chairman of the MIT Corporation, and Dr. Jerome B. Wiesner, President of MIT, presided at a luncheon at the Chicago Club, Friday, Dec. 16, where the awards were made. Host for the luncheon, attended by 10 of the 1977 recipients and 20 Chicago area MIT Corporate leaders and other Institute officers, was Robert C. Gunness, Class of 1934, former vice chairman and president of the Standard Oil Co. (Indiana) with headquarters in Chicago. Mr. Gunness is a Life Member of the MIT Corporation, the Institute's governing board.

The Corporate Leadership Awards, inaugurated a year ago when 152 alumni/executives were

(Continued on page 8)

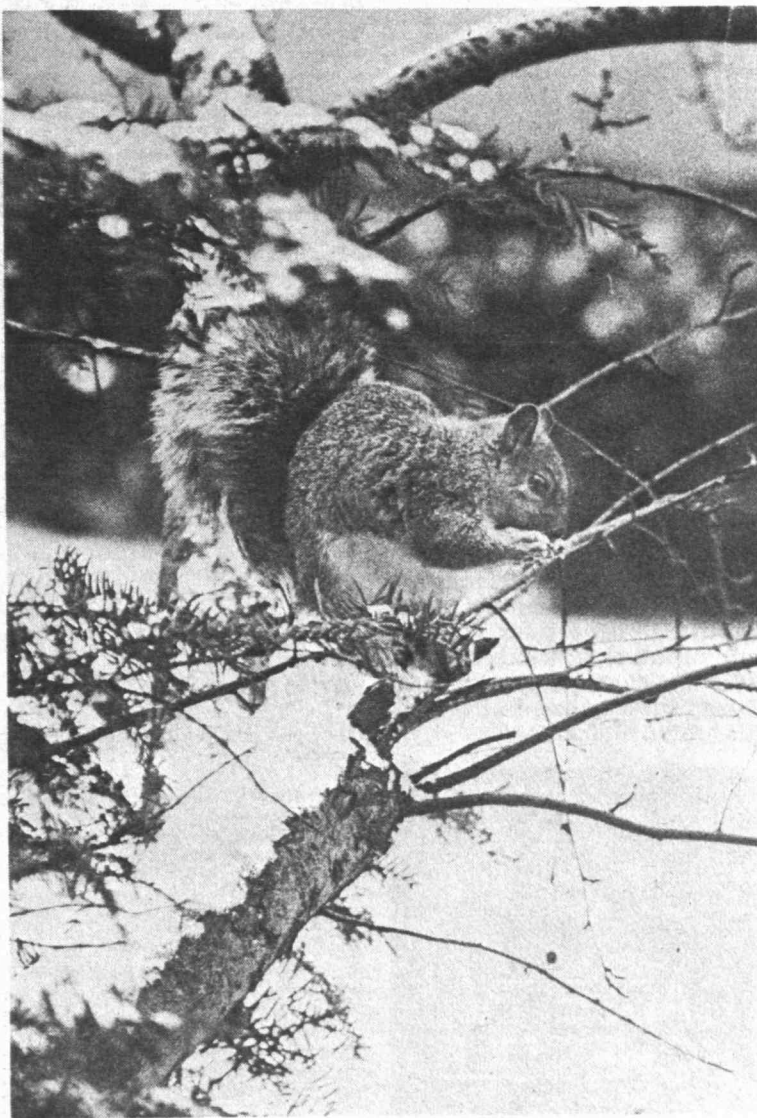
Alumni Offices Are on the Move

Offices of the Alumni Association are in the process of moving into their renovated space in Buildings 10 and 12.

By the end of this week the alumni relations staff and Technology Review are scheduled to move into the space in the MacLaurin building. The following week the records and administrative offices of the Alumni Association will be transferred to space in Building 12. The moves are expected to be completed by mid-January.

The new red MIT Directories carry the correct listings for Alumni Association personnel after the move is complete.

The Bush Room (10-105) also is scheduled to re-open this week. Reservations to use it may be made through the Alumni Association, x3-8201.



SNOW-COVERED GROUND makes foraging difficult for MIT's ubiquitous squirrels who strip the last berries from the trees and occasionally win handouts from their human friends. —Photo by Calvin Campbell

Variety Is Keynote of MIT's Independent Activities Period

Where in a single day can you sample subjects as diverse as modern Irish, nuclear power, horse race handicapping, impact analysis and jazz dance?

Where else but at MIT during its annual Independent Activities Period (IAP). IAP, an intrinsic part of MIT's curriculum, provides a change of pace from the intense pressures of fall and spring terms. It will run this year from January 9 through February 1.

During IAP, MIT students, em-

ployees and members of their families may delve into a host of seminars, field trips, lectures, workshops, contests and mini-courses. Students may choose to devote their energies to regular academic projects, working in a more concentrated, more independent way. Or they may choose to stay away from school altogether.

About 520 activities will be offered by departments, centers, laboratories, individuals or in-

(Continued on page 4)

Lichtenberg Selected As Space Lab Finalist

Six American scientists—one of them Byron K. Lichtenberg, a doctoral candidate at MIT—have been named by the National Aeronautics and Space Administration as finalists in the competition for the US payload specialist position aboard the first flight of Spacelab which will be flown in the NASA Space Shuttle in 1980.

NASA announced the list of names Dec. 22. The final selection will be made in early spring.

One American and one European will fly on the first Spacelab mission and operate the instruments involved in the experiments.

Among the experiments will be a project led by Dr. Laurence R. Young of MIT who proposed Mr. Lichtenberg for the US payload specialist slot.

For Mr. Lichtenberg—who expects to receive his PhD this summer in biomedical engineering—the NASA announcement was an early Christmas present to share with his wife, the former Lee Lombard, and their two young daughters.

Mr. Lichtenberg, 29, is an Air Force veteran and saw combat over Southeast Asia at the controls of an F-4 Phantom II. He currently holds the rank of captain in the

Massachusetts National Guard and flies the F-100 Super Sabre.

He received the BS in aerospace engineering from Brown University and is currently undertaking the flight jointly with NASA. The Spacelab is being built by ESA and NASA has operational responsibility for the launch and for the conduct of the mission.

Five of the candidates will undergo extensive training following the final selection. Of the five payload specialists trained, two will go into space and the others will perform support and advisory roles in the control center.

Payload specialists differ from NASA's permanent astronaut pilots and mission specialists in that they are not in space in 1969.

Mr. Lichtenberg, a student in MIT's Interdepartmental Program in Biomedical Engineering, is also a Hertz Fellow, one of the most sought after and highly regarded fellowships in the country. Awarded by the Hertz Foundation, the fellowships are intended to stimulate interest and progress in the fields of engineering and the applied physical sciences.

The European payload specialist will be chosen by the European Space Agency (ESA) which is

(Continued on page 3)

Gulf Oil Foundation to Fund Energy Research, Education

The Gulf Oil Foundation has awarded a grant of \$1 million to MIT for energy research and education, Howard W. Johnson, chairman of the MIT Corporation, has announced.

The grant, largest of its kind by the foundation outside of its Pittsburgh headquarters area, will be given over five years and will support work coordinated through the MIT Energy Laboratory.

Dr. Jerome B. Wiesner, president of MIT, joined Mr. Johnson in expressing the Institute's appreciation to the Gulf Oil Foundation.

"This generous and far-seeing grant brings a timely and much needed addition to research and

education in the total scope of MIT's energy program," they said.

"It focuses on problems of the highest priority in expanding the nation's energy resources. We are delighted to join with the Gulf Oil Foundation in furthering this research in the national interest."

The announcement followed a visit to MIT by Gulf representatives to discuss research areas of interest. Gulf is one of several nationally based organizations which participates in the work of the MIT Energy Laboratory. The foundation is headed by Dr.

(Continued on page 8)

Erdely Duo to Play Mozart Sonatas

The Erdely Duo—pianist Beatrix Erdely and violinist Stephen Erdely—will give a recital of sonatas by Mozart at 8pm on Friday, Jan. 13, in Kresge Auditorium at MIT.

The public is invited to attend the free concert organized by the MIT Music Section in conjunction with the Institute's annual winter term, Independent Activities Period. The program will include Sonata in F Major, K. 376; Sonata in B flat Major, K. 454; Sonata in E Minor, K. 304, and Sonata in A Major, K. 526, all by Mozart.

The Erdely Duo has given re-

citals in New York, Cleveland, Washington, DC, Boston and at colleges throughout the US. They are currently recording for Educo and the first in a series of three records was recently issued. The first record is of Mozart and Beethoven sonatas.

Mrs. Erdely is on the piano faculty of the New England Conservatory of Music and teaches at Brandeis University. Dr. Erdely is associate professor of music and director of music in the MIT Department of Humanities.

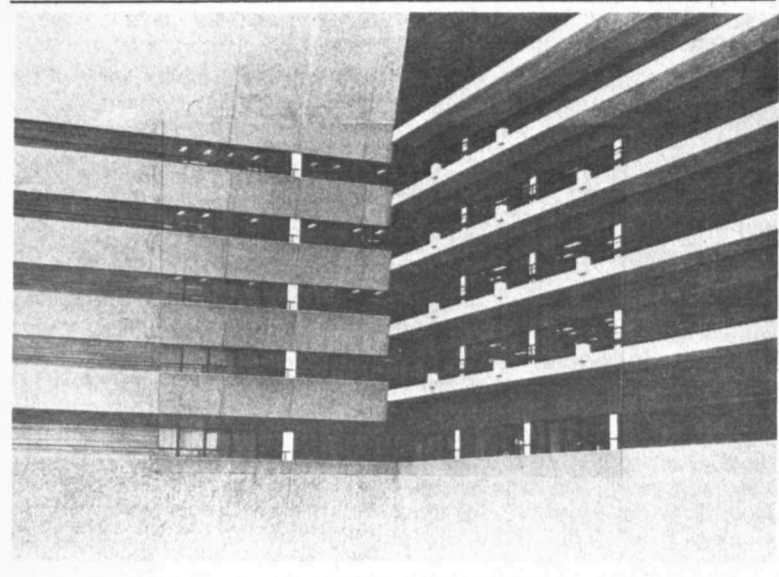
"The primary quality of her work is its consistent control and

consistent beauty of sound," Boston Globe music critic Richard Dyer wrote in a review of a recent recital Mrs. Erdely gave in Jordan Hall. "There was not a harsh or forced or flurried note in the entire recital. . . . The finale of the Chopin sonata, some of the most difficult pages in the entire literature, was mastered to such a degree that Erdely could present it as music, not simply as notes," Mr. Dyer wrote.

Mrs. Erdely began piano studies at the American Conservatory of Music in Chicago. Among her teachers were Heniot Lévy and, later, Eduard Steuermann of the Juilliard School, New York. Winner of the Society of American Musicians competition, she was presented in debut at Orchestra Hall, Chicago, followed by appearances at Town Hall, Station WQXR, and the ABC network in New York. She has been soloist with the Chicago Symphony, Grant Park Symphony and Cleveland Orchestra.

Dr. Erdely, a native of Hungary, received his early musical training at the Franz Liszt Music Academy in Budapest as a violin and composition student of Ede Zathureczky, Leo Weiner and Zoltán Kodály. He received the PhD degree from Case Western Reserve University in 1962.

He began his performing career in the chamber music department of Radio Munich, toured in recitals throughout western Europe and has recorded for radio stations in Paris, Zurich, Frankfurt, Baden-Baden and Stuttgart. In 1948 he was a winner of the International Music Competition in Geneva. Invited to join the Cleveland Orchestra by its musical director, George Szell, he remained there until 1966 when he decided to devote full time to concert and teaching careers.



PHOTOGRAPHS AND GRAPHITE DRAWING are combined in this work by Dutch artist Marc van der Marck to be on view in MIT's Hayden Corridor Gallery from December 10 through January 14. The artist groups into a serial piece four such discrete works, each with a central photograph surrounded on four sides by graphite drawing. Nine serial pieces, all dealing with architecture, will be represented in the Hayden Corridor Gallery exhibition.

Photo Gallery to Present Exhibit by Five Artists

"Vaguely Photographic," an exhibition of photographic works by five artists, will be on view from January 9 to 26 at the Creative Photography Gallery.

The exhibition will include light-sensitive cloth works by Laura Blacklow, black and white multiple-image photographs by Martha Leinroth, graphics by Wendy Richmond, black and white photographs by Ruth Schilling and offset photo-lithographs by Joel Slayton. A wall mural and continuously-run video presentation about the five artists will also be on view. The video presentation was produced by cable TV at the MIT Center for Advanced Engineering Studies (CAES) with assistance from John Barnett, who works in video.

Laura Blacklow, who teaches photography and design at Emerson College and Project, Inc., experiments with old and new photographic processes on cloth and paper. She also makes small edition or one-of-a-kind books.

Martha Leinroth, technical assistant in Tutored Video Instruction at CAES, began her photography career seven years ago while an art school student. In addition to multiple-image black and white photographs, she takes three-dimensional photographs, makes small books and works with antique processes.

Wendy Richmond, a designer at MIT Press, will exhibit some of her offset pieces. She studied graphic design at the School of the Museum of Fine Arts.

Ruth Schilling, a graduate student in photography at the Rhode Island School of Design, is interested in photographic space and the distortion of space. She is currently expanding her photographs from 11" x 14" to 16" x 20" and expanding her subject matter from found subject matter to constructed situations.

Joel Slayton, who was a special graduate student in architecture at MIT during the fall term, combines in his works found imagery such as snapshots and maps, some of his own photographs and words.

Several of the artists participating in the exhibition are enrolled in a special graduate seminar (4.889) at MIT.

The Creative Photography Gal-

lery, on the third floor of duPont Gymnasium, is open from 9am to 4pm on weekdays, from 10am to 6pm on Saturdays, and from noon to 8pm on Sundays.

United Way Announces Final Results

The MIT United Way Campaign, officially closed on Friday, Dec. 9, has achieved 88 per cent of its projected \$135,000 goal and a participation rate of 31 per cent.

Contributions to date total \$118,629.87 and the average donation for the 1977 drive was approximately \$45.

Professor Lucian Pye, Ford International Professor of Political Science and co-chairperson of the MIT campaign, announced the final figures for 1977 at a reception held on Tuesday, Dec. 13, for area coordinators, chief solicitors and other members of the MIT community who assisted in the United Way solicitation.

"Although we did not meet our goal," Professor Pye said at the reception, "MIT is still doing better than any university or comparable institution."

"It is a very respectable contribution that we are making to the United Way," Professor Pye continued, "and we can take pride in our role."

John Wynne, vice president for administration and personnel and chairperson of the MIT Advisory Committee on Greater Boston Charities, thanked Professor Pye and Philip Stoddard, vice president for operations, for their active participation as co-chairpersons for the 1977 drive. Mr. Stoddard will be chairperson for the MIT United Way Drive for 1978.

Michele Whitlow, coordinator of the MIT campaign, was also cited for her efforts, as well as John E. Newcomb, Jr., executive secretary of the MIT Quarter Century Club.

Although the campaign has officially ended, it is not too late to contribute. Donations may be sent to departmental solicitors or to Michele Whitlow, Rm 50-356, x3-7914.

N.Y. Academy Honors Dr. Rich

Dr. Alexander Rich, professor of biophysics and Sedgwick professor of biology at MIT, received the Presidential Award of the New York Academy of Sciences at the Academy's 160th annual meeting, held in New York on December 8.

The award was given to Dr. Rich in recognition of his "outstanding accomplishments in science and his sensitivity to the interplay between science and society."

Dr. Rich, a molecular biologist, is widely known for the discovery of the cellular components that synthesize proteins, and for determination of the structure of transfer RNA. He has also combined his scientific research with service on a number of government and university advisory boards. Dr. Rich has been at MIT since 1958.

CABLE TV SCHEDULE X3-3625

January 4 - 10, 1978

Wednesday, January 4
Channel 8:
12:1-3:00pm SCIENTIFIC SEXISM: FROM FREUD TO SOCIOBIOLOGY with Freda Salzman. Recorded 11/18/77.

Thursday, January 5
Channel 8:
12:1-3:00pm DANIEL P. MOYNIHAN speaking at Kresge Auditorium. Recorded 12/7/77.

Friday, January 6
Channel 8:
11am-12:30pm SCIENTIFIC SEXISM: FROM FREUD TO SOCIOBIOLOGY with Freda Salzman. Recorded 11/18/77.

Monday, January 9
Channel 8:
11am-12:30pm SCIENTIFIC SEXISM: FROM FREUD TO SOCIOBIOLOGY with Freda Salzman. Recorded 11/18/77.

Tuesday, January 10
Channel 8:
11:30am-1:30pm COLLEGE BOWL '77. Produced by MITV.

INSTITUTE NOTICES

Announcements

BSO Open Rehearsals**—Discount tickets for Wed, Jan 4, on sale now at TCA, Stu Ctr Rm 450.

Freshman Handbook—Undergraduates are encouraged to write personal essays or brief comments to be considered for inclusion in the 1978 issue. Share your impressions of MIT with the Class of '82! Submit material by mid-January.

Official Notice—February Degree Recipients. Cards enclosed with Feb degree notice must be returned to Rm E19-344 by Jan 20. Indicate whether diplomas are to be mailed, called for in person, or if attendance at commencement June 5, 1978, is planned.

Preprofessional Advising**—So You Want to Be a Lawyer (347) will meet in Rm 1-135 from noon-1:30pm. Mon, Jan 9: The Lawyer in Private Practice; Tues, Jan 10: The Lawyer in Public Practice; Wed, Jan 11: The Non-Practicing Lawyer. Info: Professor Larry Bacow, x3-2004.

RUNE**—the MIT journal of arts and letters is seeking submissions—poetry, short fiction, essays & graphics for spring issue. Drop off manuscripts, Rm 14N-305, or send through Institute mail to Rm 50-301. Deadline: Feb 28, 1978. Info: Susan, 566-0030, or Don, 267-6448.

Wives' Group**—a list of international women interested in exchanging conversation in Italian, Japanese, German, Portuguese, Farsi, Chinese, etc., for English conversation is available from the Wives' Group. Contact Karen Devine, x3-2916.

Club Notes

MIT Electronics Research Society**—Our computers are up, our scopes are running. IAP is the time to build that electronics project. Lab, Rm 20B-119 is open evenings. Info: x3-2060. Dues, \$2. New members welcome.

MIT Figure Skating Club**—MIT Skating Rink, Sun, 11am-1pm. Bring skates. People who skate forwards comfortably and have at least attempted to skate backwards are welcome to meet other skaters and practice their skills.

MIT Go Club**—Regular meetings Mon, Wed, during IAP, 8pm, Stu Ctr Rm 491. Meeting Wed, Jan 11, Stu Ctr Rm 473. Go is played, taught, discussions on strategy, occasional speakers on basic tactics in advance. Check IAP Guide for additional activities.

MIT Juggling Club**—Juggling practice, all levels. We teach beginners. Sundays, through Jan (except 1/1, 1/25), 12:30-4pm, Stu Ctr Rm 473, free.

MIT Space Habitat Study Group**—Interdisciplinary discussions of space industrialization, colonization & related issues. Tues & Thurs, 7pm, Marlar Lng (Rm 37-252). Contact: Beverly Bugos, x3-6896.

Religious Activities

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

Prayer Time**—Bible class, Fri, 1-2pm, Rm 20E-207, guest speakers, music, refreshments. Miriam R. Eccles, founder-director, Alpha and Omega Missionary Society.

IAP Notices

The numbers in parentheses indicate an IAP activity. For further information, consult the IAP Guide or call x3-1668.

IAP Art Courses**—Register now for Student Art Association courses, Stu Ctr Rm W20-429, 1-5pm. Info, x3-7019.

Physical Education—Registration for Phys Ed classes during IAP, Mon, Jan 9, 10:30am-noon, duPont Gym.

The Build a Better Purim Grogger Contest**—Meeting, Mon, Jan 9, 3-5pm, Rm 5-216, to discuss specifications. All those participating are urged to attend. Judges will be present. Sponsored by MIT Hillel. Info, x3-2982.

New UROP Listing

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

Man Vehicle Laboratory

Opportunity for student involvement in project concerning design and construction of general purpose A/D converter for minicomputers. Work also involves analysis of biological potentials and postural movements. Some software experience, programming for data acquisition desirable. Willingness to learn necessary. Engineering support and

supervision available. Contact: Dr. Howard T. Hermann, Rm 37-341, x3-7755.

Lipids

Research in Peter Bent Brigham Hospital lab. Project centers on physical chemistry and biophysics of biologically important lipids, particularly understanding structure and function of lipids of alimentary tract in both health and disease. Interest focuses on molecular properties of normal bile, mechanism of bile formation and bile secretion and derangements that occur in gallstones. Strong background in the chemical and physical sciences and interest in application of physical techniques and physical-chemical rationale in solving biological problems at a molecular level is desirable.

Anesthesia Group

Mass General Hospital Opportunity for student to assist in experiments using electron spin resonance spectroscopy to study effects of anesthetics on model membranes and biomembranes containing acetylcholine receptors. Student should have experience in biochemical techniques such as centrifugation, preparation of buffers, lipid solutions, etc., and organic chemistry. Object of experiments is to gain more insight into contemporary theories concerning the way in which anesthetics abolish pain.

Biochemical Lesion in Batten Disease

Shriver Center Recent studies have shown accumulation of large amounts of retinoic acid in the brain of a patient with Batten disease. The first part of the project will involve the isolation of pure retinol binding protein from outdated human plasma to be used in the second part of the project. Cultured fibroblasts will be examined for their ability to take up and metabolize labeled retinol and retinoic acid. A knowledge of column chromatographic techniques and a familiarity with general laboratory procedures is a prerequisite.

Graduate Studies

Institute for the Study of World Politics

The Institute for the Study of World Politics will award 20-25 fellowships for the 1978-79 academic year to scholars examining political, economic and social issues that affect the prospects for international peace and justice. Fellowships awarded to postdoctoral scholars and to doctoral candidates conducting dissertation research. Recipients must be affiliated with US universities during the terms of fellowships, but need not be US citizens. Fellowships vary in amount according to requirements and resources of recipients. They are awarded for periods of from three to nine months, may include funds for tuition, maintenance, and travel or other field research costs, and may be combined with support from other agencies.

Contact: Graduate School Office, Rm 3-136. Deadline: Feb 1, 1978.

Echoes

50 Years Ago

The annual Simmons-MIT concert given by the musical clubs of the two schools will be held at Refectory Hall in Brookline. Dancing to music provided by the Technicians will follow the concert and continue until midnight.

40 Years Ago

Field Day was such an unqualified victory for the freshmen this year that the Rules Committee decided to allow them to dispose of their hated striped ties three weeks early.

Institute sailors won the Christmas Dinghy Regatta largely through the efforts of Runyan Colie '40 who scored 34 of Tech's 49 points.

25 Years Ago

Dr. Francis O. Schmitt, head of the Department of Biology, is one of 49 scientists elected to Fellowship in the New York Academy of Sciences. Dr. Schmitt is internationally recognized as a leader in modern biological research.

Prepared by Marcia Conroy, Historical Collections, 3-4444.

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Professor Harold W. Fairbairn, right, addresses well-wishers who gathered last month for the unveiling of a plaque naming a new petrology laboratory in his honor. Dr. Carl I. Wunsch, left, acting head of the Department of Earth and Planetary Sciences, presided at the informal ceremony. Dr. Fairbairn, professor of geology emeritus, retired in June, 1977, after 40 years of teaching at the Institute but still returns to MIT to give special instruction in the use of the petrographic microscope, equipped with a universal stage, for study of rock specimens. Dr. John S. Dickey, Jr., associate professor of earth and planetary sciences, supervises the new teaching laboratory.

School of Engineering To Seek Special Funding

MIT, in an effort to advance the state of engineering education and practice, has announced that it will seek to establish a special \$10 million fund for the School of Engineering within its current \$225 million Leadership Campaign.

The special fund will enable the School of Engineering—largest of MIT's five schools—to respond to the changing needs and conditions of engineering practice "as effectively in the future as it has in the past and to maintain a position of international leadership in the engineering world," MIT said in a special booklet to be published to announce the fund.

The booklet is titled "Strengthening MIT's Commitment to Engineering Education and Practice: A Statement in Support of the MIT School of Engineering."

"MIT's School of Engineering," the booklet says, "has provided national leadership in engineering education for more than a century. The School's strong record of achievement has been solidly based on its continuing close relationship with industry, its record of pioneering advances in engineering sciences and technologies, its ability to relate new developments and advances to engineering practice and, especially, its success in incorporating these advances into revitalized teaching and research programs for graduate and undergraduate students."

"The strength of the School and the national and international stature it has achieved have been built by the dedicated efforts of generations of faculty members and students supported by the generosity of alumni, friends, industry and private foundations."

"Building on this achievement," the booklet continues, "MIT now seeks to advance the state of engineering education and practice at a moment when this is badly needed. To do this, MIT asks American industry and private foundations to help build a special development fund for the School of Engineering, continuing the powerful tradition of support of MIT by the private enterprise system to which it has contributed and continues to contribute so much."

The special fund, to which alumni and friends of MIT will be invited to contribute, will be used to meet these objectives:

- Appoint over the next five years an increased number of promising assistant professors.
- Launch an urgently required curriculum renewal effort.
- Provide faculty members with much-needed seed funding to initiate new research projects.

The attractiveness of its programs to students is causing problems for the School of Engineering. There has been a sharp increase in interest among MIT students in recent years in engineering careers. For example, under-

graduate enrollment in 1976-77 (not counting first-year students because a major course of study is not chosen until the second year) in the School of Engineering was 1,800. In 1977-78, enrollment was 2,000 and it is expected to reach 2,200 in 1978-79. In addition, there are currently 1,950 graduate students in the School of Engineering.

The volume and scope of the School's research program have also grown in response to the expanding concerns and changing needs of the engineering profession.

"These related developments," the booklet says, "are placing excessive demands on the teaching and research capabilities of the School's faculty, which has remained essentially constant in size (approximately 340) for the past 10 years. Undergraduate laboratory facilities are similarly overburdened. New laboratories are needed and existing teaching and research facilities require renovation and re-equipping to accommodate rapidly evolving requirements."

The School plans to increase the size of the faculty by 30 to 40 through the appointment of assistant professors during the next five years, "providing the School with an infusion of new ideas and talent, opening up new areas of research, and reducing the heavy teaching responsibilities of current faculty members necessitated by continuing increases in student enrollment," the booklet says. These appointments and the related research activities will require \$3.5 million of the special \$10 million fund. A program of systematic curriculum development—particularly of core subjects in the undergraduate programs and broader professional subjects at the graduate level—will be undertaken at a cost of \$2.5 million.

One million dollars of the special fund will be devoted to providing resources to explore more extensive use of modern technology in educational programs. Wider use of computers and television as teaching tools is planned.

The special fund also will provide seed funds for initiating and carrying out research projects requiring cooperative efforts at a cost of \$1.5 million.

The fund will further provide \$1.5 million for the purchase of new equipment necessary to support the teaching and research activities of new assistant professors as well as faculty moving into new fields.

Present federal funding priorities, to a large extent, preclude the acquisition of major pieces of equipment by faculty members as part of their sponsored research projects. This makes it extremely difficult for a faculty member to begin research in a new field, to expand a laboratory, or to replace obsolete equipment.

TVI Proves Boon to 8.02 Students

By ROBERT C. Di IORIO
Staff Writer

Is sitting around a television set for a couple of hours each day any way for college students to learn physics?

It is at MIT where several minority group students have achieved marked success in a program that couples tutored video instruction—TVI—with one of the hardest first-year physics courses in the world. Students attend the regular physics lecture, then, later the same day, view a videotape of the lecture with a tutor.

The course, 8.02, includes electrostatics and field concepts, electric currents and magnetic fields, induction laws, field energies, Maxwell's equations and circuit electricity.

The course content is especially formidable if the undergraduate student's high school education is

perceived by the student as inadequate for the college course being studied, a situation often true for minority group students. The failure rate for all students in the course is significant.

But none of the minority group students who took advantage of the special TVI program developed by the Office of Minority Education at MIT failed Course 8.02.

The program has been so successful that three TVI sessions of Course 8.02 will be offered in the spring term that begins in February.

Interested students must enroll by Feb. 14.

Students in the Physics 8.02 TVI program attend the regular lectures as well as the TVI sessions which are held the same day as the lecture. The TVI sessions usually last about two hours. The 8.02 lectures are videotaped by the Center

for Advanced Engineering Studies.

What the students see in the TVI sessions are the unedited videotapes of the physics lecture they attend earlier in the day. The important difference the second time around is the presence of the tutor and the ability of the tutor to stop the videotape whenever a student has a question or has trouble getting a particular point.

In his report on the pilot project, entitled *Videotaped Instruction as a Secondary Pedagogic Aid*, Professor Wesley L. Harris, director of the Office of Minority Education, said the ability of the tutor to focus on a particular segment of a lecture "has enabled the target group of students to absorb the lecture material more thoroughly. In addition to a more thorough absorption of lecture material, this particular system offers a means of determining those characteristics of the traditional teaching-learning process which may be barriers to effective teaching and effective learning for the target group of students."

Dr. Sylvester J. Gates, who served as the senior tutor for the pilot program, said the TVI format allowed student-to-student interaction at a level "which simply cannot be matched in a formal lecture. The students can interact with each other when a question first comes to their minds. Therefore, an increased incidence of student teaching student occurs."

How do the students feel about TVI? Here are some student comments from Professor Harris' report:

"TVI has increased my level of understanding. I am able to study my notes while the lecturer is lecturing, thus making it very clear where he's getting all of his derivations. I now feel very secure in my discussions of 8.02. I even tutor occasionally."

Another student said: "My level of performance has gone up compared to last semester. I am now more confident of myself when doing problem sets and quizzes because I have seen the material and have gotten explanations of the material. Almost all questions have been answered and clarified."

Another student said the fuller explanations available through the TVI experience were very helpful. "For sure, I can now talk 8.02."

CAES to Launch TVI-PM For Practicing Engineers

The MIT Center for Advanced Engineering Study will launch a new continuing education program for practicing engineers with the start of the spring term in February—nighttime courses offered through tutored video instruction. The program is called TVI-PM.

Under tutored video instruction (TVI) students will view videotapes of regular MIT classroom sessions in small groups—3 to 10—with a tutor who has been instructed by CAES to stop the tape whenever a question arises.

The ability to stop the tape and encourage discussion has made TVI highly effective in programs in France—where TVI originated—and at Stanford University and MIT.

The nighttime program—the first time MIT has offered night classes for credit—is called TVI-PM to distinguish it from CAES' regular TVI program in which videotapes are viewed by practicing engineers on the job with a tutor from the company who is also trained by CAES personnel.

Students in TVI-PM will enroll in the program individually, not through their companies. Subjects will be offered at half the normal pace—that is, half credit for each semester. "Listeners," those who

view the tapes for information but not for credit, will not be allowed in the TVI-PM program.

Students in TVI-PM will be charged full special student tuition. The usual special student rules and admission procedures will apply.

TVI-PM tutors will be graduate students approved by the faculty member in charge and by the department involved.

Recent developments in low light-level TV cameras and zoom lenses makes it possible to videotape class sessions in almost every room at MIT with one camera placed at the rear of the room. The sole restriction on the classroom instructor is that only a certain portion of the chalkboard—a portion compatible with the aspect ratio of the television screen—can be used.

TVI efforts at MIT also include the continued use of a specially converted classroom and more than one camera.

Dr. Myron Tribus, director of CAES, said that plans for TVI-PM have been approved by the Engineering Council, the Committee on Engineering Education, the Committee on Graduate Student Council Policy and the Educational Program Subgroup.

Lichtenberg Selected As Space Finalist

(Continued from page 1)

that they are selected and trained for a particular mission. They have no responsibility for flying and maintaining the vehicle.

Mr. Lichtenberg is also a candidate for mission specialist. He is currently in a group of 208 people from which 30-40 will be selected and trained.

Dr. Charles M. Oman of MIT and four Canadian scientists are co-investigators on the project headed by Professor Young. The project will investigate space motion sickness and the effects of weightlessness on vestibular function. Both Professors Young and Oman are members of the Department of Aeronautics and Astronautics. Participating in the project are the Man-Vehicle Laboratory and the Laboratory for Space Experiments in the MIT Center for Space Research and the Defense and Civil Institute of Environmental Medicine of Canada.

The first Spacelab will be launched from NASA's Kennedy Space Center in Florida and will orbit the earth at an altitude of about 250 kilometers (155 miles). At the end of the seven-day mission, the Shuttle Orbiter will return for a runway landing at the Kennedy Center, be serviced and readied for other missions.

On the Spacelab 1 mission, investigations will be conducted in

"The establishment of this special fund will enable the School to respond to the changing needs and conditions of engineering practice as effectively in the future as it has in the past and to maintain a position of international leadership in the engineering world."



BYRON K. LICHTENBERG, a doctoral candidate in biomedical engineering, is one of six American scientists selected by the National Aeronautics and Space Administration as finalists in the competition for one of two payload specialist positions aboard the first flight of Spacelab in 1980. He is holding a model of the shuttle.

—Photo by Calvin Campbell

stratospheric and upper atmospheric physics, materials processing, space plasma physics, biology, medicine, astronomy, solar physics, Earth observations, thermodynamics and lubrication.

NASA's Marshall Space Flight Center in Huntsville, Ala., will direct the payload specialists' training activities as part of its overall management responsibility for the first three Spacelab missions. ESA's Spacelab Payload Integration and Coordination in Europe (SPICE) organization will

manage the training activities in Europe.

The names of the other NASA-selected candidates are:

Craig L. Fischer, University of Kansas; Michael L. Lampton, University of California; Robert T. Menzies, California Institute of Technology; Ann F. Whitaker, Marshall Space Flight Center, and Richard J. Terrile, California Institute of Technology.

THE INSTITUTE CALENDAR X3-3270

January 4 through January 15

The numbers in parentheses indicate an IAP activity. For further information consult the *IAP Guide* or call x3-1668.

Events of Special Interest

The Artist's View of the Cosmos (395)** — Committee on the Visual Arts. Thurs, Jan 12: **The Quiet Axis: The Inclined Galactic Light Pond, Bamiyan, Afghanistan, Lowry Burgess**, CAVS Fellow. Gallery talk, slide and film presentation, 7:30pm, Center for Advanced Visual Studies Gallery (W11). Fri, Jan 13: **Light Placed, Charles Ross**, artist-in-residence. Gallery talk, slide and film presentation, 7:30pm, Hayden Gallery (14W-111). Sat, Jan 14: **Visual Models of Astronomical Systems, Littleton Meeks**, head, radio astronomy operations, Haystack Observatory. Talk, slide and film presentation, 2pm, Rm 3-133. Panel discussion following. Participants include: Littleton Meeks, Lowry Burgess, Charles Ross, and others.

Seminars and Lectures

Thursday, January 5

Salt II and the Strategic Balance* — Richard Garwin, IBM Watson Laboratories. CIS Seminar on Technology and Internal Security. 4pm, Milliken Rm, E53-482.

Friday, January 6

The Role of Calcium in Alterations of Connective Tissue in Fibrous Atherosclerosis* — Dr. Deiter Kramsch, medicine & biochemistry, Boston University Medical School. Arteriosclerosis Center Luncheon Seminar. 12:30-2pm, Rm E17-421. Bring lunch.

Aircraft Propulsion from a British Back Room* — Sir William Hawthorne, master of Churchill College, Cambridge University, and MIT. General Aero/Astro seminar. 3pm, Rm 37-212. Coffee, 2:30pm, Rm 33-411.

Monday, January 9

Energy Seminar Series (410)** — David C. White, Ford Professor of Engineering, electrical engineering and computer science; director, Energy Laboratory. **Status & Prospects of the American Energy Condition.** 9:30am, Rm 66-144.

Turbomachinery and Gas Turbines: Design Workshop (216)** — David Gordon Wilson, mechanical engineering. 9:30am-11pm, Rm 3-447.

Orientation to IPS (430)** — Brenda Ferriero, administrative staff. **Orientation to Information Processing Services,** 10am-noon, Rm 3-370.

What is Human Language? (164)** — Noam Chomsky, Institute Professor, linguistics & philosophy. **The Intellectual Roots of Contemporary Linguistic Theory,** 10am, Rm 6-120.

Undocumented Aliens in New York City* — Charles Keely, Fordham University, New York. MIT Migration and Developmental Study Group Seminar. 11am-1pm, Milliken Rm, E53-482. Bring lunch.

Maximum Likelihood Identification of Linear Dynamical Systems (129a)** — N.R. Sandell, associate professor of systems science and engineering, electrical engineering and computer science. 1-2:30pm, Rm 37-187.

Energy Seminar Series (410)** — Derek Teare, Energy Laboratory. **Environmental Impact of Advanced Power Plants Burning Coal,** 2pm, Rm 66-144.

Highlights of Aeronautics and Astronautics (2)** — John F. McCarthy Jr., aero/astro; director, Center for Space Research. **Space Shuttle Operations,** 2pm, Rm 33-206.

Spectroscopies for Surface Species (74)** — Ralph H. Staley, assistant professor, chemistry. 2pm, Rm 6-233.

Atoms, Mountains & Stars (281)** — Victor F. Weisskopf, physics, Institute Professor Emeritus. 3pm, Rm 54-100.

Catastrophe Theory (197)** — Robert Mark Goresky, C.L.E. Moore Instructor, math. 3-4:30pm, Rm 2-131.

Mathematical Logic (195)** — Eugene Kleinberg, associate professor, mathematics. **Logic & Lebesgue Measure,** 4-5pm, Rm 2-390.

What It Takes To Publish A Newspaper (570)** — staff of *The Tech.* 7:00pm, Rm W20-483.

Change Ringing (621)** — Beryl Nelson, ringing master. 7pm, Rm 4-163.

Parks and Wildernesses in New England (561)** — representatives of National Park Service, Sierra Club, AMC, and others. **How To Do It Environmentally?** 7:30-9:30pm, Rm 66-110.

Tuesday, January 10

The Kibbutz (342)** — Joseph Shepherd, sociology and anthropology, University of Haifa, Israel. **The Only Viable Secular Commune of The World — An Introduction to Kibbutz Sociology.** 10:30am-noon, Rm 7-403.

What It Takes To Publish A Newspaper (570)** — staff of *The Tech.* Noon-midnight, Rm W20-483.

The Future of Nuclear Power (254a)** — N.C. Rasmussen, head, department of nuclear engineering. 1-3pm, Rm 4-370.

Animal Liberation (270)** — M.A. Allen, G. 2pm, Rm 26-168.

Energy Seminar Series (410)** — M. McKinstry, nuclear engineering; C.J. Ryan, executive director, System Dynamics Group, Sloan School of Management; J.W. Meyer, assistant to the director, Plasma Fusion Center, Energy Laboratory; M.J. Jones, Energy Laboratory, moderator. **Workshop on Amory Lovins' Proposals for Soft Energy Paths,** 2pm, Rm 2-143.

Continued Fractions (185)** — Dan Luecking, C.L.E. Moore Instructor, mathematics. 2pm, Rm 2-146.

Highlights of Aeronautics and Astronautics (2)** — James W. Mar, aero/astro. **Stronger Than Steel, Lighter Than Aluminum — Materials For The 1980s.** 2pm, Rm 33-206.

What is Philosophy? (272)** — Sylvain Bromberger, philosophy & linguistics. **What is the Philosophy of Language?** 2pm, Rm 26-168.

Energy Seminar Series (410)** — James Gruhl, Energy Laboratory. **Public Health Consequences of Alternative Energy Sources,** 2:30pm, Rm 66-144.

Not Everything Causes Cancer in Rats (258)** — Laura Green & Thomsen Hansen, G. 2:30-4:30pm, Rm 4-231.

Atoms, Mountains & Stars (281)** — Victor F. Weisskopf, physics, Institute Professor Emeritus. 3pm, Rm 54-100.

Mechanical Engineering in the Old Days (214)** — Jacob P. Den Hartog, mechanical engineering, emeritus. **Reflections on Mechanical Engineering,** 4pm, Rm 3-133.

Wednesday, January 11

Gigawatt Relativistic Electron Beams — A Path to Fusion (286)** — Alan Palevsky, John Hansman, Ruth Shefer G. 10am-noon, Rm 26-261.

What is Human Language? (164)** — Ken Hale, linguistics & philosophy. **Cultural Richness in Language: Two Australian Aboriginal Semantic Traditions,** 10am, Rm 6-120.

Bicycle Repair for Anyone (552a)** — Peter Fiekowsky, U. 11am, Rm 24-612.

Diet Recipe Swap (556)** — Imelda Rojak, Lincoln Laboratory. 1pm, Rm 50-250.

Maximum Likelihood Identification of Linear Dynamic Systems (129a)** — N.R. Sandell, associate professor of systems science and engineering, electrical engineering and computer science. 1-2:30pm, Rm 37-187.

Banach Spaces of Continuous Functions on Compact Metric Spaces (180)** — D.E. Alspach, C.L.E. Moore Instructor, mathematics. 2pm, Rm 2-146.

Highlights of Aeronautics and Astronautics (2)** — Rene H. Miller, H.N. Slater Professor of Flight Transportation; head, department of aeronautics & astronautics. **Energy from Wind and Space,** 2pm, Rm 33-206.

Physics Potpourri (293)** — Daniel Kleppner, physics. **The Shape of Atoms,** 3pm, Rm 4-231.

New Technology (448)** — Robert Mann, Uncas A. Whitaker Professor of Biomedical Engineering, mechanical engineering. **Biomedical Engineering,** 3:30-5pm, Rm 33-419.

Mathematical Logic (195)** — Gerald E. Sacks, mathematics. **Recent Work in Transfinite Arithmetic,** 4-5pm, Rm 2-390.

News Writing Seminar (567)** — Mark James & David Koretz, News Editors, *The Tech.* 7:30pm, Rm W20-483.

Darkroom Techniques (530)** — Linda Wasko, artist. Student Art Association, 7:30pm, W20-429.

Environmental Issues in Massachusetts (600)** — representatives of Massport, the FAA, MAPNAC, and industry. **Those Deafening Decibels: Aircraft Noise in the Boston Area,** 7:30-9:30pm, Rm 66-110.

MIT — A Student Report (651)** — Mark Beaufait, U, coordinator. Preliminary discussion session, 7:30pm, Rm 8-105.

Thursday, January 12

The Kibbutz (342)** — Joseph Blasi, lecturer, Harvard University. **Democracy and Human Affairs,** 10:30am-noon, Rm 7-403.

Continued Fractions (185)** — Dan Luecking, C.L.E. Moore Instructor, mathematics. 2pm, Rm 2-146.

National Science Foundation/Undergraduate Research Program Symposium (257)** — several student speakers. 2pm, Rm 16-134.

What is Philosophy? (272)** — James F. Thomson, linguistics & philosophy. **What is a Theory of Knowledge?** 2pm, Rm 26-168.

Physics Potpourri (293)** — John D. Joannopoulos, assistant professor, physics. **Localization and the Nobel Prize,** 3pm, Rm 4-231.

Reflections on Mechanical Engineering (214)** — Henry M. Paynter, mechanical engineering. **An Engineer Looks at Life,** 4pm, Rm 3-133.

Friday, January 13

What is Human Language (164)** — Samuel J. Keyser, head, department of linguistics & philosophy. **Phonological Competence: Theory of What People Do When They Speak,** 10am, Rm 6-120.

English Discussion for Foreigners (565f)** — Imelda Rojak, Lincoln Laboratory. 12:30-1:30pm, Rm 50-250.



FIRST MAJOR CONTRIBUTION to the newly established Campus Residence Fund was made by Baker House president Gary Gammon, third right, to James A. Champy, executive vice president of the Alumni Association, third left. Others shown from left are: Ronald S. Stone and Nancy Wheatley of the Alumni Association, Ursula Wolz and Sandy McCarley of Baker House. The check for \$250 will be matched by Challenge '78 funds as the beginning of

a new fund to be used for capital improvements in the campus residences. Baker House won \$500 in a recycling contest sponsored by Miller Brewing Co., in which Baker residents collected nearly 6,000 bottles and cans, beating out Burton House and McCormick Hall for the best per capita average. In addition to their Campus Residence Fund contribution, the Bakerites gave \$250 to Globe Santa.

Stanley Fischer Is Promoted In Economics

Dr. Stanley Fischer, an international authority on monetary economics, has been promoted to professor and appointed acting associate head of the Department of Economics.

Professor Fischer received the BSc and MSc in economics from London University (London School of Economics) in 1965 and 1966, and the PhD from MIT in 1969.

He was an instructor in the MIT Department of Economics in 1969; a postdoctoral fellow at the University of Chicago Department of Economics in 1969-70, an assistant

professor at the University of Chicago in 1970-73, and a visiting senior lecturer at Hebrew University, Jerusalem, in 1972. He was appointed associate professor of economics at MIT in 1973, and professor last July. He was on leave in 1976-77 at the Institute for Advanced Studies at Hebrew University.

Variety is Keynote of MIT's Independent Activities Period

(Continued from page 1) dependent groups during this year's three-and-a-half week IAP. The program is loosely structured and the awarding of credit is the exception rather than the rule. Employees are encouraged to participate provided their regular work loads permit. Activities range from the serious to the sublime. Some meet just once; others meet daily.

During IAP '78 people may apply their science and engineering know-how in unconventional ways by studying "Engineering in Skiing," "The Mechanics of Running," "Soap Bubble Carnival (Math and Magic)" and "Construction of an Electric Moped."

Those with an artistic bent may draw portraits, play at a marathon reading session for chamber music, examine the problems involved in transferring dance and musical performances to TV, or make a musical instrument for the Early Music Society at a Renaissance percussion factory.

Those interested in acquiring practical skills may enroll in "Basic Home Repairs," "Maintain Your Auto," "Bicycle Repair and Bicycles in the Real World," and a variety of cooking classes.

More than a dozen activities will be offered for students interested in exploring career options, including "So You Want to Be a Lawyer," "Non-Academic Science Careers," "Career Choices and Values," and "Getting the Job You Want in Industry—A Woman's Guerrilla Guide to the Pinstriped World."

Several departments have planned lecture series on current issues and developments in the field, including the Departments of Aeronautics and Astronautics, Electrical Engineering and Computer Science, Linguistics and Philosophy, and Physics. Among the presentations planned for non-scientists are "Lasers for Poets" and lecture series offered by the Departments of Earth and Planetary Sciences and Meteorology.

All activities are listed in the final Guide to IAP, available in the IAP Office, Rm 7-108.

IAP was introduced into the MIT curriculum in 1971 on a three-year trial basis to allow students an opportunity to pursue interests not normally available or to delve deeper into academic subjects without pressure. It became a permanent part of the curriculum by vote of the faculty in 1973.

Forum to Hear MIT Speakers

Several MIT people will speak during the spring semester in a new lecture series, "America in the Year 2000," presented by the Cambridge Forum weekly on Wednesday at 8pm at the First Parish, 3 Church St., Cambridge.

Leading off the series tonight (January 4) will be Dr. Robert C. Seamans, Henry R. Luce Professor of Environment and Public Policy, who will discuss "Energy in the Year 2000."

...ies on the Aortic Acid Lipase* — Dr. Peter Brecher, assistant professor of biochemistry, Boston University Medical School. Sclerotic Center Seminar. 12:30-2pm, Rm E17-421. Bring lunch.

...ights of Aeronautics and Astronautics (2)** — Shaoul Ezekiel, associate professor, aero/astro & electrical engineering. How to Measure Almost Anything With Lasers, 2pm, Rm 33-206.

...ysics Potpourri (293)** — Bernard Burke, physics. Engines — Real and Imagined, 3pm, Rm 4-231.

...nergy Research Policy (67)** — Dr. John Deutch, director of energy research, US Department of Energy. Energy Research Policy in the US, 4:30pm, Rm 6-120.

Community Meetings

...sist to the Mass Public Health Labs (50)** — Fri, Jan 13, 9am, Rm 16-105.

...ive's Group** — Group leaders: Charlotte Schwartz, sociologist & Myra Rodrigues, social worker, Medical Dept; Carol Hulsizer, faculty spouse in residence, Ashdown Hse. Wed, 3-5pm, Stu Ctr West Lng. Babysitting, Stu Ctr Rm 473. Karen, x3-2916.

Social Events

...ulty Club Special Dinners*** — Chinese Buffet, Tues, Jan 10, 6-8pm. Complete with tea, pineapple & fortune cookies. \$7.00 inc tax. RSVP x3-2916.

Movies

...ate of the Union** — LSC Movie. Fri, Jan 6, 7 & 10pm, Rm 10-250. Admission 75¢ w/MIT or Wellesley ID.

...Thin Man** — LSC Movie. Sat, Jan 7, 7 & 9:30pm, Rm 10-250. Admission 75¢ w/MIT or Wellesley ID.

...ingin' in the Rain** — LSC Movie. Sun, Jan 8, 7 & 9:30pm, Rm 10-250. Admission 75¢ w/MIT or Wellesley ID.

...pollo 8 — Go for TLI (1)** — AIAA Aerospace film. Mon, Jan 9, noon, Rm 35-225.

...pollo 9 — Space Duet (1)** — AIAA Aerospace film. Mon, Jan 9, 2:30pm, Rm 35-225.

...aw of Gravitation — An Example of Physical Law (284)** — Feynman lectures on Physics. Mon, Jan 9, 1pm, Rm 26-100.

...auern, Bonzen, Bomben (574)** — Evenings at German House, film in parts in German. Mon-Fri, Jan 9-13, 9:30pm, 476 Memorial Dr.

...pollo 10 — To Sort Out the Unknown (1)** — AIAA Aerospace film. Tues, Jan 10, noon, Rm 35-225.

...ixed Points (189)** — Math Films. Tues, Jan 10, noon-7pm, Rm 2-390.

...oices (608)** — Ecology films. Tues, Jan 10, noon-1:30pm, Rm 8-105.

...pollo 11 — Launch Mission Report (1)** — AIAA Aerospace film. Tues, Jan 10, 12:30pm, Rm 35-225.

...elation of Mathematics to Physics (284)** — Feynman Lectures on Physics. Tues, Jan 10, 1pm, Rm 26-100.

...orld of Andrew Wyeth (26 min)/ Artists USA (30 min) (530)** — SAA Films. Tues, Jan 10, 5:15pm, W20-429.

...uclear & Alternative Energy Film Festival (249)** — Tues, Jan 10, 7:30pm, Rm 9-150.

Misunderstanding China (604)** — Tues, Jan 10, 7:30pm, Rm 4-270.

Apollo 12 — Pinpoint for Science (1)** — AIAA Aerospace film. Wed, Jan 11, noon, Rm 35-225.

Apollo 13 — Houston, We've Got a Problem (1)** — AIAA Aerospace film. Wed, Jan 11, 12:30pm, Rm 35-225.

Great Conservation Principles (284)** — Feynman Lectures on Physics. Wed, Jan 11, 1pm, Rm 26-100.

THX 1138** — LSC Movie. Wed, Jan 11, 7 & 9:30pm, Rm 10-250. Admission 75¢ w/MIT or Wellesley ID.

Apollo 14 — Mission to Fra Mauro (1)** — AIAA Aerospace film. Thurs, Jan 12, noon, Rm 35-225.

The Second Pollution (608)** — Ecology films. Thurs, Jan 12 noon-1:30pm, Rm 8-105.

Apollo 15 — On the Mountains of the Moon (1)** — AIAA Aerospace film. Thurs, Jan 12, 12:30pm, Rm 35-225.

Symmetry and Physical Laws (284)** — Feynman Lectures on Physics. Thurs, Jan 12, 1pm, Rm 26-100.

Shadow Catcher (152)** — Native American Film Festival. Thurs, Jan 12, 7:30pm, Rm 66-110.

Apollo 16 — Nothing So Hidden (1)** — AIAA Aerospace film. Fri, Jan 13, noon, Rm 35-225.

Apollo 17 — On the Shoulders of Giants (1)** — AIAA Aerospace film. Fri, Jan 13, 12:30pm, Rm 35-225.

Distinction of Past and Future (284)** — Feynman Lectures on Physics. Fri, Jan 13, 1pm, Rm 26-100.

Love & Death** — LSC Movie. Fri, Jan 13, 7 & 9:30pm, Rm 26-100. Admission 75¢ w/MIT or Wellesley ID.

Man with the Golden Gun** — LSC Movie. Sat, Jan 14, 7 & 10pm, Rm 26-100. Admission 75¢ w/MIT or Wellesley ID.

The Gold Rush** — LSC Movie. Sun, Jan 15, 7 & 9:30pm, Rm 10-250. Admission 75¢ w/MIT or Wellesley ID.

Music

Chamber Music Marathon (236)* — Second annual Chamber Music Reading Party, Tues, Jan 10, 3-9pm, Music Library. MIT Chamber Music Society. Everyone who plays an instrument is welcome to participate, all are welcome to stop by and listen. Contact: Josie Stein, x5-8173 or Allen Olsen, x5-9653.

The Erdely Duo* — Fri, Jan 13, 8pm, Kresge. Pianist, Beatrice Erdely, and violinist, Stephen Erdely, will perform Sonatas by Mozart. Free. Info: x3-2906.

Exhibitions

Flats* — An exhibit by Marc van der Marck. Thru Tues, Jan 10, Hayden Corridor Gallery. Sponsored by the MIT Committee on the Visual Arts.

The Compton Years* — A photographic essay of the lives of Dr. & Mrs. Karl Taylor Compton. Thru Wed, Feb 8, Mon-Fri, 9am-5pm, Margaret Hutchinson Compton Gallery, Rm 10-150. Designed by Historical Collections.

Unfinished Works* — Music Library, Rm 14E-109. Examples of unfinished musical compositions from Bach to Bartok.

MIT Historical Collections* — Permanent exhibition Mon-Fri, 9am-5pm, Bldg N52, 2nd floor. Katharine Dexter McCormick, '04; Vannevar Bush, '16; and 1876 Exhibit, Bldg 4 corridor. The New Technology Exhibit 2nd floor balcony of Lobby 7. Energy Exhibit Bldg E40, 1st floor. Radiation Laboratory Exhibit main corridor, Bldg 8. Center for Space Research, Astrophysics Exhibit main corridor, Bldg 4. Bldg 6 Dedication Exhibit.

News Office Personnel Temporary Locations, Numbers

Robert M. Byers	Rm 7-101	x3-3279
Charles H. Ball	Rm E52-567	x3-2704
Calvin D. Campbell	Rm 7-102	x3-2701
Cathryn M. Chadwick	Rm 7-102	x3-2701
Robert C. Di Iorio	Rm 1-206	x3-3275
Katharine S. C. Jones	Rm 14N-428	x3-3277
Marsha McMahon	Rm 7-102	x3-3270
Joanne Miller	Rm 7-102	x3-2701
Paul M. Raeburn	Rm 18-391	x3-3276
William T. Struble	Rm 18-391	x3-3276
Betsy Van Horn	Rm 7-102	x3-2701

Strobe Alley* — High speed photographs by Harold E. Edgerton, Institute Professor and Professor of Electrical Measurement, Emeritus. Bldg 4, 4th fl.

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

Graphics by MIT Design Services* — On exhibit in Bldg 7 corridor.

Theatre

Love's Labor's Lost (582)** — Shakespeare Ensemble. Thurs-Sat, Jan 12-14, 8pm, Sala de Puerto Rico, Stu Ctr.

Dance

Ballroom Dancing (658)** — Andy Szilagy G. First meeting Mon, Jan 9, 4-6pm, Burton Dining Hall. Regular meetings, Sun and Tues, 4-6pm. Introductory and Intermediate.

MIT Folk Dance Club — International: Sun, 7:30-11pm, Sala. Balkan: Tues, 7:30-11pm, Stu Ctr Rm 491. Informal: Fri, 12n-2pm, Kresge Oval (Bldg 7 Lobby in bad weather). Israeli: Wed, 7:30-11pm, Sala.

Hatha Yoga I (625)** — Cynthia Friedman, civil engineering. First meeting, Tues, Jan 10 11:30am, Rm 10-340.

Indonesian Court Dances (578)** — Elizabeth Van Paradijs-Soenarjati, Boston. Wed, Jan 11, 8pm, Stu Ctr Mezzanine Lng.

Jazz Dance (31)** — Velerie Camille, New York City. Mon & Wed, 6pm; Tues & Thurs, 1pm. T-Club Lng, W31-125. Registration, Mon, Jan 9, 10:30am-noon, duPont Gym.

Athletics

Home Schedule* — Fri, Jan 6: V Hockey, Quincy Jr. College, 5pm, Rink. Sat, Jan 7: M V Basketball, Merchant Marine, 8:15pm, Rockwell Cage. Thurs, Jan 12: W V Basketball, Gordon, 7pm, Rockwell Cage. Sat, Jan 14: M V Basketball, N.J. Tech, 8:15pm, Rockwell Cage; V Hockey, Clark, 7pm, Rink; V Track, Williams, 1pm, Rockwell Cage; V Wrestling, Coastguard & Harvard, 2pm, duPont Gym; JV Wrestling, Coast Guard, 3:30pm, duPont Gym.

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

*Open to the public
**Open to the MIT community only

***Open to members only

Send notices for Jan 11 through Jan 22 to Calendar Editor, Rm 7-102, x3-2701, before noon, Friday, Jan 6.



From left, Sloan School Dean William F. Pounds, Dr. Peter Pin-Shan Chen, Marilyn Whatmough and Dr. Stuart E. Madnick, show plaque received by the school in appreciation of support and assistance provided to the Third International Conference on Very Large Data Bases. The conference was held in Tokyo, Japan, last fall. Dr. Madnick, associate professor of management science, was conference chairman; Dr. Chen, assistant professor of management science, was general publicity chairman; Ms. Whatmough, a Sloan secretary, served as conference secretary and registration chairwoman for the United States and Europe.

Hillel to Sponsor Grogger Contest

MIT Hillel will sponsor a grogger-making contest during IAP. A grogger is a noisemaker used to drown out the evil name of Haman during the Megilla reading on the Purim holiday.

A meeting for those interested in participating will be held Monday, Jan. 9, 3-5pm in Rm 5-216, when contest specifications will be discussed. After that specification sheets will be available in the offices of the judges, Professor Ira Dyer of ocean engineering, Professor Ernest Rabinowitz of mechanical engineering and Rabbi Daniel Shevitz, Hillel director.

Contestants must provide their own materials. Contest deadline is

Wednesday, March 1, when all entries must be received in the Hillel office. A cash prize and a solo "Haman" will be awarded to the winner.

Report Issued

The large Report of the President and the Chancellor issue of the MIT Bulletin has been published, including the annual reports of all Schools, departments, centers, laboratories and offices.

Copies of the 545-page book are available in the Information Center, Rm 7-111.

Noted Physicist Bernard P. Gregory Dies

Dr. Bernard P. Gregory, an MIT alumnus who was a noted French physicist and an eminent scientific statesman of Europe, died on Christmas Day, 1977. He was 58 years old.

Dr. Gregory was director of CERN, the European Center for Nuclear Research, from 1966 to 1970, and later directed France's Centre National de la Recherche Scientifique (CNRS) from 1973 to 1976.

While in the latter post, he provided the initial force—in collaboration with MIT Provost Dr. Walter A. Rosenblith—in organizing an international conference on "how to manage knowledge and action in rapidly changing industrial societies." The conference, organized jointly by MIT and the French National Center for Scientific Research, is now scheduled for the fall of 1978.

Dr. Gregory was graduated in 1945 from the Ecole Polytechnique, the French counterpart of MIT, then came to MIT to study cosmic rays under Dr. Bruno Rossi, MIT Institute Professor emeritus and professor of physics emeritus, who is a pioneer in that area of research.

Dr. Gregory received the PhD degree from MIT in 1950, then returned to the Ecole Polytechnique, where he organized a program in cosmic ray research.

Dr. Gregory served as scientific director of CERN during the early 1960s while Dr. Victor Weisskopf, MIT Institute Professor emeritus and professor of physics emeritus, was director of the center near Geneva, Switzerland. Dr. Gregory succeeded Dr. Weisskopf in the position of director. He returned to

Paris later as director of the physics laboratory of the Ecole Polytechnique and in 1973 was asked to be director of the CNRS, which is the equivalent of the National Science Foundation in the US.

In 1976 Dr. Gregory was named delegate general for scientific research and technology, one of the top positions in the French scientific community. Until recently, he was a member of the visiting committee of Brookhaven National Laboratory, near Upton, LI.

Saverio Caloggero

Saverio Caloggero, 56, of Nahant, a truck driver in Physical Plant, died suddenly December 14.

Mr. Caloggero, who came to MIT in 1961, is survived by his widow, Angelina Zaccaria Caloggero; two daughters, Debora, at home, and Patricia Di Napoli of Stoneham; his parents, Mr. and Mrs. Anthony Caloggero; two brothers, Joseph of Nahant and Samuel of Medford; a sister, Prudence Haskell of Burlington, and two grandchildren.

J. S. Garniewicz

John S. Garniewicz, 64, of Burlington, a foreman at the Charles Stark Draper Laboratory, died December 15, following a long illness.

Mr. Garniewicz worked at the Draper Laboratory from 1951 until he went on long-term disability in 1972.

Survivors include his widow, Lucy Konieczka Garniewicz, a son, Richard of Chelmsford, a daughter, Christine of Nashua, N.H., a brother and three sisters.

Dr. Gregory made important contributions to the discovery of "strange" particles and to the development of instruments for high-energy physics.

Dr. Weisskopf said Dr. Gregory was notable as a "scientific statesman" and described him as a man of "impeccably good taste in science" with excellent judgment in selecting men and research goals. In this manner, he was responsible for a number of discoveries at CERN, such as the existence of the postulated "neutral currents."

John A. Collins

John A. Collins, 75, of Cambridge, a retired guard at Lincoln Laboratory, died December 16.

Mr. Collins worked at Lincoln from 1953 until his retirement in 1967. He is survived by his widow, Marjorie Merrifield Collins, a daughter, Ellen Hollander of San Antonio, Texas, and a grandson. He also leaves two brothers, the Rev. Patrick H. Collins, SJ, of Brighton, and Daniel P. Collins of Cambridge.

Neva M. O'Brien

Neva M. O'Brien, 58, of West Roxbury, a secretary in the Research Laboratory of Electronics, died December 20.

Mrs. O'Brien, who had worked at RLE since 1967, is survived by her husband, Frank J. O'Brien of the Energy Laboratory, a daughter, Rita M. of Nevada, a son, Frank B. of Boston and one grandchild. She is also survived by a sister, Ada A. Soper of West Roxbury and a brother, Harry G. Soper of Randolph.

CLASSIFIED ADS X3-3270

Ads are limited to one per person per issue and may not be repeated in successive issues. All ads must be accompanied by full name and Institute extension. Members of the community who have no extensions may submit ads by coming in person to the Tech Talk office, Rm 7-102, and presenting MIT identification. Ads may be telephoned to X3-3270 or mailed to Rm 7-102. Please submit all ads before noon Friday, Jan. 6. They will be printed on a first come, first served basis as space permits.

For Sale, Etc.

Vega snows, A78-13 w/studs, gd cond, \$10/pr. Call 862-1298. evgs.

Tires, 2, 775x15, 4 ply on rims, studded snows, \$25/ea, 2/\$45. Call 491-8352, aft 4.

Blink csstts, nw & used, Maxell, BASF, Memorex, also sm pre-rec'd tps, csstte hldrs, Mark, x5-6221 Dorm, 494-8606.

Frst-free 16 cu' Wstngshg fridge, 1 yr, \$250. x3-3471.

Hrmny clasd guitrr w/cse, vy gd cond, \$60 or best. Dores, x8-2818 Draper.

Stereo systm: Harmon Kardon Citation 12; SAE Mark XXX; JBL 884; Dual 1218; Stanton 68 IEE; best. Jon, 469-9176, evgs.

Skis, 2 pr, 180cm & 185cm, w/compl bndgs & poles, \$20/ea; Chldrns skis & bts, x3-4349, Rm 3-269.

Pr F78-14 Sears Bst snows on rims, \$35; Pr Firestrn Tw'n & Cntry H-78-14 on rims, \$35; Frpl scrn, used 1 seasn, \$5; Alum fldng cot, vy gd cond, nw mtrrs, \$20. Call 894-2285.

Pr Gdtyr studded snows, A78-13, lk nw, \$15/ea or best. Chrs, x3-8021.

Tires, Firestrn Delux 5.20-13, ww, tubls, unused but old, \$10/ea or 2/\$16. Don, x7298 Linc.

Girls fgre skts, sz 10, used 1 seasn, \$30 nw, \$10; Boys CCM Spr Tcks, sz 4 1/2, \$15; Boys CCM Jr Tcks, sz 2, \$10. Bob Cronin, x8-4417 Draper.

Skis: Attnhfr, 185cm, Kofix bttm, vy gd cond, Cubco bndgs mtd, \$15; Head std, 215 cm, gd cond, \$10; Bts: Reikers sz 5N, bekl, exc cond, \$12; Molitar, sz 9W, dbl bt/stnl stl lncg, \$10; Sears 8M, nvr wrn, bekl, \$25. Ed, x8-4552 Draper.

Kodak mdl 708 Tele-Instmate cmra, orig \$80, ask \$45, mint cond, orig bx, x3-5049.

GE 10" cir prtvl TV; In-dsh mtd amfm stereo/casst-tplyr; Br nw wht wl FR78-14 bias ply tire. x8-3584 Draper.

Wool Karastn rug, 3x5, dk gold geomtrc dsgn, exc cond, barely used, orig \$45, now \$20; Orig Tensor contemp dsk lmp, matie blk fnsh, lk nw, orig \$30, now \$15. x8-2577 Draper.

Pr Studded snows 775-15. Jim, x7475 Linc.

M Bauer hcky skts, sz 10 1/2, hrly used, \$10. Bernie, x7221 Linc.

Nw leather & fur coat, gray, sz 5-6, rsnbl. x8-3501 Draper.

Wht child's ice skts, sz 10, \$5; X cntry skis, 130cm; Ham radio 2-mtr fm trnscvr, \$200. Dan, x7776 Linc, lv msg.

'68 Ply wgn, pwr st, radio, auto, gd mech cond, bdy fair, \$450 or best. x8-4475 Draper.

Pot bellied stove, \$80. Call 749-0892.

Arrow Plan Tech Flying Club memrshp, \$125. Lou, x8-3535 Draper.

Wl trade 2 orch tkts to Chorus Line Jan 24 for any evg before Jan 20. Lee Linsky, x3-1782.

Dining tbl, 30x48" + leaf, 4 chrs, wd grain look, \$30. Ernie, x3-6923.

GE toastr ovrn, nds repair, \$5; W clothing sz 16-18 incl purple wnter ct, raint, best; Garrard trntbl, works, \$20; Amer Indian jewelry, disc prices. Arlene, x3-6779.

Ross Eurotour 5-spd M bike, nrly nw, \$50. x3-5117.

Frplace scrns, 1 brass, 1 bl wire mesh, 31x38", \$10 ea; hvy metal andirons, \$20. x3-2977.

Snows, D78x14, gd cond, \$25; 14x5.5" rims for some Amer Motor cars, \$10. Darryl, x7529 Linc.

Canoe, about 18', canvas over wd, exc cond, \$250 or best. Call 868-4914.

US Army overts, 2; lg port TV w/movable std; hsehold items. Bing, x3-6550 8-9am only.

Space htr, 3-way long mod, nvr used, \$45. Carol, x3-1491.

Lounge suite rockr & divan bed, \$95; Atlas Quilt-o-Pedic dbl box spr & matt, \$80; wd grain tbl & 4 chrs, \$65, all yr old, as new cond. John Boshier, x3-8025 or 666-4687.

Chin wh silk evg jkt, hand embrdrd, \$150 nw, \$100 or best; Sunbm deluxe stm iron, nvr used, \$35 new, best. x3-6149.

McIntosh sys, nvr used w/grntee, MR 78 tuner, C32 pre-amp & eqzr, pwr amp, XR5 spkrs, Kenwd trntbl, cabs, nego. Tony, x3-1441.

Leica cam w/50 & 90mm lenses, less than yr old, exc cond. Subodh, 868-0731 evgs.

Ski rk, trnk mnt for 2 prs; spare wh for TR-7. John, x3-2869.

Harver apt sz wash mach, \$55. x3-6389.

Amana Radarange microwv oven, mod RR-7, nvr used, \$327.50. x3-5927.

Coldspot refrig, gd workg cond, \$15; 4-brnr gas range, med sz oven, \$20; 3 pr M hockey skates, szs, 9, 10, 11, \$3 ea. Anna, x3-6187.

Baritone horn, mint cond. x314 Linc.

Rmmtate for 3BR apt nr Cent Sq, guest rm, washer, .5 mile from MIT, \$70 + ht & utils. Joe, x3-6847 or Doug, 354-1288.

Rmmtate to share 3BR Lex hse w/f & 4-yr old, \$175 + utils. Call 862-4295 evgs.

Resp prsn, pref m, to shr Appletton St., Camb, hse, BR & stdy + run of hse, \$200/mo + 1/2 utils, avail 2/1. x3-4065.

Wl swap West for East or Albany. Natalie, x3-7062.

Wl swap West for East or Albany. Natalie, x3-7062.

'68 VW fstrbk, mech sound, gd body, exc int, snows, new strtr, bargn, \$500; sgl bed frm, brd base, matt, exc cond, almost new, \$35. John, x3-5900.

'68 Ply, gd mech cond, dented fr & rear, new batt, snows, must sell by 1/15, reas offer. x5-9777 dorm, kp tryng.

'68 VW Beetle, rns wl, \$350. x3-1742.

'69 VW Beetle, exc body, low oil consump, snows, AM-FM, bike rk, \$800. Morrell, x3-7575.

'69 VW bug, 108K, AM-FM, runs well, \$450. Dave, x7559 Linc.

'70 Buick Est wgn, a/c, p st & br, lug rk, snows, exc cond, \$900 or best. Call 861-9027.

'71 Saab 96 wgn, bdy gd, eng exc, grn, int exc, \$1,500. Whitney, x3-5540.

'72 Toyota Corona, ext body dmge on psgr sd, fall strk, \$250 or best. Call 438-3776.

'72 VW Beetle, red, exc cond, lug & ski rks, \$1300, lvg cntry. 494-8417.

'73 Fiat 128 wgn, best car evr had, must sell, \$950. Jared, x3-5957.

'74 Camaro, mtlc brn w/vnyl rf, auto, pwr st & brk, V8 & 350 eng, exc cond, \$2,800 or best. Saied, x3-5220.

'74 Audi 100LS, 4 dr, 4 spd, a/c, AM-FM, 4 new radls, rear defrost, rec tuned, 58K, runs wl, asking \$2750. x3-2772.

'74 Dodge Coronet cstm 4 dr sdn, exc, pwr st & brks, vnyl rf, 50K, \$1,600. Call 277-5734, evgs.

'75 Ply Gran Fury 9-psgr wgn, 24K, exc cond, p st & br, windows, AM-FM stereo, nw std bltd tires, ask \$3750. Call 489-0685.

'75 Vega, 2 snows, AM-FM, rear defrost, \$1295 or best. Joe, x3-2100.

'76 Ford Econo 100 std wndw van, exc cond, 7K, ask \$3,900 or best. Call 494-0357.

'76 Gremlin, grn, 3 sp pwr st, amfm, stud retrd snows, 30K, ask \$2,000. Call 924-9143, aft 6.

Carpools

Join or strtr, frm Billerica, nr Rt 3, to MIT, 9-5. Vernon Raine, x3-4765.

Nd drvr frm Wntrhl, Som area who wld lk payg ridr. Angela, x3-4303.

Admin. Staff, Project Architect, to coordinate architectural design and production documents for a major building renovation. Work will involve close collaboration with other staff members and with engineering consultants outside the Institute. Position requires a Bachelor's degree in architecture plus a minimum of 5 years experience in project coordination and development of contract documents. A77-89 (1/4).

Academic Staff, Technical Instructor in the Aeronautics and Astronautics Dept. to instruct, coordinate and assist undergraduate and graduate students in developing mechanical and electronic thesis projects and experiments. Will also oversee lab activities; assume responsibility for mechanical and electronic equipment; work with small electromechanical systems. Must have sound technical schooling and 6-8 years experience in electromechanical field. Also required is a broad knowledge of electromechanical systems, sub-systems and components; ability to do innovative and creative problem solving; and thorough working knowledge of lab safety procedures. C77-46 (1/4).

Sponsored Research Staff in the Lab for Computer Science to assist in the design and development of enhancements to TOPS-20 operating system to support real-time editing. Bachelor's or Master's degree in computer science or related field required. Time sharing operating system development experience also required. Experience with PDP-10 and PDP-11 assembly language preferred. Must be willing to move into applications programming. R77-231 (1/4).

Sponsored Research Staff in the Lab for Computer Science to assist in the design and development of knowledge based systems. Will work primarily in the area of design and development of a system that understands Morse code Q-sign jargon, and assist in the planning of a new project concerned with office automation. Minimum of Bachelor's degree required but Master's degree in computer science or a related field preferred. Working knowledge of LISP or LISP-like language and ability to build working systems also required. PDP-10 and TENEX or TOPS-20 experience preferred. R77-230 (1/4).

Sponsored Research Staff, temporary, in the Earth and Planetary Sciences Dept. to develop and test digital computer programs; analyze data. Must have experience with Fortran and/or PL/1 programming. Also required is 2-3 years of college level course work in computer science. Temporary 2/1/78-8/31/78 R77-235 (1/4).

Sponsored Research Staff, Programmer/Analyst, temporary, in the Harvard-MIT Division of Health Sciences and Technology to assist with the development of an innovative microprocessor-based pulmonary function testing instrument. Will write software in the assembly language of the microprocessor (INTEL 8080) and in a recently developed higher-level language (STOIC). Will also be responsible for translating programs from the assembly language of a minicomputer (PDP-8) into the assembly language of the microprocessor. Two years experience in assembly language programming and in higher level language programming necessary. Also necessary is knowledge of elementary principles of calculus and physics, (i.e., college level). Temporary 3 months. R77-238 (1/4).

Sponsored Research Staff in the Research Laboratory of Electronics. Duties will include analysis and computations related to problems of RF heating of tokamak plasmas. Position requires a Ph.D. and research experience in plasma turbulence theory and plasma heating by RF waves. R77-227 (12/14).

Sponsored Research Staff in the Research Laboratory of Electronics to perform particle simulations and numerical integration of non-linear partial differential equations relevant to plasma problems in turbulence and wave propagation; coordinate plasma theory group's interactive computational facilities. A Ph.D. in plasma physics theory and computation, familiarity and experience with interactive symbolic as well as numerical computations including systems programming required. R77-228 (12/14).

Exempt, Inpatient Nurse, in the MIT Infirmary to do bedside nursing. Occasionally may be called upon to assist with first aid and emergency care. Must be a Mass. Registered Nurse. One year of medical/surgical nursing experience preferred. Work hours: primarily 7:00 AM - 3:00 PM, with every other week-end off. Will occasionally work other shifts. E77-63 (1/4).

Exempt, Admin. Asst., in the Nuclear Reactor Laboratory to manage all financial aspects of several research accounts; assist in budget preparation; monitor projects' fiscal status; assist in overall fiscal planning; maintain payroll and expense records; participate in equipment inventories. Will also perform other administrative functions as required. In addition to strong administrative skill, applicants must be experienced in accounting, budgeting and fiscal planning. E77-44 (12/14).

Admin. Asst. V in the Technology Adaptation Program to answer routine correspondence; supervise publication of reports; place orders and arrange shipment for equipment required overseas; arrange travel as well as conferences, workshops, seminars; train and supervise clerical staff. Will also maintain petty cash; process library documents; describe program to foreign visitors. Several years secretarial/administrative experience required, as well as extensive experience with domestic and international travel arrangements. Ability to work accurately, often under pressure, and ability to devise and implement administrative procedures also necessary. Position involves occasional overtime. B77-752 (1/4).

Admin. Asst. V, part-time, in the Child Care Office to prepare and process monthly payroll; develop and maintain efficient accounting system; prepare income/expense statements and budget reports; maintain various accounts; prepare monthly statistical reports; research and compile data on child care programs; assist MIT parents in obtaining child care services; organize system for recording child care requests; assist in implementing publicity for child care office; initiate, answer and type correspondence; maintain files and library. A minimum of four years of related administrative and accounting experience, secretarial skills, ability to work with constant interruption and to deal well with a wide variety of people required. Experience in preschool programs desired. 26.5 hrs./wk. B77-728 (12/14).

Secretary V in the Ocean Engineering Dept. to the Dept. Head, to perform various secretarial duties: type correspondence, class notes, proposals, manuscripts; answer routine correspondence independently; prepare non-routine correspondence based on verbal instruction; take and transcribe shorthand dictation; schedule appointments; assist in preparation of various reports; arrange travel; edit and make some changes in typed material; maintain class records. Excellent typing skill, shorthand of speedwriting and ability to work independently required. Familiarity with technical symbols is helpful. B77-754 (1/4).

Editorial Secretary IV/V to a Materials Science and Engineering Department faculty member to assist in organizing the publication of a technical encyclopedia. Individual will prepare progress reports from computer print-outs; set up filing system; receive and assemble technical articles for typesetting; proofread typeset; assist in editing of materials to optimize readability and in communicating with contributors; type cor-

respondence and research papers; schedule appointments; arrange telephone and telex contacts; maintain records. Excellent typing, editing and organizational skills, several years secretarial and editing experience and ability to work with minimal supervision required. B77-727 (12/14).

Secretary IV in Urban Studies and Planning to type manuscripts, correspondence and reports; file; handle course work; arrange travel; schedule meetings; occasionally do library research. Excellent typing skill, good command of English, editing skills and knowledge of dictaphone typing essential. Prior secretarial experience required. B77-736 (1/4).

Secretary IV to the Director of the Center for Transportation Studies to perform usual secretarial functions: type reports and correspondence; answer telephones; file; handle mail and answer routine correspondence; arrange travel; make appointments. One year secretarial experience and a college degree, or 3 years secretarial experience required. MIT experience desired. Ability to work well under pressure and independently important. B77-737 (1/4).

Secretary IV in the Provost's Office to handle a variety of duties: arrange travel; answer and place telephone calls; file; type and compose correspondence. Excellent typing skill and good command of English language required. Ability to recognize priorities and ability to work well under pressure also required. B77-772 (1/4).

Secretary IV in the Cataloguing Dept. of the MIT Library to type correspondence, reports, catalogue cards; answer phones; open and sort mail; maintain supplies and departmental records; assist in special projects as required. Secretarial training or experience, excellent typing skill and organizational ability required. College graduate preferred. B77-660.

Secretary IV in the Health Science & Technology Division to perform general secretarial duties: take and transcribe dictation involving technical terminology; type tables, charts, technical manuscripts, and correspondence; screen telephone calls; arrange appointments; file; handle mail distribution. Other duties will also include composing letters from oral instruction; maintain records; handle petty cash; verify information on monthly financial statements and assemble budget information. Secretarial school or college training with at least 2 years secretarial experience required. Also necessary are good organizational ability, good communication skills and ability to work under pressure. B77-590.

Secretary IV in the Sloan School of Management to the Associate Dean will perform general secretarial duties: type correspondence; answer telephones; schedule appointments; arrange meetings and seminars. Excellent typing and shorthand skills required. Organizational ability and good telephone manner also important. Previous secretarial experience required. B77-768 (1/4).

Secretary IV in the Headquarters Office of the Earth and Planetary Sciences Dept. to Dept. head and 2 staff persons. Will type correspondence; arrange meetings; receive visitors; screen telephone calls; xerox; do errands. Excellent typing skill, ability to proofread and to transcribe machine dictation required. Prior office experience preferred. B77-755 (1/4).

Secretary IV in the Technology Adaptation Program to type statistical and technical material; arrange travel; maintain office supplies; supervise mail services to overseas office; keep record of publication sales; maintain mailing list; assist with administration of seminars and conferences. Excellent typing and English grammar skills required, as well as ability to work under pressure. 2-3 years secretarial experience also necessary. Occasional overtime work. B77-753 (1/4).

Secretary IV, part-time, in the Nutrition and Food Science Dept. to prepare manuscripts for publication; prepare department newsletter; type manuscripts, tables and scientific material. High school graduation with some secretarial background and two years experience required. Good typing skill also required. 20 hrs./wk. B77-761 (1/4).

Secretary IV, full or part-time, to several faculty members in the Architecture Dept. to type correspondence, research proposals, and reports; answer phones; handle petty cash and accounting forms; arrange travel. Excellent typing skill and ability to coordinate work of various faculty members required. 20 hrs./wk. or 40 hrs./wk. Position can be part or full time, based on preference of selected applicant(s). B77-738, B77-739 (1/4).

Secretary IV to four faculty members in the Dept. of Earth and Planetary Sciences to type correspondence, technical manuscripts, and proposals; answer telephones; maintain xerox machine; handle mail; arrange meetings; maintain petty cash account. Excellent typing, dictaphone experience and ability to handle 4 separate workloads under pressure required. Also required is 2-3 years secretarial experience. B77-743 (1/4).

Secretary IV, part-time, temporary, in the Physics Dept., Office of the American Journal of Physics, to prepare manuscripts for publication; check manuscripts for proper form and figures; correspond with authors. Will also type forms; schedule meetings; arrange travel. Good typing skill and familiarity with office procedures required. 1-2 years secretarial experience also necessary. Temporary 4-6 months, 20 hrs./wk. B77-750 (1/4).

Secretary IV in the Civil Engineering Dept. to 2 faculty members. Will perform various secretarial duties: type technical material; arrange travel; organize and arrange schedules for seminars and meetings; handle routine inquiries; maintain accounts; file. Technical typing experience or willingness to learn required. 37.5 hrs./wk. B77-744 (1/4).

Secretary IV in the Housing Dept. to aid MIT community members in their search for housing; record listings; contact landowners and real estate agents; provide housing and legal information; maintain files and records; order supplies; type correspondence and lists; aid in phone and counter coverage for on-campus housing. Two years college or business school and 2 years experience or equivalent, required. Accuracy, organization, and ability to handle detailed work and occasional pressure important. Must also enjoy working with a variety of people and be service-oriented. Non-smoking office. B77-748 (1/4).

Secretary IV to a faculty member in the Political Science Dept. to type manuscripts; compile bibliographies from basic information; answer telephones; file; schedule appointments; perform some library research. Junior college training and some secretarial experience required. Excellent typing skill, command of English grammar, as well as familiarity with library research procedures necessary. B77-747 (1/4).

Secretary IV to a Regional Director of the Alumni Association; assist with administrative support of Alumni clubs, funds and related activities. Duties include typing correspondence; filing; coordinating meetings; making travel arrangements; assisting with special projects. Excellent secretarial skills required. Formal secretarial training preferred. MT/ST experience, knowledge of M.I.T. and ability to relate well to people desired. B77-724 (12/14).

Secretary IV in the Earth and Planetary Sciences Dept. to provide secretarial support to undergraduate and curriculum committees; assist in organizing and editing department publications; process graduate admissions applications; schedule classes; assist students as required. Excellent typing and organizational skills, ability to work independently, at times under pressure of deadlines, and to set priorities required. M.I.T. experience helpful. B77-729 (12/14).

Secretary IV in the Political Science Dept. to 3 faculty members to perform general secretarial

Housing

All, 2BR apt, LR, DR, K&B, fr & bk porches, 1st fl, blk to Grn Line, \$365 incl ht. Stacy, x3-4861.

Arl. sub Feb-Aug, 1BR apt, w-w crpt, refrig, ht, 1 block to T, secrty, off st pkg, \$280/mo. Gina, x3-4227.

Bdfrd/Bllrca line, on Rt 4, lg sunny rm in priv hme, shr fcilties, furn or unfurn, f only, \$25/wk. Call 667-3313.

Brk, bsmt apt, LR, BR, K&B, ht, pkg, \$147/mo. Susan, 738-8846.

Camb, sm furn 1BR apt, Harv St, avail Feb-Aug 1978, \$175, no utils. Doris, x3-3124 or Rosemary, x3-3152.

Eastham, new 3BR ranch, 1 1/2 B, fp, forced hot wtr ht, mins to Cape Cod Bay, \$26,500. Paul Clark, x3-5012.

Waltham, 10 min to Linc, 5 rm apt, 2BR, fp, cellar, no chldrn or pts, avail 1/7, \$250/mo, no utils. Call 891-0032 evgs.

Moultonboro, NH, ski chalet, slps 8, frpl, gar, all elec, \$250/wk, Feb vac \$300, \$125/wknd, incl util. Joe, x8-1234 Draper.

Quechee, Vt, just comp ski lodge, 4BR, LR, fam rm, 2B, solarium, deck, view, fpl, 2-zone ht, x3-4291 or 3-4916.

Nd hme for lg f pup, 5 1/2 mos old, prob shep-husky, sweet, gentle, brght up w/chldrn & cat. Janet, x3-7592.

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Science Magazine Profiles Deutch

(Continued from page 1)

commuted regularly to the Pentagon during summers and vacations between 1961 and 1965 to work on strategic arms problems related to the North Atlantic Treaty Organization while he was in graduate school at MIT. "Like other bright young people, he had a nose for where things were happening," says Alain Enthoven, who was head of the Defense Department systems analysis group during that time. "He was able to identify problems and think broadly," says Enthoven, "and per unit of time he was one of the very productive people in the group."

While he was in academia, the new energy research director kept up his contacts with the defense establishment. He has known James Schlesinger for many years, and when Schlesinger was Secretary of Defense in 1975, he appointed Deutch to the prestigious Defense Science Board. Harold Brown, the present Secretary of Defense, has been an acquaintance since the early 1960s. Frank Press, the White House science adviser, who was previously a department chairman at MIT, is "a very close friend." Although Deutch is young, he has a broad range of contacts in government and in industry. (On becoming MIT chemistry chairman in 1976, one of his first moves was to set up improved vehicles for communication with industrial chemists.) Asked about Deutch's ability to work with the bureaucracy, the chairman of the Defense Science

Board, Eugene Fubini, said it was no problem, "he's wired in like crazy."

The style of the new energy research director is to be aggressive, hard-headed, and energetic, to come on strong and to move quickly. Rather than wait for problems to come to him, he likes to take hold of a situation, get good people to advise him, and act. ("Whatever you write," he told *Science*, "don't say that nothing will change.") He will ask questions, assess matters, and be very critical of fuzzy thinking. "If he thinks something is nonsense, he will lay it on the table and say that he thinks so," says TRW vice-president Dick DeLauer, who has served with him on the Defense Science Board. He will ask hard questions and will try to answer them, says Kent Wilson, the National Science Foundation administrator who worked closely with him when Deutch was chairman of the NSF chemistry advisory panel. At both the Defense Department and NSF, there was reluctance to see him depart.

When he became chairman of the MIT department, his ascendancy was met with a mixture of "relief and fear." He proved to be a strong administrator with definite views who had a long-range vision of where things were going, according to an MIT colleague. He can be blunt in sizing up a person or an issue, a characteristic which many acquaintances find to be offset by a certain impish, country-boy sense of humor. The only negative trait mentioned by persons contacted by *Science* was the observation that he can be abrasive.

Although most acquaintances characterize Deutch as a broad-gauge individual, two possible deficiencies in his background were noted. One was that he had not had much experience managing a large group of people—the MIT chemistry department is moderate-sized with 40 people and a \$6 to \$7 million budget. The other apprehension comes predominantly from the high energy physicists, who will be under Deutch's wing at DOE and who worry about a chemist's understanding of the problems of big science. MIT physicist Herman Feshbach says that, even though he does not think Deutch has a "gut feeling" for research projects of the size of a typical high energy experiment, he has gained some familiarity with the problems of the field while serving on the university's research structure panel. The physicists' apprehension could also be attributed to their unusually weak representation in policy circles in this Administration. With characteristic candor, Deutch says that "it's true that I'm not a high energy physicist, and that is not all bad."

The Massachusetts scientist has specific ideas about what he intends to do in the new energy department. (He commutes to the capitol each work week from Lexington, where his family lives and where he was a town selectman. Friends in other cities contributed small amounts to aid his election, and copies of his campaign poster are treasured as rare pieces of Deutch memorabilia.)

The now-defunct Energy Research and Development Administration (ERDA) was generally criticized for putting too much emphasis on big demonstration projects and Deutch argues that the inherited programs do not include as much fundamental work as would be healthy in some areas—such as the solar energy effort. He also thinks there is need for more basic research in the environmental and conservation programs, noting questions about the safety of liquefied natural gas transport and the atmospheric buildup of carbon dioxide. "My ambition is to see all of the mission-oriented programs do good basic work rather than have it all done in the basic research program," he says. Deutch will have a formal budgetary role in reviewing the goal-oriented programs, and will also head an R & D coordination council that will

assess the health of specific programs on request from either "the top policy makers or my colleagues." Some of the areas he may survey initially are fusion, solar research, battery development, and geopressurized natural gas resources.

At the end of the institutional life of ERDA, it was thought in several quarters that the universities had been disenfranchised by the energy agency and that industrial capabilities were being underutilized. Deutch says that the academic scientists have had inadequate opportunities to compete, and that his appointment means there is a commitment for both the universities and industries to undertake research. To further their participation, new methods of contractual relations with universities are needed, the new energy research director says, and the industrial research policy needs to pay particular attention to the proprietary and patent problems that are unique to the energy agency. Newly institutionalized, active liaison with industry is needed, he thinks.

Deutch himself thinks that he is most often criticized, not for inexperience with big science, but for a penchant for high technology, perceived because of his Defense Department and MIT connections. To counter this impression, he intends to emphasize noncentralized technologies. "Across the board, the department does not spend more than \$5 to \$10 million on small-scale technology now," he says. An enormous amount of work on small-scale energy systems is justified ("France spends much more of its solar research money on decentralized systems than we do"), Deutch thinks. He suggests that there is a need for a central office to coordinate small-scale energy research throughout the agency. The MIT chemist, who prides himself on his good relations with his industrial counterparts, also thinks that the energy agency has given surprisingly little attention to engineering research, such as process development.

The suggestion that someone is a chemist brings to mind a certain character type—the person who toils long hours at a laboratory to bring the public "Better Things for Better Living," or an ascetic professor more comfortable with molecules than social problems. It is not an image that fits Deutch. "To think of John as a chemist is something you just don't do," says his mentor from the Defense Department advisory board. Instead, Deutch's work in chemistry may have been an intentional interlude in a career plan that has never veered too far from matters of public policy. His interest in theoretical chemistry may have led him to that science as a place where he could make a mark and gain the credibility necessary to work in public policy. Enthoven, from the McNamara systems analysis group, thinks there are marked similarities between the requirements for Deutch's early defense work and his present job. Furthermore, it is almost essential to establish credibility in some disciplined field. "In public policy, everybody thinks he is an expert," says Enthoven, who is now a professor at the Stanford Business School.

Having returned to Washington, Deutch appears to be in his element. Old hands are already noting him as a figure to watch. Some associates are still slightly bewildered that he has gained such broad experience so young. But it is apparently not through happenstance that he has so many friends and colleagues in the defense establishment, the chemical industry, the universities, and elsewhere. The man who played a minor role in the civilian redirection of the Defense Department may have arrived at just the right time to play a major role in developing energy strategy.

duties: type correspondence, manuscripts, class material; make appointments; arrange meetings; answer phones; file; xerox. Position involves a great deal of student contact. Some college/secretarial school and 1 year of experience necessary. Good typing skill, organizational ability and strong office skills also necessary. B77-733 (12/14).

Secretary IV, part-time, in Linguistics and Philosophy headquarters will type correspondence, manuscripts; maintain student records; answer phones; answer student and other inquiries on Department policies and programs. Good general secretarial skills including shorthand or speedwriting skill required. 17.5/hr/wk. B77-610 (10/26).

Secretary III-IV to 3 faculty members in the Laboratory for Computer Science to handle general secretarial duties including manuscript typing and arranging travel. Will be trained in computer text editing. May handle some secretarial duties for 1 additional faculty member. Position requires organization skill and good typing ability. College training and/or MIT experience helpful. B77-770 (1/4).

Secretary III/IV, part-time, position to two Electrical Engineering and Computer Science faculty members: arrange meetings and travel; reconcile accounts; type technical reports and general correspondence; answer student inquiries; perform a variety of other secretarial duties as necessary. Both positions are for 20 hrs./wk. 1:00pm-5:00pm. B77-527 (9/28).

Secretary-Receptionist III in the Graphic Arts to handle all telephone service for the department as well as provide secretarial services to various staff members; type and route purchase orders and handle some clerical/accounting duties. Good typing, ability to use adding machine required. Applicants should be high school graduates, or equivalent. B77-771 (1/4).

Secretary III in the Sloan School of Management, Master's Program Office to handle requests for brochures and other information; answer telephones; greet visitors; answer students' inquiries. Perform secretarial work for the Associate Dean and Director of the Program. Good typing skill, accuracy with details, good telephone manner, flexibility and willingness to do a variety of tasks required. B77-760 (1/4).

Secretary III in Administrative Computing Services will type technical reports; statistical data, manuscripts and correspondence; screen telephone calls and visitors; maintain files and records; prepare various forms; handle mail and answer routine correspondence; schedule appointments; make travel arrangements. High school training with at least 1 year of secretarial experience or secretarial school graduate required. B77-742 (1/4).

Secretary III, part-time, in the Architecture Dept. to handle a variety of duties: type correspondence and proposals; answer telephones; schedule appointments; order supplies; maintain files; arrange publicity and help organize exhibitions; communicate with photographers and public who exhibit and visit the gallery; answer routine inquiries. Good typing and organizational skills required, as well as ability to work well with a variety of people. Interest in photography and related mediums necessary. 30 hrs./wk. B77-730 (12/14).

Library Asst. IV in the Barker Engineering Library to maintain the flow of current periodical materials being added to the library's collection; check-in books; order replacement issues; process new titles, title changes and cessation in publication. Will also be responsible for preparing materials for the bindery; process materials returned from the bindery; file. Some library experience preferred but not essential. Ability to organize a variety of tasks and to relate with and supervise individuals also necessary. Knowledge of foreign languages helpful. B77-764 (1/4).

Library Asst. III, night/weekend, in the Science Library, Circulation Section, to perform circulation routines: charge and discharge books; take telephone renewals and personal reserves; recall books; interpret loan procedures for borrowers; file; take statistical counts. Will also perform general stacking routines: sort, distribute and reshelve materials; keep statistics of room use. High school graduation required, some college desirable. Good clerical aptitude, accurate typing and handwriting and ability to function efficiently under pressure also required. Off-hours makes regular attendance important. Hours vary among several night and weekend shifts. B77-745 (1/4).

Account Representative V in the Information Processing Services Dept. to act as liaison between client offices and the computer operations facility; prepare input and jobs for processing; review outputs. Training in the operation of hardware components, data processing concepts, operating systems and OS job control language is necessary. At least 4 years of experience in data processing also necessary. B77-731 (12/14).

Tech. Asst. IV in the Center for Advanced Engineering Study to assist the Manager of Video Operations in routine operations: oversee equipment rental service; assist with activities of master control room; maintain stock; assist with set up of equipment; operate cameras. Must have good working knowledge of video; ability to interact well with people; organizational skills. Also necessary is video experience and experience with related equipment. Previous directing or supervising experience helpful. B77-721 (12/14).

Technical Typist III/IV in the Electronic Systems Lab, Publications Office to operate IBM Memory 100 typewriter; assist in distribution of lab reports; perform general clerical duties. Excellent technical typing skill, organization ability and ability to work with a minimum of supervision under pressure required. B77-741 (1/4).

Senior Clerk III/IV in the Summer Session Office to answer inquiries about special summer programs; mail appropriate letters and applications; assist in processing applications; edit; type cards; xerox and file applications; prepare registration material including ID cards, badges, and class cards; contact faculty members as required; update mailing list; assist at registration from June through August. Good typing skill and ability to assume responsibility in all areas of the office as needed required. B77-725 (12/14).

Sr. Clerk III, part-time, in the Comptroller's Accounting Office to type correspondence and reports; file; assemble and distribute reports; trace missing items. Must be able to type accurately. 25 hrs./wk., 9-2, M-F B77-740 (1/4).

Sr. Clerk III in the MIT Press to receive and direct visitors; answer telephone inquiries and screen calls; occasionally take phone orders for books; responsible for cab vouchers and calling cabs; handle incoming mail (approximately 250-500 pieces of mail per day). Secretarial school training required. Experience in working with public also required. Good typing ability and knowledge of basic office systems necessary. B77-766 (1/4).

Sr. Clerk III in the Medical Records Room to pull and file medical records upon request; dispatch records to proper stations; review records for required clinic forms. Duties also include: filing of new information into present records; maintaining patient index file; tracing misfiled/misplaced records; answering telephones; assisting with periodic purge of active files. High school graduation and previous office experience required. Must be able to work fast and accurately under pressure. Position requires an individual to stand all day. 37.5 hrs./wk. B77-769 (1/4).

Console Operator III in the Physical Plant to attend, operate and monitor Facilities Management System console, which monitors various aspects of the physical environment; follow prepared schedule of non-emergency activities; maintain communications with various Depts. using a variety of equipment; respond to alarms and emergencies by notifying proper personnel. Will also perform various clerical duties: log entries; maintain telephone directories. Handle incoming

calls and assist callers as required. High school graduation required. Operating experience in an environment such as Physical Plant and/or Telecommunications desirable. Ability to react properly under urgent situation an absolute requirement. B77-735 (1/4).

Clerk III/III in the General Purchasing Office to answer phones; greet visitors; process purchase invoices; file; handle mail; operate folding and inserting machine; assist with various other clerical tasks. Must be able to work with minimum supervision, good attendance and ability to communicate with people required. Familiarity with MIT helpful. B77-765 (1/4).

Clerk/Messenger III/III in the Energy Lab to assist the librarian with typing, processing books and reports and other supervised library work. Will also sort and distribute mail; do various errands; occasionally deliver interdepartmental mail; maintain and operate xerox machine; order office supplies; pick-up and deliver audio visual equipment; assist in office moves. Accurate typing and physical stamina for lifting required. B77-749 (1/4).

Hourly, Campus Patrol Officer, requires 3-5 years experience in all phases of law enforcement (criminal law, court procedures, criminal investigation; report writing). Must obtain and maintain Emergency Medical Technician Certification. Must have successfully completed Police Academy training and must successfully complete any additional in-service training, qualify with use of fire arms, maintain valid fire arms permit and valid drivers license. Additional requirements: security clearance, police authority warrant under Chapter 147 10-G and the ability to pass Institute physical exam. 40 hrs./wk. rotating shift. Position includes long hours occasionally. H77-196, H77-197 (1/4).

Hourly, Drafter, (Architectural) in Physical Plant to develop architectural plans, elevations and details of Institute remodeling and alteration work. Applicants must be technical school graduates with 5-10 years architectural experience, and be able to develop a job from preliminary estimating through design and drafting, within budget limitations. Position includes some field supervision. Knowledge of electrical and mechanical systems as well as school or institutional remodeling helpful. H77-195 (12/14).

Hourly, Tech. C, temporary, in the National Magnet Lab to assist in the fabrication and assembly of water cooled magnets; perform simple electrical measurements. Some familiarity with watercooled and superconducting magnet assembly desired. Temporary Feb.-May 1978. 40 hrs./wk. H77-186 (12/14).

The following positions were still available at *Tech Talk* deadline. The date following each position is the date of the most recent *Tech Talk* issue in which the position was described.

ADMINISTRATIVE STAFF:

- A77-3, Systems Programmer, Info. Processing Serv. (2/16)
- A77-15, Director, MIT Alumni Fund (4/13)
- A77-57, Director, Tutored Video Instr., Ctr. for Advanced Eng. Study (9/7)
- A77-62, Industrial Liaison Officer, Ind Liaison Off. (12/14)
- A77-72, Staff Accountant, Div. of Hlth. Sci. & Tech. (10/26)
- A77-73, Sr. Appl. Analyst, Off. of Facilities Mngmt. Syst. (11/16)
- A77-76, Dir. of Patent Marketing, Vice Pres. for Res. Off. (11/9)
- A77-77, Appl. Prog., Admin. Computing Serv. (11/16)
- A77-79, Applications Prog., Info. Proc. Serv. (12/14)
- A77-80, Manager, Info. Proc. Serv. (12/14)
- A77-82, Associate Director, Sloan School (12/14)
- A77-83, Dir. of Pers. Relations, Pers. Relations (12/14)
- A77-84, Admissions Officer, Admissions Off. (12/14)

BIWEEKLY:

- B77-385, Sec. III, Alum. Assn. (10/26)
- B77-399, Sec. IV, Energy Lab. (11/30)
- B77-517, Sec. III-IV, Mech. Eng. (10/5)
- B77-518, Sec. III-IV, Mech. Eng. (10/5)
- B77-572, Sec. III, Energy Lab. (10/26)
- B77-611, Sec. IV, Elec. Systems Lab. (11/2)
- B77-647, Sec. IV, Treasurer of the Corp. (11/16)
- B77-667, Clk./Typist III, Resource Planning (11/30)
- B77-671, Admin. Asst. V, National Magnet Lab. (12/7)
- B77-672, Sec. IV, Nutrition & Food Sci. (12/7)
- B77-673, Sec. IV, Nutrition & Food Sci. (12/7)
- B77-676, Sec. IV, Humanities (12/7)
- B77-677, Sec. IV, Political Sci. (12/7)
- B77-679, Sec. V, Nuclear Sci. (12/7)
- B77-680, Sec. IV, Nutrition & Food Sci. (12/7)
- B77-684, Sec. IV, Nutrition & Food Sci. (12/7)
- B77-688, Sr. Clk. V, Account Rep., Computing Serv. (12/7)
- B77-692, Sec. III-IV, Dean for Student Affairs (12/7)
- B77-694, Sr. Clk. III, Medical Dept. (12/7)
- B77-696, Sec. IV, Personnel Office (12/7)
- B77-697, Accounting Clk. IV, Graphic Arts (12/14)
- B77-703, Comp. Oper. III-IV, Info. Proc. Serv. (12/14)
- B77-704, Comp. Oper. III-IV, Info. Proc. Serv. (12/14)
- B77-705, Comp. Oper. III-IV, Info. Proc. Serv. (12/14)
- B77-708, Sec. IV, Architecture Dept. (12/14)
- B77-710, Sr. Clk. III, Comptroller's Acctg. (12/14)
- B77-711, Sec. III-IV, Info. Center (12/14)
- B77-712, Tech. Asst. V, Alumni Assoc. (12/14)
- B77-713, Sec. IV, Economics Dept. (12/14)
- B77-716, Accounting Asst. V, Comptroller's Acctg. Off. (12/14)
- B77-717, Sec. IV, Biology (12/14)
- B77-719, Accounting Clk. III, Biology (12/14)
- B77-720, Sec. IV-V, Off. of the Pres. (12/14)

ACADEMIC STAFF:

- C77-23, Mngr. of Financial Serv., Medical Dept. (5/25)
- C77-29, Tech. Asst., Biology (7/20)
- C77-36, Social Worker, Medical Dept. (10/5)
- C77-41, Tech. Asst., Nut. & Food Sci. (10/19)
- C77-43, Processing Librarian, Barker Eng. Lab. (10/26)
- C77-44, Tech. Asst., Biology (11/2)
- C77-45, Tech. Asst., Nut. & Food Sci. (12/7)

SPONS. RES. STAFF:

- R77-17, Systems Theory Res., Elec. Syst. Lab. (2/9)
- R77-37, High Energy Physics Res., Bates Linear Accelerator (3/9)
- R77-51, Sr. Res. Eng., Energy Lab. (3/22)
- R77-53, postdoc. res., Physics, Res. of Elec. (4/6)
- R77-73, Plasma Physicist, National Magnet Lab. (4/27)
- R77-74, Plasma Physicist, National Magnet Lab. (4/27)
- R77-79, postdoc. res., Physics, Lab. for Nuclear Sci. (5/4)
- R77-80, postdoc. res., Physics, Lab. for Nuclear Sci. (5/4)
- R77-91, Sr. Accelerator Physicist, Lab. for Nuclear Sci. (5/18)
- R77-93, Design Engineer, National Magnet Lab. (11/9)
- R77-94, Design Engineer, National Magnet Lab. (11/9)
- R77-95, Biophysicist, National Magnet Lab. (5/25)
- R77-97, Chemical Eng., Energy Lab. (6/1)
- R77-98, Elec. Eng., Har/MIT Div. of Hlth. Sci. & Tech. (6/1)
- R77-105, Managing Dir., Energy Lab. (6/22)
- R77-112, Spons. Res. Staff, National Magnet Lab. (6/22)
- R77-137, Spons. Res. Staff, Bates Linear Accelerator (8/31)
- R77-139, Prog., Res. Lab. of Elec. (8/31)

- R77-150, Spons. Res. Staff, Res. Lab. of Elec. (9/7)
- R77-153, Reactor Util. and Elec. Sup., Nuc. Reactor Lab. (9/7)
- R77-161, Elec. Engineer, Mech. Eng. (9/7)
- R77-170, Combustion Engineer, Energy Lab. (9/28)
- R77-189, Experimental Physicist, National Magnet Lab. (10/26)
- R77-192, Comp. Language Devel., Lab. for Comp. Sci. (10/26)
- R77-196, Computer Prog., Lab. of Architecture & Planning (10/26)
- R77-201, Prog./Data Analyst, Earth & Planetary Sci. (11/9)
- R77-209, Res. Scientist, Energy Lab. (11/30)
- R77-210, postdoc. res., Plasma Physics, Res. Lab. of Elec. (12/7)
- R77-211, Spons. Res. Staff, Computer Syst. Design, Lab. for Comp. Sci. (12/7)
- R77-212, Spons. Res. Staff, Prog. Lang. Design, Lab. for Comp. Sci. (12/7)
- R77-213, Spons. Res. Staff, Comp. Software Design, Lab. for Comp. Sci. (12/7)
- R77-214, Spons. Res. Staff, seismic event res., Earth & Planetary Sci. (12/7)
- R77-216, Oceanographic Res., Earth & Planetary Sci. (12/14)
- R77-218, Aquatic-Life Chemist, Civil Eng. (12/14)
- R77-220, Bio-Chemist, Ctr. for Cancer Res. (12/14)
- R77-221, Neurochemist Res., Nutrition & Food Sci. (12/14)

EXEMPT:

- E77-46, Admin. Asst., Comptroller's Acctg. Off. (10/19)
- E77-47, Eng. Asst., Aero/Astro. Dept. (10/19)
- E77-54, Eng. Asst., Ctr. for Mat. Sci. (12/14)
- E77-56, Estimator/Scheduler, Physical Plant (11/9)
- E77-59, Nurse Prac./Physician Asst., Medical (11/16)

HOURLY:

- H77-89, HVAC Designer/Draftperson, Physical Plant (10/5)
- H77-137, Tech., National Magnet Lab. (9/14)
- H77-170, Waiter/Waitress, Endicott House (10/19)
- H77-176, Mech. B, Energy Lab. (11/30)

The following positions have been FILLED since the last issue of *TECH TALK*:

- B77-685, Sec. IV
- B77-695, Sr. Clk. IV
- B77-380, Sec. III
- B77-687, Sec. IV
- B77-689, Data Entry Oper. III
- B77-190, Hourly
- B77-599, Sec. III
- B77-690, Sec. IV
- H77-58, Tech. B
- B77-659, Sr. Sec. V
- B77-615, Console Oper. IV
- B77-723, Sec. III
- B77-682, Sec. VA
- B77-670, Sr. Sec. V
- E77-62, Acctg.
- B77-595, Sec. IV
- B77-701, Jr. Prog. V
- B77-714, Sec. V
- B77-544, Sec. IV
- B77-722, Cashier
- H77-192, Tech. C
- B77-700, Sec. III
- B77-709, Sec. IV
- R77-233, Spons. Res. Staff
- B77-649, Sr. Clk. III
- B77-702, Sec. IV
- B77-732, Sr. Clk. III
- H77-174, Tech. A
- H77-185, Draftsperson
- B77-658, Clk.
- R77-183, Spons. Res. Staff
- E77-60, Exempt
- B77-660, Sec. IV
- A77-67, Admin. Staff
- B77-133, Spons. Res. Staff
- B77-665, Typist/Past-Up Artist
- B77-706, Sr. Comp. Oper. V
- A77-56, Admin. Staff
- D77-631, Sec. IV
- B77-682, Sec. V-VA
- D77-17, Spons. Res. Staff
- R77-110, Spons. Res. Staff
- B77-718, Sec. IV

The following positions are on HOLD pending final decision:

- B77-715, Admin. Asst. V
- B77-479, Clk. II
- B77-591, Sec. IV
- H77-174, Tech. A (EM)

Scientists See Interstellar Maser "Turn On"

Scientists at the MIT Haystack Observatory have watched a giant, interstellar maser "turn on," and the observation is leading them to new insights into the mysteries of star formation.

This is the first time that such an interstellar maser has been carefully observed as it increases in strength, according to Dr. Bernard F. Burke, professor of physics at MIT, who supervised the observation.

The actual discovery was made on Sunday, May 8, 1977, by Aubrey Haschick, a graduate student in the MIT physics department, using Haystack's 120-foot radio telescope.

"We watched it for several days, and it became apparent that it was increasing in brightness at the rate of about 10 per cent per day. On Thursday, May 12, we sent an astronomical telegram, instructing observatories all over the world to focus on this object," Professor Burke said.

The maser radiation is generated by water molecules in a cloud of interstellar "dust," which may be anywhere from a tenth to a hundredth of a light year in diameter. (A light year, the distance light travels in one year, is equal to about six trillion miles.) There are about 20 or 30 of these water masers known. This particular maser is located about 6,000 light years away in an area of space known as W30H, where many new stars are forming.

"The maser radiation increased for about eight days, and then remained constant," Professor Burke said. "This kind of time scale seems to rule out two possible explanations for the source of the maser radiation. If it were directly emitted by a star, it would increase to maximum brightness in less than a day. If it were the result of a blast wave coming from an explosion on the star, it would take much longer, perhaps several weeks, because the blast wave travels much slower than light," he said.

"The best explanation we have is that the cloud is a sort of cocoon surrounding a new star," Professor Burke said. "The process of star formation starts when interstellar gas and dust begin to collect. As this material collects, its gravitational force pulls more material toward it, and it grows until it weighs perhaps ten times as much as the sun. At that point, it begins to light up—nuclear reactions begin to take place.

"The star then begins to emit radiation, repelling the interstellar dust which is continuing to fall into the star. The dust is diverted to form a cloud around the star, and the cloud begins to grow.

"We think that the radiation from the star heats this dust cloud which contains water vapor, and causes the water molecules to release the maser radiation," Professor Burke said.

In order to get more precise observations of the maser, Profes-

or Burke established coordinated observations at the observatory of Chalmers University in Onsala,

Sweden, the observatory of the Russian Institute for Space Science near Yalta, and Haystack. A technique called very long baseline interferometry (VLBI), perfected largely by US scientists including a group at MIT, enables simultaneous observations at the three observatories to be combined to provide very high quality data on the maser cloud.

"The VLBI data should enable us to determine how the shape and size of the cloud changed as the maser was increasing in intensity," Professor Burke said.

Once the maser had reached its maximum brightness, it was observed by scientists at the Naval Research Laboratory, using their 85-foot radio telescope at Maryland Point, Md. They noted that it took about two weeks for the maser radiation to weaken and disappear.

Gulf Oil Foundation to Fund Energy Research, Education

(Continued from page 1)

Alexander A. Lewis, Jr., president.

The grant includes an endowment of \$500,000 to provide long-term support for the Center for Energy Policy Research in the Energy Laboratory and \$250,000 over five years to provide current support. Another \$250,000 is earmarked for research on the utilization of coal and other fuels. The thrust of this research is to develop environmentally acceptable means of utilizing the nation's abundant fossil fuels. Applications of fluidized bed technology are expected to play an important role in these studies.

The MIT Energy Laboratory, headed by Professor David C. White, Ford Professor of Engineering in the Department of Electrical Engineering and Computer Science, has programs in Management and Economics,

Policy Studies and Technology Evaluation, Energy Conversion, Stationary Combustion, Fuel Conversion and Health Effects, Advanced Technology, Transportation, Electric Power Systems, Nuclear Technology and Environmental Management.

The laboratory was established in 1972 to focus and stimulate interdisciplinary and mission-oriented energy research at MIT. Currently about 60 faculty members, 80 staff members and 150 students are involved in its work.

The US Department of Energy and MIT have an institutional agreement (negotiated in 1975 by the department's predecessor agency, the Energy Research and Development Administration) which provides a funding mechanism for broad DOE support of an interdisciplinary energy research program. The agreement was the first of its kind.

Newcomb Promoted

John E. Newcomb, Jr., assistant director for administration at the MIT Center for Advanced Engineering Study (CAES) since Oct. 1975, has been named associate director of the center.

The appointment was announced by Dr. Myron Tribus, director of CAES.

Mr. Newcomb, a personnel officer at MIT for eight years before he joined CAES, will have wide responsibilities in each of the center's main operating areas—Advanced Study Program, Self-Study Program, Tutored Video Instruction, Cable and Video Services, Technical Curriculum Research and Development Project, in collaboration with the Department of Material Sciences and Engineering, Project Proceed, in collaboration with the Department of Chemical Engineering, and the Conference and Seminar Program.

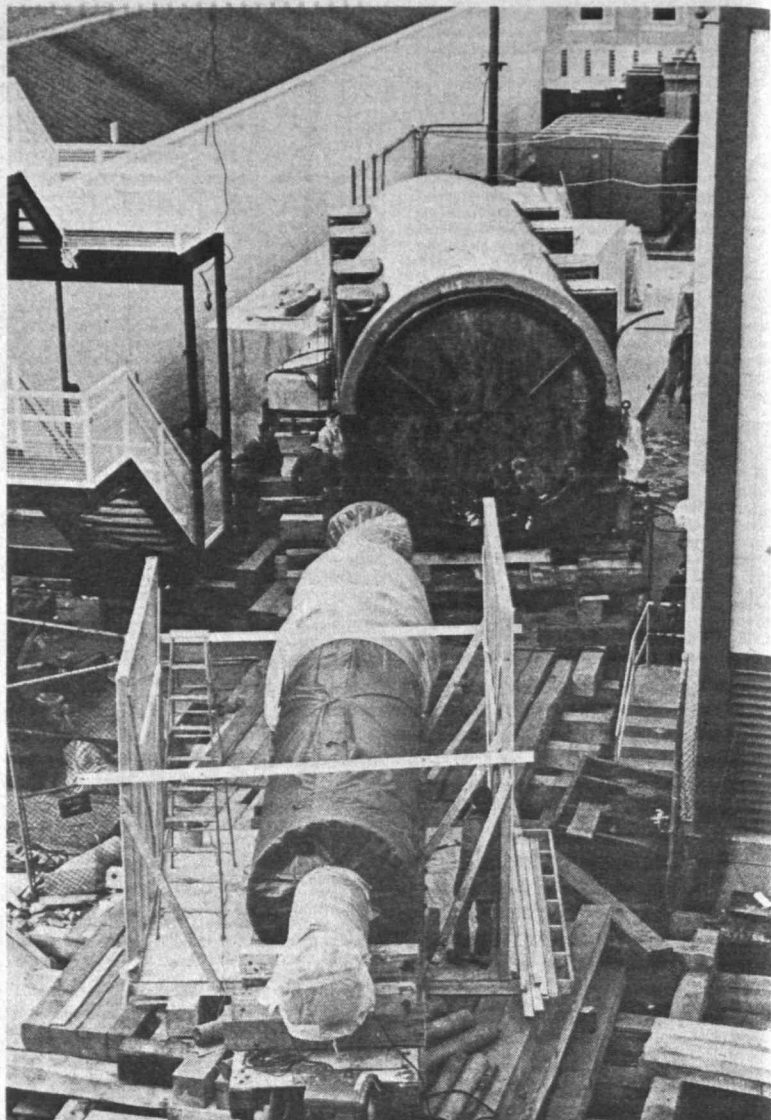
In addition, he will seek ways to broaden the center's role in continuing education for practicing engineers.

A native of Lawrence, Mass., Mr. Newcomb joined MIT in 1962 as a technician at the Francis Bitter National Magnet Laboratory. As a personnel officer he was responsible for non-academic employment in the School of Engineering and was deeply involved in programs to encourage the employment of persons who had served prison terms. He remains a member of the Governor's Advisory Committee on Corrections.

Since 1968 he has been an honorary member of the MIT Quarter Century Club and is its executive director, a post he will continue to hold.



FROM OCEAN BOTTOM TO DOC'S WALL—An undersea camera and strobe, raised from the wreck of the Civil War ironclad *Monitor*, has been mounted on the wall of Strobe Alley whose leading citizen is Professor Harold E. (Doc) Edgerton. The camera/strobe unit was lowered in 1973 to take pictures of the *Monitor*, which sank in a gale off Cape Hatteras. It lodged in the central portion of the ship, but was recovered last summer during another expedition to the famed warship.



FROM ITS unloading point beside the B&M railroad tracks, the 210-ton stator portion (top) of a huge alternator—donated to MIT by Consolidated Edison Co. of New York—has been inched to within a few feet of its final resting place atop a giant concrete pedestal next to the Francis Bitter National Magnet Laboratory, at right. In foreground, a framework is being erected over the alternator's 118-ton stator to provide shelter during refurbishing. The 200-megawatt alternator will power ALCATOR C, the fusion energy research machine being built under the direction of the MIT Plasma Fusion Center in collaboration with the magnet laboratory.

—Photo by Calvin Campbell

16 Business Executives Receive MIT Awards

(Continued from page 1)

honored in ceremonies at the Waldorf-Astoria Hotel, New York City, are made by the MIT Corporation to recognize extraordinary achievements of MIT alumni as leaders of business and industry and to honor individuals and, through them, the business and industrial community as a whole.

MIT trains a significant percentage of the leadership of American industry, Mr. Johnson said, with nearly three-quarters of all Institute alumni making careers in business and industry.

"Corporate Leadership Awards," Mr. Johnson said, "give MIT an unusual opportunity to recognize the significance of creative and effective leadership in business and industry in our national character and wellbeing."

The awards included a silver bowl inscribed with each awardee's name and company and the words: "For Distinguished Corporate Leadership." These alumni are chairman, vice chairman, chief executive officer, president or managing partner in their companies. Those honored with Corporate Leadership Awards in Chicago were:

J. Harold Bragg ('67), Chairman and Chief Executive Officer, Winnebago Industries, Inc., Forest City, Ia.

Curtis D. Buford ('42), President, Trailer Train Co., Chicago, Ill.

John J. Casey, Jr. ('40), Vice Chairman and Group Vice President, Braniff International, Dallas, Tex.

Colby H. Chandler ('63), President, Eastman Kodak Co., Rochester, N.Y.

J. Carl Clamp, Jr. ('49), President, United States Filter Corp., New York, N.Y.

Samuel J. Davy ('58), President, Treasurer, Chief Operating Officer and Chief Financial Officer, Gladding Corp., Boston, Mass.

John A. Fanning ('65), President and Chief Operating Officer, The Western Company of North America, Fort Worth, Tex.

William Friedman, Jr. ('55), President and Chief Administra-

tive Officer, Younker Brothers, Inc., Des Moines, Ia.

William R. Jackson, Sr. ('30), Chairman of the Board of Directors, Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Stephen J. Jatrass ('52), President, The Telex Corp., Tulsa, Okla.

Dr. H. Richard Johnson ('52), President, Watkins-Johnson Co., Palo Alto, Calif.

Charles F. Kennedy ('36), Chairman and Chief Executive Officer, New York State Electric & Gas Corp., Binghamton, N.Y.

John F. Magee ('51), President and Chief Executive Officer, Arthur D. Little, Inc., Cambridge, Mass.

Robert Stuart ('59), Chairman of the Board, National Can Corp., Chicago, Ill.

Karl R. Van Tassel ('25), President, Chief Executive Officer and Director, A.B. Dick Co., Chicago, Ill.

Robert E. Scifres ('50), Chairman of the Board, National Gypsum Co., Dallas, Tex.

McKay to Teach Black Studies

Dr. Nellie Yvonne McKay has been appointed a visiting assistant professor, part-time, in the Department of Humanities and will teach Black Autobiography (21.122) in the spring semester.

Dr. McKay received the BA in English from Queens College/City University of New York in 1969, the MA in English from the Harvard Graduate School of Arts and Sciences in 1971, and the PhD from Harvard this year.

Dr. McKay has been an assistant professor of English at Simmons College since 1973. She was a W.E.B. DuBois Institute Fellow at Harvard, and a member of the Institute board of directors in 1976-77.

Dr. McKay has participated in seminars at Yale University on minority group literature and at Radcliffe College on "Problems in Researching Black Women."