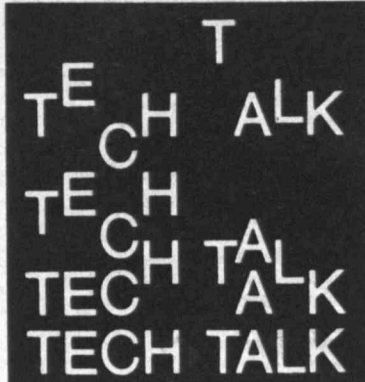


Happy Holidays

Massachusetts
Institute
of Technology



December 15, 1976

Volume 21

Number 19



Bowing to the applause of the Swedish royal family and audience, Dr. Samuel C.C. Ting, co-winner of the 1976 Nobel Prize in Physics, accepts the award in ceremonies in the Concert Hall in Stockholm, Sweden, on Friday, Dec. 10. At right are Sweden's King Carl Gustaf (left) with Prince Bertil and Queen Silvia. Dr. Ting, Professor of Physics at MIT and research staff member of the MIT Laboratory for Nuclear Science, shared the award with

Dr. Burton Richter of Stanford University for discovery of the elementary subnuclear particle called the "J" particle. Announcement of the discovery of the particle was made simultaneously on Nov. 16, 1974, by a team of physicists headed by Dr. Ting at Brookhaven National Laboratory and by a group of physicists headed by Dr. Richter at the Stanford Linear Accelerator Center (SLAC), in California. (Wide World Photos)

Holiday Celebration Today

The MIT community will hold its annual Holiday Celebration in the lobby of Building 7 today, (Wednesday, Dec. 15), from 12 noon until 2pm.

At noon the MIT Brass Ensemble, directed by Robert Pettipaw, will play traditional Christmas carols in the Lobby. The community is invited to sing along or just listen, and will be treated to hot or cold cider and cookies, provided by the MIT Women's League. This is the League's traditional holiday gift to the Institute, organized this year by Martha Harleman.

Another highlight of the festivities will be Connie Demby playing selections on the dulcimer. Ms. Demby has entertained MIT audiences before, and has played in the Building 7 Lobby on a number of occasions.

The Holiday Celebration was organized by Joan B. Lund, a senior in urban studies and planning from Brooklyn, N.Y., who is the Lobby 7 activities coordinator.

US and United Europe To Be Jenkins Topic

Roy Jenkins, prominent British political leader and president-elect of the Commission of the European Communities, will give a public lecture at MIT Thursday evening, Dec. 16, on "The United States and an United Europe: Are We Now Uncertain Partners?"

He will speak in MIT's Kresge Auditorium at 8pm. There is no charge for admission.

Jenkins is the first of several world political and intellectual leaders invited to MIT for a Bicentennial year lecture series on *World Change and World Security*.

Other scheduled speakers include Robert McNamara, president of the World Bank; Roberto Campos, Brazilian ambassador to Great Britain; Burgess Carr, General Secretary of the All-Africa Conference of Churches, and Sigvard Eklund, Director-General of the International Atomic Energy

Authority.

The lectures, which will be delivered during the winter and spring, are for the purpose of stimulating thought about practical initiatives nations might take, indi-

(Continued on page 7)

Faculty to Meet

A regular meeting of the faculty will be held Wednesday, Dec. 15, at 3:15 pm in Rm 10-250. Items on the agenda include:

—A vote on the motion to amend Rules and Regulations of the Faculty concerning the procedure for appointing ex-officio members.

—Report of the Task Force on the Use of Human Subjects in social science research.

—Report of the Committee on Curricula.

Viking Scientists to Test Relativity

By WILLIAM T. STRUBLE
Staff Writer

A special group of scientists of the Viking mission to Mars—including four at MIT—is hard at work analyzing data from what they hope will prove to be the most accurate test ever performed of Einstein's theory of general relativity.

The experiment, which involves measuring the round-trip travel time of radio signals sent from earth to the Viking Landers and Orbiters, reached its peak of activity near Thanksgiving Day, when Mars—as seen from the earth—passed directly behind the sun.

At that time, the radio signals took about 42 minutes to travel the approximately 500,000,000 miles from earth to the spacecraft and back again. General relativity predicts that these signals would be slowed as they passed the sun, causing an increase in the travel time of about two ten-thousandths of a second.

Because of Viking's precision radio communications system, the round-trips of the signals could be timed with an error no larger than one ten-millionth of a second. If it reaches its potential accuracy, the experiment will be 10 times more ac-

curate than any previous test of general relativity.

Main responsibility for the relativity experiment and the data analysis rests with Dr. Irwin I. Shapiro, MIT professor of earth and planetary sciences and member of the Viking Radio Science Team; Dr. Robert D. Reasenber, Dr. Robert B. Goldstein, and Dr. Paul E. MacNeil, research staff members in the MIT Department of Earth and Planetary Sciences, and with Dan L. Cain, John Anderson and Michael Keesey, of the Jet Propulsion Laboratory. The Radio Science Team is headed by Dr. William H. Michael, Jr., of the Langley Research Center.

Because the demanding experiment required the coordination of several large groups, the Viking project formed a special team headed by W. Fillmore Cuddihy, of the Langley Research Center, to coordinate planning activities. Ranging mea-

(Continued on page 8)

Pension Association Merger Planned

A streamlined retirement plan for staff members is the objective of a meeting of the Pension Association scheduled for Monday, Dec. 20, at 4pm in the Bush Room (10-105).

Chief purpose of the meeting is dissolution of the Pension Association and the merger of its assets together with those of the existing and parallel Supplementary Retirement Plan into a new Retirement Plan for Staff Members. The new Retirement Plan for Staff Members is essentially a reconstitution and simplification of the two currently existing plans.

A package of information concerning the change is now being circulated to members of the Pension Association. A proxy has been included for those who will be unable to attend the December 20 meeting. The Board of Trustees encourages all to participate in the voting and recommends a vote for dissolution of the Association and merger of the funds as the most direct and advantageous manner of conforming with the Employee Retirement Income Security Act

(ERISA) and simplifying administration.

Following is a summary of effects of such a vote.

Retirement Plan For Staff Members

The Reconstituted Plan
As a result of the Employee Retirement Income Security Act of 1974 (ERISA), the By-Laws of the Pension Association and the Supplementary Retirement Plan required changes in many minor respects, effective as of January 1, 1976. Much time and effort have been spent in studying the Plans and implementing the required changes. At the same time, the Trustees considered it advisable to review the structure of the Plans and trust funds, with the objective of simplifying administration. They have concluded that the best way to accomplish this objective, without losing any Plan benefits except as caused by ERISA, and at the same time gaining flexibility, is to dissolve the Pension Association and combine the two Plans and trust funds. This is the prin-

(Continued on page 7)

No Paper

Tech Talk will not be published December 22 and 29 because of the holidays. Regular publication will resume Wednesday, Jan. 5, 1977. Deadline for submission of classified ads and listings for the Institute Calendar and Institute Notices is 5pm Wednesday, Dec. 29.

Persons wishing to list IAP events are asked to fill out calendar forms circulated to those sponsoring activities.

No Information

The Information Center (Rm 7-111) will be closed Friday, Dec. 24, through Sunday, Dec. 26, and Friday, Dec. 31, through Sunday, Jan 2. Regular hours will resume Monday, Jan. 3, at 9am.

1976 United Way Drive Closes on Upbeat Note

Achievement of 90 percent of MIT's projected \$130,000 goal in the United Way Campaign was announced at a gathering of area coordinators and chief solicitors on Thursday, Dec. 9, marking the official end of the drive.

The total dollar amount received to date is \$117,093, reflecting a 16 percent increase over last year's donation. Gifts are still being received. The rate of participation

was 29 percent, almost equal to last year's rate, and the average gift was \$50, according to Michelle Whitlow, coordinator of the MIT campaign.

Patricia Garrison, assistant equal opportunity employment officer and chairwoman for the MIT campaign, thanked all those who participated in the drive for their efforts and invited suggestions

(Continued on page 8)



NOT CHRISTMAS ELVES but members of the MIT Women's League are creators of the wreaths and roping that annually decorate 77 Massachusetts Avenue and Kresge. Contributing their talents this year (left to right) were: Lennie Haus, Maureen Miller, Ann Holden, Marty Harlemann, Mabel Nevins, Fran Elliott and Rose Carmichael.

Curtis to Fill New Position

Glenn Curtis, a buyer in the Purchasing Office, has transferred to MIT Graphic Arts Service where he is now responsible for consolidation of printing and copying under Graphic Arts.

Announcement of the appointment, effective December 1, was made by Paul V. Cusick, vice president for fiscal relations, in collaboration with Philip A. Stoddard, vice president for operations, and James W. Coleman, director of Graphic Arts Service.

Mr. Curtis is retaining some of his former, printing-related responsibilities, such as composition, engraving, copy services, and maintaining equipment for folding, inserting, collating, and addressing materials. His prime new responsibility is to organize and implement copying on MIT-owned copying machines, to establish billing procedures, and to structure controls within departments having copiers. MIT recently purchased 15 high-speed Xerox copying machines, now located in areas with a high volume of copying, in order to realize immediate savings. When the new system is established, he will assume additional managerial responsibilities at Graphic Arts.



Mr. Curtis

copying on MIT-owned copying machines, to establish billing procedures, and to structure controls within departments having copiers. MIT recently purchased 15 high-speed Xerox copying machines, now located in areas with a high volume of copying, in order to realize immediate savings. When the new system is established, he will assume additional managerial responsibilities at Graphic Arts.

Mr. Curtis will also meet with individual department heads and administrative officers to discuss individual department's copying needs. In addition to copying, he will be responsible for purchasing printing and related graphic arts functions.

Mr. Curtis came to MIT in 1967 and after working for two years in the Publications Office (now Design Services) transferred to the Purchasing Office. He received the BS degree in the graphic arts and printing program at the Rochester Institute of Technology in 1964.

Toddler Program Ready to Begin

A new program for children aged 15 to 33 months—not yet old enough for the nursery program—is being organized by the MIT Child Care Office in association with the Technology Children's center.

The program is being organized in response to requests from parents of younger children. The toddler program will be available four days per week, most likely Monday through Thursday, from 2 to 4:30pm, at the TCC Nursery at Westgate. It is scheduled to begin Monday, Jan. 3, and run through May 27.

The program can accommodate a total of nine toddlers each afternoon, freeing parents for study, work or relaxation. The toddlers will enjoy supervised play, learn new skills and explore new worlds.

Parents interested in the toddler program are asked to meet with Luise Flavin, director of TCC at Westgate at one of the following times: Friday, Dec. 17, 2-4:30pm; Monday, Dec. 20, 10am-12 noon, or Wednesday, Dec. 22, 10am-12 noon. Ms. Flavin may be reached by calling x3-5907.

Art Sale Today

A Christmas sale and exhibit of pottery, photographs, drawings, and other works made by members of the MIT Student Art Association will be held in the lobby of Bldg. 10 on Wednesday, December 15, from 10am to 6pm.

Artists receive 80 percent of the sale price. The remaining 20 percent goes to the SAA for its general operating budget.

INSTITUTE NOTICES

Announcements

Brookhaven Nat'l Laboratory Summer Student Program—A program for the education and training for selected undergraduates with an interest in research and teaching. Students will work with members of the scientific staff and gain research experience in accelerators, biology, chemistry, engineering, mathematics, medicine and physics. Applicants must be US citizens who will have completed their junior or senior year by June, 1977. The stipend is \$125.00 a week with limited travel expenses. Information: Preprofessional Advising and Education Office, Rm 10-186, x3-4158.

Creative Photog I (4.921) Lottery—Those interested in taking course Spring term must sign up for lottery, Dec 1-15, Creative Photo Lab, W31-310.

Family Day Care Program—Meeting for all users, providers and interested people, Wed, Dec 15, 7:30pm, Eastgate Nursery School. Info: MIT Child Care Office, 3-1592.

First Term Grade Reports—Grade reports will be mailed to term addresses on Jan 4. Report address corrections to Registrar's Office, Rm E19-335, no later than Mon, Dec 27. Telephone requests will not be granted.

Graduate Student Council Meeting—Wed, Dec 15, 6pm, Blue Rm, Walker 2nd Fl. Dinner at 5pm, Walker Dining Rm or Pritchett Lng. RSVP. Come early.

Second Term Registration Material—Due Wed, Jan 12, in Registrar's Office, Rm E19-335.

Student Furniture Exchange—To buy and sell used furniture. Tax free letters for donations. Tues & Thurs, 10am-2pm, 25 Windsor St. Info: x3-4293.

Talbot House—Openings available for January, weeks of the 10th & 17th. First come first serve. Contact Preprofessional Advising and Education Office, Rm 10-186, 3-4158.

Student Jobs

On Campus: ELECTRONICS ASSISTANT, layout, construction, and testing of transmitter and receiver circuits used in seismic telemetry system. Familiarity with printed circuit board wiring, construction techniques, and electronics troubleshooting desired. Full-time during IAP, part-time during term. Contact Colette Ruthman, 54-913, x3-1719.

CLERICAL WORK, filing, part-time mailing, some typing, and other miscellaneous services. 5-10 hours per week, flexible. \$3.00 per hour. Contact Susan Bregman, 3-7378.

EE/CS needs a student to work in the Instrument Room to make test leads. Part-time during term, full-time during IAP. Contact R.J. Caloggero, 3-4643.

Off Campus: CALCULUS TUTOR for freshman. Will provide transportation between home in Charlestown and nearest T station. 1 hour per week, \$5.00 per hour. Contact Michael Norton, 242-1067.

ROOM AND BOARD in exchange for doing light household duties. Includes private room and bath, color TV. Contact Mrs. Harold Ward, 566-0787.

For information on other student jobs, visit the Student Employment Office, Room 5-122.

CABLE TV SCHEDULE

December 15-21	
Wednesday, Dec. 15	11am-12 Noon THE END OF OBJECTIVITY NO. 4
12 Noon-2:30pm	FORUM ON HOUSING AND OVERCROWDING
3-4pm	THE END OF OBJECTIVITY NO. 5
4-5pm	TUESDAY NOON "Video Collage" (R)
Thursday, Dec. 16	11am-1:30pm FORUM ON HOUSING AND OVERCROWDING (R)
2-2:45pm	60, 46, 37 HUT The story of an office building—60 State Street. Produced by the Design Case Study Group, Dept. of Civil Engineering.

Friday, Dec. 17	12 Noon-1pm FRIDAY NIGHT BOMBS AWAY Live from studio in Building 9.
5-6pm	FRIDAY NIGHT BOMBS AWAY (R)
Monday, Dec. 20	11am-12 Noon FRIDAY NIGHT BOMBS AWAY (R)
12 Noon-12:45pm	60, 46, 37 HUT The story of an office building—60 State Street. Produced by the Design Case Study Group, Dept. of Civil Engineering.

Tuesday, Dec. 21	12 Noon-1pm TUESDAY NOON Special Finals Week Show
3-4pm	TUESDAY NOON Special Finals Week Show (R)
9-10pm	TUESDAY NOON Special Finals Week Show (R)
Channel 10: Wednesday, Dec. 15	11:30am-8pm SPORTSWEEK
Friday, Dec. 17	11:30-8pm LOOKAROUND
Monday, Dec. 20	1-6pm MITV NEWS

Graduate Studies

DAAD Summer Scholarships at the Goethe Institutes

The DAAD (Deutscher Akademischer Austauschdienst) is offering scholarships to US students for German language studies at one of the Goethe Institutes in the Federal Republic of Germany during the summer of 1977. The scholarship provides DM 2600 for the 2-month language course. Travel costs are not covered. Applicants 1) must be US citizens currently enrolled as full-time students, 2) must be between the ages of 19 and 32, 3) must have completed at least 2 years of college before the date of the grant, 4) must have completed at least one year of college level German by Oct 1, 1976, and 5) may not have previously studied in a German speaking country and/or been granted a language scholarship. Preference is given to applicants who demonstrate the need for acquiring a better proficiency in German for their future studies and/or research. Deadline: Jan 31, 1977. Contact: Graduate School Office, Rm 3-136.

Health Sciences Fund Doctoral Fellowships at MIT.

Graduate students in the life sciences and biomedical engineering who have completed most of the formal requirements for the doctoral degree and are devoting major time to thesis research are eligible to apply for Health Sciences Fund Fellowships. The fellowships, which will be awarded for one year commencing Sept, 1977, provide tuition, medical fee, and a stipend of \$325 per month for the 12-month period. They may be renewed for a second and final year upon demonstration of satisfactory research progress. Interested students should submit a research summary (no more than 2 pages) and curriculum vitae to their department's Committee on Graduate School Policy representative by Feb 1, 1977. The department will then select and nominate one candidate to the Dean of the Graduate School by March 1, 1977. Nominations must include the following: 1) research summary, 2) curriculum vitae, 3) at least 2 letters of recommendation, 4) transcripts, and 5) a letter of transmittal and recommendation from the CGSP representative. Approximately 6 new fellowships will be awarded for 1977-78. Final selection of the Fellows will be made by a committee appointed by the Dean of the Graduate School by April 1, 1977. Contact Dr. Irwin W. Sizer or Ms. Barbara Wilson, Rm 4-234, x3-7878 or x3-7879.

Health Sciences Fund MD-PhD Fellowships

Students in the Harvard-MIT Program in Health Sciences and Technology who are devoting major time to PhD thesis research, either at Harvard or MIT, are eligible to apply for the Health Sciences Fund MD-PhD Fellowships. The fellowships, which will be awarded for one year commencing Sept, 1977, provide a maximum of \$325 a month stipend for the 12-month period plus tuition and fees. Awards for students who already receive some type of financial assistance will be adjusted so that their Health Sciences Fund Fellowship will supplement the other aid up to the maximum (tuition, fees, plus \$325 per month). Renewal of the fellowship for a second and final year is contingent upon the Fellow's satisfactory research progress and under the condition that he will continue to devote major time to thesis research. To apply, students must submit the following to Dr. Irving London, director, Harvard-MIT Health Sciences and Technology Program by Feb 1, 1977: 1) research summary (no more than 2 pages), 2) curriculum vitae, 3) at least 2 letters of recommendation, and 4) a transcript. A selection committee appointed by Dr. London will evaluate the applications and submit the most outstanding to the Office of the Health Sciences Fund for final selection. Awards will be announced by April 1, 1977. Contact Dr. Irwin W. Sizer or Ms. Barbara Wilson, Rm 4-234, x3-7878 or x3-7879.

Howard Pyle Safety Research Fellowship

The National Safety Council is offering the Howard Pyle Safety Research Fellowship for 1977-78. The fellowship is designed to provide encouragement and financial support to competent graduate students who wish to pursue a doctorate and a subsequent career in safety or a related field. Applicants must have had at least one year of graduate study. US citizens are given first priority, then resident aliens. The fellowship includes tuition and fees up to \$4,000 plus a \$2,500 stipend and a \$450 allowance for dependent children. Contact: Graduate School Office, Rm 3-136. Deadline: Feb 15, 1977.

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.

Computer Corporation of America Cambridge
Computer Corporation of America has developed the Datacomputer as the Arpanet's large-scale utility. Third or fourth year students are invited to participate in further Datacomputer development, identification and development of network applications, and implementation of usage accounting in a distributed, cooperative network environment. Some experience in computer programming, computer networks (especially the Arpanet), TENEX, or the PDP-10, Bliss-10 or MACRO languages is desirable. Pay or credit.

Microprocessor-Based Word Processing System
The goal of this project is the development of a small portable system that can be used at the office or with a home TV to prepare a manuscript. Two immediate tasks are: 1) the design and construction of modifications to a standard selectric typewriter to enable it to be driven by a computer; and 2) the development of the software module for driving the printer. Contact: Merton Kahne, x3-2916, or Marvin Sirbu, x3-1660.

Phase Separations of Complex Systems During Freezing

During the cooling and freezing of complex aqueous systems, components can exceed their solubility limits and appear as a separate phase. This behavior is of some significance for the behavior of frozen materials in freeze-drying. A student is invited to use a microscopic technique to determine the phase separation behavior of a variety of aqueous systems during cooling and freezing. Freshmen welcome on this project. Contact: Prof James Flink, Rm 56-109, x3-6735.

Applicon Inc. Burlington

Applicon, a computer graphics firm that designs, manufactures and sells graphics processing equipment, is interested in working with an undergraduate who has interests in electronics, computers and/or mathematics and who has some formal electrical engineering background. A student should have some familiarity with both analog and digital circuits. Computer programming experience is not necessary, but some familiarity is desirable. Transportation to Burlington can be by shuttle bus, public transportation, or private car.

Electronic Systems Laboratory: Complex Materials Handling and Assembly Systems

The goal of this work is to bring the benefits of automation already achieved in many large-scale production processes to medium and small-lot production, where single-purpose solutions are not economic. There are opportunities for student projects in the areas of identifying and defining current and projected requirements of diverse US industries and the understanding and modeling of complex manufacturing processes. Contact: Prof Leonard A. Gould, Rm 38-467, x3-7312, or Mr. John E. Ward, Rm 35-402, x3-3891.

Cordell Engineering Everett, Mass.

Cordell Engineering manufactures Automatic Modu-Lab Processors for either color film or color paper. The Automatic Processors accomplish all techniques normally employed in custom finishing of high quality color work...automatically. Specific projects can be discussed with Cordell, and will depend on interests of students. Cordell is easily accessible by MBTA.

US Army Research & Development Laboratories Natick, Mass.

Some opportunities are available for food science, chemistry, physics, and engineering majors. Natick Research Laboratories do research, development and engineering on: food science, packaging problem-solving, pollution abatement, textile technology, airdrop technology, environmental medicine, and human engineering (clothing, environment, nutrition). Credit only.

Technology Children's Center—Openings for children 2-3/4 to 4-1/2, nursery program. Info: Child Care Office, Rm 4-144, x3-1592.

UNICEF Christmas Cards—On sale now at TCA, Stu Ctr Rm 450, x3-4885.

Tickets Available—Discount tickets for Wed, Dec 15 BSO open rehearsal are on sale now at TCA office, Stu Ctr Rm 450, 11am-3pm, x3-4885.

Spanish Classes—Spanish III and IV classes may be offered next year. Interested students should leave name at Language Office, x3-4771.

Club Notes

MIT Badminton Club—Join the MIT Team in MBA Division III League matches, MBA Tournaments or come just for fun. Meetings Fri, 7-10pm, Sun, 10am-1pm, du Pont Gym. Info: E. To 3-6780, 5-9671 Dorm.

MIT Figure Skating Club—Meetings Sat, 9 11am, Sun, 11:30am-1pm, MIT Ice Rink, Free. For anyone interested in developing figure skating ability. Participants must be able to skate backwards.

MIT Juggling Club—Meetings Sun, 12n-2pm, Stu Ctr Rm 473. (Note new time & place.)

MIT Madrigal Society—Meetings, Wed, 8pm, Rm 4-160. We sing for our own pleasure. Sopranos, altos, tenors needed. Info: Scott Chase, 5-7655 or 5-7691 Dorm.

White Water Club—Pool sessions alternate Tues, 8-10pm, Alumni Pool. Next session Jan 4.

Religious Activities

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

MIT Buddhist Association—Meditation session & informal discussion Thurs, 5:30pm, Rm 8-205. New members always welcome.

Interdenominational Advent Services—Wednesdays, 5:05pm, Chapel. Celebration of the Holy Communion. All Welcome.

Hillel Services—Orthodox: Fri, sundown, Rm 50-005; Sat, 8:30am, Rm 10-105. Traditional/Egalitarian: Sat, 10am, 312 Memorial Dr (Religious Counselors Bldg). Reform: Fri, 7:30pm, Chapel.

Tech Catholic Community Christmas Services—Fri, Dec 24, Midnight Mass, Chapel; Sat, Dec 25, Sun, Dec 26, 11am, Chapel. Celebration of the Sacrament of Penance—Wed, Dec 15, 7:45, Chapel. A chance for private confession and group reflection.

Echoes

50 Years Ago

MIT announced the establishment of Course XVIII, a professional curriculum in building construction. Training will include the study of applied mechanics, materials, surveying and business problems. Attention will also be directed to human problems involved in directing large groups of people engaged in construction work.

40 Years Ago

Dr. Joseph Boyce, Assistant Professor of Physics, described the Harvard-MIT expedition to central Asia to photograph the solar eclipse. During his lecture he demonstrated some of the equipment used on the expedition.

25 Years Ago

Whirlwind I, a high-speed digital computer, is now in operation at the Institute. This machine is the only large-scale computer of its kind in the country and is equipped with an electrostatic "memory."

Prepared by Marcia Conroy, MIT Historical Collections, x3-4444.

TECH TALK Volume 21, Number 19 December 15, 1976

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Thermodynamics Pioneer Lives on in Annual Lecture

by Robert C. Di Iorio
Staff Writer

Josiah Willard Gibbs, a professor of mathematical physics who taught at Yale University from 1871 until his death in 1903, lives on in spirit at MIT—thanks to the inventive teaching of Dr. Robert C. Reid of MIT's Department of Chemical Engineering.

For several years, Professor Reid has delivered one of his lectures in Subject 10.40, Chemical Engineering Thermodynamics, as he believes Gibbs, who established the theoretical basis for thermodynamics, would have done.

Dressed in the academic robe common to Gibbs' time, the 52-year-old MIT professor uses a rubber face mask and a cane to project the image of a man nearly a century and a half old.

"Gibbs was really the first famous thermodynamicist," Professor Reid says. "He possessed great vision, but his work wasn't appreciated or understood in the United States for several years.

"It was not until German and French scientific publications commented on Gibbs' early work, which had been published in the *Transactions of the Connecticut Academy of Science*, that he began to gain recognition."

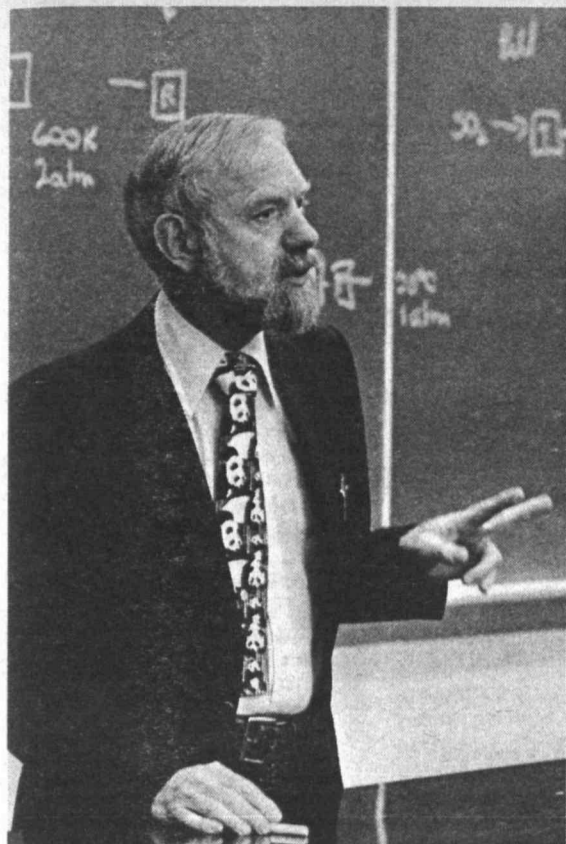
Professor Reid, who was recently honored with the Warren K. Lewis Award by the American Institute of Chemical Engineers which cited his "extraordinary classroom teaching," has several reasons for introducing "Professor Gibbs" to his graduate students.

"First of all, Gibbs represents a way of representing scientific theory that is new to the students because he made heavy use of logic and less use of equations. Secondly, I try to deliver the lecture in the style of Gibbs' day, using primarily deductive proof. In the next day's lecture I explain and expand his work in more modern terms.

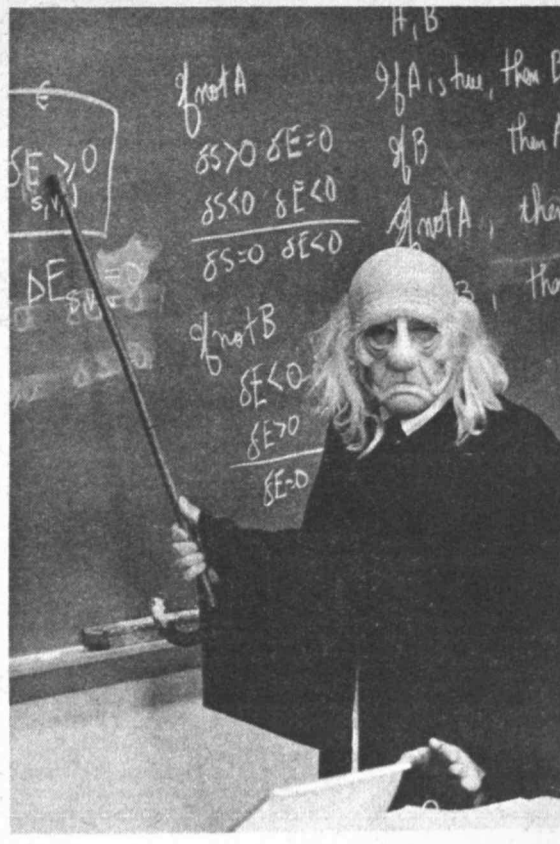
"And also, I try to convey the sense that the professor is human, that behind the mathematical material we are studying is a human being.

"Last, there is the point that his papers and theories written 100 years ago remain perfectly valid today."

What do MIT's graduate chemical engineering students think of Professor Reid's Gibbs lecture? The attendance at this year's recent lecture offers an answer. Seated in the lecture hall were a number of graduate students who had taken Dr. Reid's thermodynamics course two years ago when personal reasons prevented him from appearing as Gibbs.



Reid as Reid



Reid as Gibbs

—Photos by Calvin Campbell

IAP Corner

Something for Everyone

by MARY ENTERLINE
Editor, IAP Guide

January is the one month of the year when classes are not just for students. Employees of the Institute are welcome to attend many of the classes planned for Independent Activities Period, January 5-28.

Whether they want to devote lunch hours to improving their Spanish or one night a week to learning beginner's woodworking, employees have all kinds of conveniently scheduled activities from which to choose. Some activities are even planned specifically for employees.

The Office of Personnel Services is scheduling a series of noon-time discussions to introduce its staff members to the employees they serve, and another session has been set up to explain medical benefits available to workers. The Office Clerical Working Group will be holding a lunch-hour forum to examine such issues as performance evaluation, classification systems, grievance procedures, benefits, training and working environment. For secretaries two daytime workshops and a dinner discussion are being sponsored by the Tech Organization for Professional Secretaries (TOPS), while the Office of Personal Development is running sessions on technical typing.

Employees can also use their January lunch hours to watch movies on mathematics, space exploration, or cell motility; take a course in "Presidential Economics," "The Role of the Earth's Magnetic Field in Homin Pigeon Navigation," or "Kite Flying"; or learning to dance, Israeli or disco-style. They can attend the Arteriosclerosis Center's discussions of medical research, or join a French sin-along.

Noon-time discussions sponsored by the Women's Forum will focus on "The Seven Ages of Women," "Singleness," "New Views on Sexuality" and "Myths about Aging." In addition, Women's Forum will present the Gay Warner Memorial Lecture by Ellen Goodman of the *Boston Globe* on "Change in Life Choices."

Female employees should also be particularly interested in a discussion "On Buying a House—Any Women Can Do It" led by Jane Sauer, coordinator of the MIT-Wellesley Exchange Program. Others may be attracted to the evening workshop on "Guerrilla Tactics for Women Entering Industry," sponsored by the Association of MIT Alumnae.

Whatever they want to do, employees can find descriptions and schedules of the activities mentioned here as well as many more in the IAP Guide, available in 7-108.

College Bowl Plans Progress

Plans are proceeding smoothly for the MIT College Bowl, an IAP activity sponsored by the MIT Libraries, promising to make the final rounds of competition a challenge to the four play-off teams and an evening of entertainment for the audience.

Nobel Laureate David Baltimore, American Cancer Society Professor of Microbiology in the MIT Department of Biology, will serve as master of ceremonies for the finals at 8pm on Thursday, January 20, in Kresge Auditorium. Judges will be Dr. Mildred Dresselhaus, Abby Rockefeller Mauze Professor of Electrical Engineering in the MIT Department of Electrical Engineering and Computer Science; Dr. Carl Kaysen, David W. Skinner Visiting Professor of Political Economy in the School of Humanities and Social Science, and Dr. Roy Lamson, Class of 1922 Professor, Emeritus, and senior lecturer in the Department of Humanities and special assistant to the president for the arts.

Prizes include four dinners—one for each member of the winning team—at the Hyatt Regency Hotel, gift certificates from Lexington Gardens, free NASIC searches, \$200 worth of computer time from the MIT Information Processing Center, tickets to the movie, *The Last Tycoon*, at Sack Theaters, and four cases of Schlitz from Crown Distributors.

Competition is open to all full-time students. Applications for four-member teams are available at the reference desks of divisional libraries. Individual students in search of a team may call David Lewallen, assistant Dewey librarian, on Ext. 3-5645. Applications must be submitted by Friday, January 7.

MIT College Bowl is modeled after GE College Bowl, for 17 years a popular television show. College Bowl Company will supply rules and questions, and plans to sponsor the National Intercollegiate College Bowl Competition on network television in 1977.

For further details about MIT College Bowl see listing 270 in the final IAP GUIDE available in the IAP Office, Rm 7-108.

King Commemoration Set for January 13

Commemoration for the birthday of the late Dr. Martin Luther King, Jr., will take place at MIT on Thursday, January 13.

The observance is being organized around the theme "The Dream: Education is Freedom" by the Minority Interest Group in collaboration with the Office of the Special Assistant to the President and Chancellor for Minority Affairs. Highlight of the day's observance will be an address by Muriel S. Snowden, co-founder in 1950 and co-director of Freedom House, Inc., in Roxbury. Freedom House is a unique, non-profit organization known for its outstanding contributions to development of effective citizen participation in urban renewal and to promotion of interracial understanding and cooperation.

The day's activities will begin at 11:45am when all interested members of the MIT community will gather in Lobby 7 for a silent march across Massachusetts Avenue to Kresge Auditorium. As people take their seats, a recording of Dr. King's speech, "I Have a Dream," will be played. The audience will join in singing "We Shall Overcome." Following the invocation, the MIT Gospel Choir and soloist Marion Neville, an administrative assistant in the Office of

Holiday Notice

The Institute will be closed on Friday, January 14, 1976, in observance of the birthday of Dr. Martin Luther King, Jr. The usual pay practices applying to recognized Institute holidays will be in effect.

Because of the Friday holiday, a special program honoring Dr. King will be held on Thursday, January 13, with a convocation at Kresge Auditorium beginning at 12:30pm. Vice President John M. Wynne has asked the cooperation of supervisors in releasing employees to attend the convocation if work loads permit.

the Dean for Student Affairs, will sing. Rosa Hunt, administrative assistant to the Special Assistant to the President and Chancellor for Women and Work and chairwoman of the Minority Interest Group, will introduce the keynote speaker. Mrs. Snowden's address will focus on the day's theme. The memorial service will close with singing of "Lift Every Voice," the black national anthem, and a benediction.

Everyone attending the service is invited to a reception in the Student Center Mezzanine Lounge

at 2pm.

The group responsible for planning the memorial observance, the Minority Interest Group (MIG), was formed in the spring of 1974 and is composed of black students and MIT employees.

The group is concerned with facilitating positive interaction within the MIT community and with raising levels of awareness and consciousness.

In addition to the observances in memory of Dr. Martin Luther King, Jr., MIG has planned several IAP activities. On Tuesday, January 18, Dr. Willard Johnson, professor of political science in the MIT Department of Political Science and a specialist on African affairs, will give a talk, "Trends in North, East, and West Africa: Report of a Journey," based on his recent tour of north, east, and west Africa.

On Tuesday, January 25, there will be a panel discussion, "On Being a Minority Student on a Predominantly White College Campus," moderated by Sam Nixon, a senior in electrical engineering and computer science from St. Louis, Mo. Black graduate and undergraduate students on the panel will speak on their perceptions and experiences.

Both sessions will meet from noon to 1pm in Rm. 9-150. All are invited to attend and to bring their lunch; coffee and dessert will be provided.

MIG also hopes to sponsor activities during Black History Week in early February.

Students and persons at all levels of employment at MIT interested in learning more about MIG or in helping plan group activities, are invited to call Rosa Hunt on Ext. 3-5921 or Josie Bartie on Ext. 3-5446.

Darwinism and Culture Public Lectures Planned

Scholars from several universities will present six public lectures on aspects of Darwinism during the MIT spring semester.

The lectures will be given in connection with a new subject, *Darwinism and Culture* (21.756), being offered under the auspices of the Cambridge Humanities Seminar. The subject will be run as a seminar by Dr. Alvin C. Kibel, professor of literature in the Department of Humanities, and Dr. Stanford Anderson, professor of history and architecture in the Department of Architecture. Professor Ingrid Stadler, chairman of the Department of Philosophy at Wellesley College, is also involved in the planning.

"The seminar will study Darwinism as an intellectual 'event' not only within the domain of scientific inquiry," Professor Kibel said, "but also within the broader area of general reflection upon the nature of human culture. It will be the contention of the seminar that Darwinism cannot be rightly understood except in reference to both contexts."

The lectures associated with the seminar will be sponsored both by the Cambridge Humanities Seminar and the Seminar on Technol-

ogy and Culture at MIT. They will be given on alternate Thursdays, starting Feb. 17, from 4 to 5:30pm, in Rm 9-150.

The lecturers and their topics: "The Argument of Darwin's *Origin* and its Contemporary Reception"—Everett Mendelsohn, chairman, Department of the History of Science, Harvard.

"The Concept of Progress in Organic Evolution"—John Greene, Department of History, University of Connecticut Graduate School.

"The Evolution of Natural Communities: Darwinism and Ecology"—Jared M. Diamond, professor of physiology, UCLA School of Medicine.

"The Evolution of Human Communities: Darwinism and the Study of Culture"—George Stocking Jr., Department of Anthropology, and Morris Fishbein, Center for the Study of History of Science and Medicine, University of Chicago.

"Darwinism and the Social Propensities of Man"—Richard Lewontin, Agassiz Professor of Zoology, Harvard.

"Darwinism, Intellectual History and the Growth of Knowledge"—Professor Marjorie Grene, Department of Philosophy, University of California at Davis.

Midnight Music

The MIT Chamber Players will give a midnight concert on Friday, December 17, in MIT's Lobby 7. The concert is open to the public free of charge.

The Players will perform Bach's Brandenburg Concerto No. 1 in F, Mozart's Serenade No. 11 in E flat, K.375, Trio for Two Flutes and Harp from *L'Enfance du Christ* by Berlioz, an Bach's Cantata No. 32, *Liebster Jesu, mein Verlangen*.

Violist Marcus Thompson, associate professor of music in the MIT Department of Humanities, who formed the Chamber Players in 1974 and serves as group director, will conduct the first three works on the program. Composer John Harbison, associate professor of music in the MIT Department of Humanities, will conduct the Bach cantata.

THE INSTITUTE CALENDAR

December 15 through January 5

All seminars and movies associated with IAP courses must be submitted to the Calendar Editor, Rm 5-111, on special forms which were sent out to all IAP course coordinators. Additional forms may be obtained from the IAP office, Rm 7-108, x3-1668, or from the Tech Talk office, Rm 5-111, x3-3270.

Events of Special Interest

Holiday Celebration* — Highlights of the Holiday Celebration Wed, Dec 15 in the Lobby of Bldg 7 will be: cookies & hot & cold cider served while listening to the MIT Brass Ensemble play Christmas arrangements, 12n-1pm; and Connie Demby playing the dulcimer, approximately 1pm.

World Change and World Security* — Roy Jenkins, prominent British political leader, incoming president of European Economic Community. MIT Bicentennial Lecture Series. Thurs, Dec 16, 8pm. Kresge.

Seminars and Lectures

Wednesday, December 15

Nutrition and Food Science Seminar* — Hans-Lukas Teuber, 1976-77 James R. Killian, Jr. Faculty Achievement Award Lecturer, head of Department of Psychology. Topic to be announced. 9am, Rm E18-408.

From Language of Action to Language of Thought** — Jerome Bruner, Watts Professor of Psychology, Department of Experimental Psychology, University of Oxford. DSRE Seminar. 12n, Rm 20C-117.

The General Circulation of the Ocean as a Geophysical Inverse Problem* — Carl Wunsch, physical oceanography. Oceanography Sack Lunch Seminar. 12n, Rm 54-311. Coffee, bring lunch.

Thermo-Hydraulic Study of Forced-Cooled Underground Transmission Lines* — Paul Koci, G. Mechanical Engineering Doctoral Seminar. 1pm, Rm 5-134.

Nonlinear-Controller Design for Systems Which are Saturated* — Nicholas K. Mango, G. Mechanical Engineering Systems and Design Division Seminar. 1pm, Rm 3-465. Coffee & tea. Smoke-free.

The Role of Stolports in Regional Planning — Its Place in Decentralized Growth in Nigeria* — Vincent Jyahan, aero/astro. Aero/Astro Doctoral Seminar. 2pm, Rm 33-206.

Some Results of Research on Pilot-Vehicle System in the Soviet Union* — Aleksandr Efremov, Moscow Aviation Institute. Man Vehicle Laboratory Seminar. 4pm, Rm 33-206. Coffee 3:45pm.

Reindeer to Snowmobiles: The Impact of Energy De-Localization* — Pertti J. Peltto, anthropology, University of Connecticut. Technology Studies Seminar. 4pm, Rm 20D-205. Coffee 3:30pm.

Stress Corrosion Cracking of Zircaloy in Iodine Vapor* — Y.Y.Liu, G. Nuclear Engineering Doctoral Seminar. 4pm, Rm NW12-222.

Lunar Magnetism* — S.K. Runcorn, physics, University of Newcastle, Newcastle upon Tyne, England. Earth & Planetary Sciences Colloquium. 4pm, Rm 54-425. Tea 3:30pm, Rm 54-923.

Thursday, December 16

Wind-Solar-Fossil Composite Energy System* — James T. Yen, Grumman Aerospace Corp. Aero/Astro Seminar. 1pm, Rm 37-252. Coffee preceding, Rm 33-222.

Dynamics of a Toroidal Discharge in the Drift Kinetic Description* — James E. McCune, aero/astro. RLE Plasma Theory Seminar. 2pm, Rm 36-261.

Analysis and Design of a Ferromagnetic Suspension for Simultaneous Lift and Lateral Guidance of a Tracked Levitated Vehicle* — Douglas Limbert, G. Mechanical Engineering Doctoral-Seminar. 3pm, Rm 3-133.

Light Water Reactor Study Group: New Light on an Old Reactor* — D. Wood, Energy Lab. Energy Assessment Group Seminar. 4pm, Rm 24-121.

The Force Plate as a Clinical Instrument* — George W. Pratt, Jr., electrical engineering. Biomedical Engineering Center for Clinical Instrumentation Seminar. 4pm, Rm 26-217. Refreshments 3:45pm.

Woman's Place is at the Typewriter: Changes in Clerical Work in the United States, 1870-1930* — Marjorie Davies, Brandeis University. History of Industrial Society Workshop. 4pm, Rm E52-461.

The Rayleigh-Benard Instability and Turbulence at Helium Temperatures* — Guenter Ahlers, Bell Laboratories. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45pm, Rm 26-110.

Friday, December 17

F.A.R. Infrared Investigation of Cyclotron Renaissance in n-Ge and of the Donor Ground State in n-InSb* — F. Kuchar, Clarendon Laboratory, University of Oxford. Francis Bitter National Magnet Laboratory Seminar. 10am, Rm NW14-2209. Coffee 9:30pm.

Picosecond Studies of Excitations in Photosynthesis* — S.L. Shapiro and A.J. Campillo, Los Alamos Scientific Laboratory. RLE & Spectroscopy Laboratory Seminar on Modern Optics & Spectroscopy. 11am, Rm 9-150. Coffee 10:30am.

Hydrodynamic Dispersion in Porous Media with Applications to the Movement and Accumulation of Pollutants in Groundwater* — Jacob Beer, Technion, Haifa, Israel. Ralph M. Parsons Laboratory Water Resources and Environmental Engineering Seminar. 2pm, Rm 48-316.

Diffusion Measurements in the Wisconsin Levitated Octupole* — R. S. Post, University of Wisconsin. Francis Bitter National Magnet Laboratory Plasma Dynamics Seminar. 3:30pm, Rm NW14-2209. Refreshments 3pm.

Critical Phenomena in 2+E Dimensions — Theory and Experiment* — David R. Nelson, Harvard University. Center for Materials Science & Engineering Seminar. 4pm, Rm 9-150. Coffee 3:30pm.

A New Slant at Orientation* — Lila Ghent Braine, psychology, Barnard College, Columbia University. Psychology Colloquium. 4:30pm, Rm E10-013.

Monday, December 20

Theory of Rural Urban Migration from Taiwan and Indonesian Research* — Alden Speare, Brown University. MIT-CIS Migration & Development Seminar. 2pm, Rm E53-482.

Wednesday, December 22

Evaluation of Advanced Fast Reactor Blanket Designs* — J. I. Shin, G. Nuclear Engineering Doctoral Seminar. 4pm, Rm NW12-222.

Community Meetings

Wive's Group** — Group leaders: Charlotte Schwartz, sociologist & Myra Rodrigues, social worker, both from Medical Dept; Carol Hulsizer, faculty spouse in residence, Ashdown Hse. Wed, 2-4pm, Stu Ctr West Lng. Babysitting Stu Ctr Rm 473. Cheryl, x4-4911. Dec 15: Joanie Bronfman & Neal MacMillan will present a program of Christmas music.

Exhibition and Sale* — Exhibition and sale of pottery and other work by MIT Student Art Association. Wed, Dec 15, 10am-5pm, Bldg 10 Lobby.

PDP Users Group*** — Meeting sponsored by Information Processing Services Wed, Dec 15, 1:30-5pm, Rm 26-414.

Christmas Caroling* — Sponsored by United Christian Fellowship. Music will be provided for caroling in dorms, but bring any musical instrument you want. If its too cold to play them outdoors, we can play them indoors while we have refreshments. Meet Sat, Dec 18, 8pm, Bldg 7 Lobby.

MIT Pension Association — Meeting of Association members Mon, Dec 20, 4pm, Rm 10-105. Agenda: reconstitution of retirement plan for staff members; discussion of 1975 Annual Report; other business.

MIT Women's Forum** — Meeting Wed, Jan 5, 12n, Stu Ctr Mezzanine Lng, will feature a skit, "The Seven Ages of Women." This skit depicts how women look at themselves and, thru music, literature, etc, how others look at them.

Low Back Problem Exercise Class* — Thurs, 1-2:30pm, Stu Ctr West Lng. Bring 3 pillows and an OK from your doctor. \$15/ea class. Info: x3-4138, Mon, 9am-5pm.

Social Events

Hillel Open House for Chanukah* — All day open house Tues, Dec 21, sponsored by B'nai Brith Hillel of MIT. There will be latkes to eat, dreidels to spin & menorahs to light. 10:30am-6pm, 312 Memorial Dr.

Faculty Club Holiday Season*** — Yuletide buffet Tues, Dec 21: roast beef and roast duck with Yorkshire pudding, and other Yuletide treats, plus a special guest. Cost: \$6.95 + tax. Eggnog & fruitcake Thurs, Dec 23, 12n-3pm. Faculty Club will be closed Fri, Dec 24 thru Sun, Jan 2.

IAP Strat's Rat — Sponsored by Student Center Committee. Fri, 8:30pm-2am, 2nd fl Stu Ctr. Beer & wine sold, requests and other good dancing music played by DJ. Free with college ID.

Lobby 7 Events

MIT Chamber Players* — Marcus Thompson, conductor. Program of Bach and Mozart. Fri, Dec 17, 12m, Bldg 7 Lobby. Free.

Folk Dance Club* — Will be dancing Fri afternoons in Lobby 7 throughout the winter months. Come and join in! Fri, 12n-2pm, Bldg 7 Lobby. Free.

Music

Harpichord Recital* — Maryse Carlin performing music by Bach, Geminiani, Jonathan Miller & Scarlatti. Thursday Noon Hour Concert Series. Thurs, Dec 16, 12n, Chapel. Free.

Dance

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: Thurs, 7:30-11pm, Sala.

Renaissance Dance* — Sponsored by MIT SCA. Beginners welcome. Wed, 8pm, Burton dining hall. Info: Beth Parkhurst, 964-1840.

Exhibitions

Jim Dine Prints: 1970-1976* — Hayden Gallery exhibit Fri, Nov 19-Sat, Dec 18. Hours: Mon-Sat, 10am-4pm.

Will Faller: Catherine's Book and Self-Portraits* — Creative Photography Gallery exhibit Wed, Dec 1-Wed, Dec 22. Hours: Mon-Fri, 9am-10pm; Sat, 10am-6pm; Sun, 12n-8pm; Bldg W31.

Big Prints* — Exhibition of oversized graphics, including works by Patrick Caulfield, Joe Goode, Tom Holland and John Walker. Hayden Corridor exhibit Fri, Nov 19-Sun, Jan 2. Open daily.

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 of yachts and engine models. Bicentennial exhibit: "1776-1976" — a frigate, 2 schooners, a gondola, and the Durham boat of the American Revolution. Open daily in Bldg 5, 1st floor.

MIT Historical Collections* — Permanent exhibition Mon-Fri, 9am-5pm, Bldg N52, 2nd floor. Bicentennial Exhibits: Katharine Dexter McCormick, '04; Vannevar Bush, '16; Karl Taylor Compton; and Norbert Wiener, 1876 exhibit, Bldg 4 corridor. The New Technology Exhibit and Energy Exhibit: 2nd floor balcony.

Facsimiles of Composers' Manuscripts* — Including Bach, Haydn and Beethoven. Music Library, Rm 14E.

Athletics

Maggie's Self-Designed Fitness Class — Classes 12n-1pm, duPont fencing & wrestling rms. PE credit course, but all are welcome.

MIT Scuba Locker** — Scuba gear may be rented at Alumni Pool by appointment only during winter months. Call 492-8322.

Freshmen are encouraged to attend departmental lectures and seminars. Even when these are highly technical they provide students on 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 5 through Jan 16 to the Calendar Editor, Room 5-111, Ext. 3-3279, before 5pm Wednesday, Dec. 29.

MIT Libraries Holiday Vacation Schedule

	Aero & Astro	Archives	Barker Eng'g	Chemistry R R	Dewey	Humanities	Lindgren	Micro-reproduction	Music	NASIC	Reserve Book Rm	Rotch	Rotch Visual	Science	Student Center	Von Hippel R R
Sat. Dec. 18	12-4	closed	9-8	closed	9-8	9-8	10-6	closed	9-5	closed	9-8	12-6	closed	9-8	24 hours	closed
Sun. Dec. 19	closed	closed	1-11	closed	1-11	1-11	2-11	closed	1-7	closed	1-11	2-10	closed	1-11	24 hours	closed
Mon. Dec. 20	9-6	9-5	9-11	10-5	8:30-11	8-11	9-11	9-5	8:30-7	9-5	8-11	9-9	9-5	8-11	24 hours	9-7
Tue. Dec. 21	9-6	9-5	9-11	10-5	8:30-11	8-11	9-11	9-5	8:30-7	9-5	8-11	9-9	9-5	8-11	24 hours	9-7
Wed. Dec. 22	9-5	9-5	9-11	10-5	8:30-6	8-9	9-5	9-5	8:30-7	9-5	8-5	9-9	9-5	8-9	24 hours	9-7
Thu. Dec. 23	9-5	9-5	9-9	10-5	8:30-6	8-9	9-5	9-5	8:30-5	9-5	9-5	9-5	9-5	8-9	24 hours	9-5
Fri. Dec. 24		C I O S E D									C L O S E D				close at noon	
Sat. Dec. 25			C L O S E D								C L O S E D					
Sun. Dec. 26				C L O S E D								C L O S E D				
Mon. Dec. 27	9-5	9-5	9-9	10-5	8:30-6	8-9	9-5	9-5	9-5	9-5	9-5	9-9	9-5	8-9	open at 8 a.m.	9-5
Tue. Dec. 28	9-5	9-5	9-9	10-5	8:30-6	8-9	9-5	9-5	9-5	9-5	9-5	9-9	9-5	8-9	24 hours	9-5
Wed. Dec. 29	9-5	9-5	9-9	10-5	8:30-6	8-9	9-5	9-5	9-5	9-5	9-5	9-9	9-5	8-9	24 hours	9-5
Thu. Dec. 30	9-5	9-5	9-9	10-5	8:30-6	8-9	9-5	9-5	9-5	9-5	9-5	9-9	9-5	8-9	24 hours	9-5
Fri. Dec. 31		C L O S E D									C L O S E D				close at 5 p.m.	
Sat. Jan. 1			C L O S E D								C L O S E D					
Sun. Jan. 2				C L O S E D								C L O S E D			open at 8 a.m.	
Mon. Jan. 3	9-5	9-5	9-9	10-5	8:30-6	8-9	9-5	9-5	9-7	9-5	9-5	9-9	9-5	8-9	24 hours	9-5
Tue. Jan. 4	9-5	9-5	9-9	10-5	8:30-6	8-9	9-5	9-5	9-7	9-5	9-5	9-9	9-5	8-9	24 hours	9-5
Wed. Jan. 5															All Libraries resume regular schedules.	

Doherty Chair Nominations Due

Academic department heads have until Dec. 31 to submit nominations for the third awarding of the Henry L. Doherty Professorship in Ocean Utilization.

Nominations will be reviewed by the Sea Grant Policy Committee and a selection committee consisting of the Provost, the Dean of the School of Engineering, the director of the MIT Sea Grant Program and two senior faculty members. Selection will be based primarily on the relevance of the nominee's proposed research to current issues in ocean utilization, potential applicability of the results to solving problems and professional benefit to the recipient.

The two-year professorships, established through a grant from the Henry L. and Grace Doherty Charitable Foundation, Inc., aid the professional development of junior faculty members involved in expanding use of ocean resources. Each professorship provides up to full salary and employee benefits for the academic year.

Green Building Tree to Reappear

The Green Building will become a Christmas tree, complete with flashing lights, at 4pm on Friday, Dec. 17.

Jan A. Krakauer, a senior in mechanical engineering from Cincinnati, Ohio, is organizing the effort. He drew a diagram of the river side windows in the building and circulated it among the offices on that side of the building. He asked the occupants to locate their windows on the chart and turn their lights on or draw their shades at 4pm, according to their position on the chart.

The Green Building was made into a Christmas tree three years ago, but something new is being tried this year. The tree will have some blinking lights, courtesy of Professor Harold Edgerton's Strobe Lab, which will position flashing strobes of various colors in some of the lighted rooms.

Opera Coming

Hansel and Gretel, a popular opera by Humperdinck based on the fairy tale, will be presented by the Cambridge Opera Workshop in MIT's Kresge Little Theatre on Saturday, December 18, at 10am and 2pm.

Tickets cost \$4 for adults; \$2 for children, and \$2.50 for students with an MIT ID, and may be obtained by calling 899-9431.



WELDING DIPLOMAS graduates of the Seventh Administrative Development Program reap the benefits of accomplishment after graduation, Thursday, Dec 9, from their year-long course of study.

ADP VII Program Completed

Participants in the Seventh Administrative Development Program were awarded certificates of completion during a graduation ceremony held Thursday, Dec. 9, at the Faculty Club.

John M. Wynne, vice president for administration and personnel, was the guest speaker at the luncheon and presented certificates to 18 graduates of the ADP VII.

The year-long ADP program covers principles of organizational psychology, taught by Adam and Maureen Yagodka, co-directors of the Office of Personnel Development; and Financial Management at MIT, taught by Jack Currie, director of finance, George Dummer, director of the Office of Sponsored Programs, Bill Kelley, budget director, and Frank McGrory, associate director, Office of Sponsored Programs. Guest speakers during the ADP VII program included John M. Wynne, Professor Edgar Schein of the

Sloan School of Management, Dean James Bruce of the School of Engineering, and Nelson Lees, director of resource planning.

The current ADP group, ADP VIII, has recently completed the Organizational Psychology portion of the program and will be starting the second section (Financial Management) in the spring.

Graduates of the ADP VII program are:

Guillermo Alvarez, Laboratory for Nuclear Science; Ina Armstrong, Psychology; Jacqueline Colby, Libraries; Jane Dalton, Registrar; Esther Foster, Housing; Charna Garber, Information Processing Services. Charles Gisondi, Audit Division; Sharon Harris, Chemistry; Sheila Hayes, Accounting; Betty Hendricks, Academic Staff Records Office; Gwen Johnson, Ocean Engineering; Bonny Kellermann, Dean for Student Affairs. Dorothy Latsey, Comptroller's Accounting Office; S. Edward Leonard, Food Service; Lois Levine, Financial Aid; Norma Loomis, Medical; Norman Magnuson, Housing; Philip Philips, Information Processing Services; Arthur Scully, Laboratory for Nuclear Science.

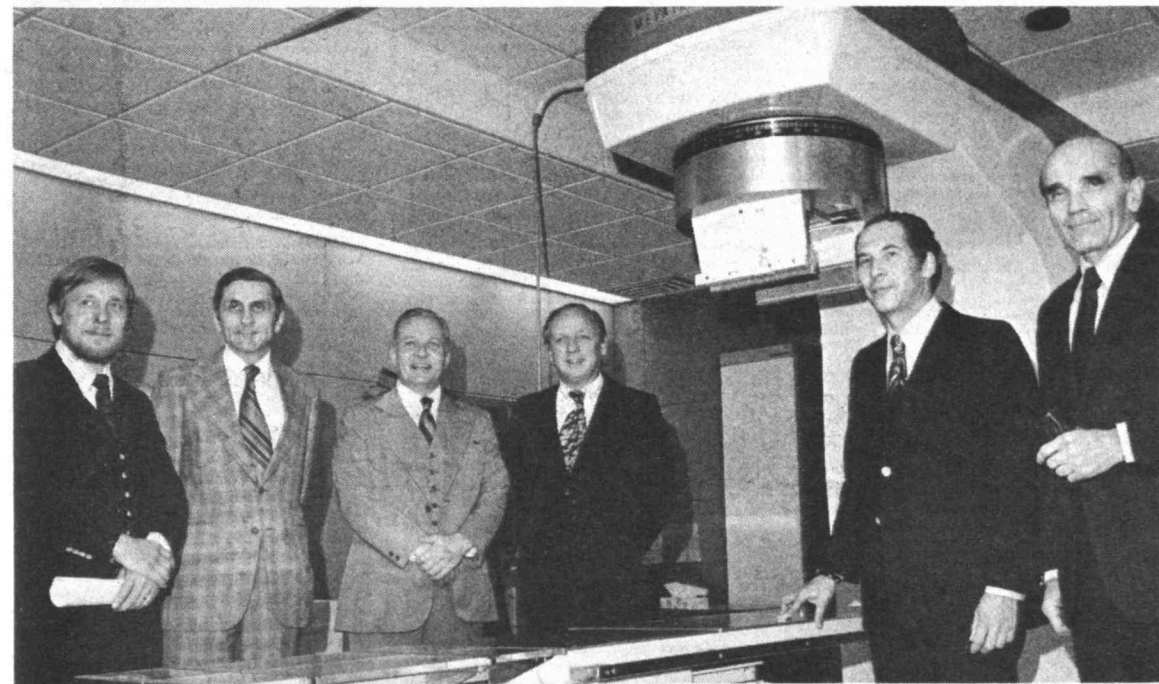
Seven Participate In Symposium

Seven MIT scientists are among participants in the Eighth Texas Symposium on Relativistic Astrophysics being held Dec. 13-17 in the Copley Plaza Hotel, Boston, under sponsorship of the American Astronomical Society and the American Physical Society.

MIT participants are Dr. Bernard F. Burke, professor of physics and member of the local organizing committee; Dr. Walter H.G. Lewin, professor of physics; Dr. Irwin I. Shapiro, professor of earth and planetary sciences, also a

member of the local committee; Dr. Alar Toomre, professor of mathematics; Dr. Rainer Weiss, professor of physics; Dr. Kenneth Brecher, assistant professor of physics; and Dr. Saul A. Rappaport, associate professor of physics.

MIT is one of 10 academic, industrial, scientific and government organizations providing support for the symposium, which is named after the state where its first meeting was held.



DR. IRVING M. LONDON, director of the Harvard-MIT Program in Health Sciences and Technology and professor of medicine at MIT and the Harvard Medical School, right, took part in the recent ceremony marking installation of a new computer-controlled system for the radiation therapy treatment of cancer patients at New England Deaconess Hospital. An interdisciplinary research program to optimize the capability of computer-controlled radiation therapy and to support the use of this equipment in clinical trials is being conducted under the auspices of the Harvard-MIT Program in Health Sciences and Technology. Professors Henry M. Paynter and Richard S. Sidell of the MIT Department of Mechanical Engineering and Brock Dew of the Charles Stark Draper Laboratory, Inc., are directing the engineering efforts. The computer-controlled radiation therapy system operates so that a maximum amount of

radiation reaches a patient's tumor while a minimum amount reaches normal tissue. The regulation is accomplished by moving the accelerator around the patient while moving the treatment couch, on which the patient lies, in various patterns. The system was installed at the Deaconess by the Joint Center for Radiation Therapy (JCRT), an organization of several Boston area hospitals. Others in the photo, from the left, are: Bengt Bjarngard, Ph.D., director of physics and engineering, JCRT; Anthony J. Piro, M.D., director of New England Deaconess Hospital Division, JCRT; Laurens MacLure, Deaconess president; Malcolm A. Bagshaw, M.D., professor and chairman of the radiology department, Stanford University School of Medicine, and Samuel Hellman, M.D., JCRT director and chairman of the radiation therapy department, Harvard Medical School.

Art Notes

CAVS Artists to Participate In First Night 1977 Events

First Night 1977, a month-long celebration of New Year's Eve, will culminate on the final evening of 1976 in revelry and arts events free to all people in the greater Boston area.

Among the 21 artists working on entertainment, arts events, and activities for people of all ages are several from MIT's Center for Advanced Visual Studies.

Boston area museums and neighborhood centers are holding 36 workshops during December for the making of masks, costumes, headdresses, and puppets to be used on New Year's Eve. A First Night workshop on sled decorating was held in MIT's Lobby 7 on Saturday, December 11.

On New Year's Eve church bells will chime at 6:30pm calling people to performances in 14 churches and public centers from Tremont Street to Copley Square and to environmental art events on Boston Common. These events, designed to draw on New Year's traditions of many cultures, will end at 11pm when people will gather from all locations and make their way to the Common in a procession led by dancers, performers, and participants carrying lanterns, puppets, and colorful materials. The festivities will culminate in a midnight celebration on the Common with mass singing of the "First Night Theme" and with the "New Year Countdown Surprise." The "Countdown Surprise" will include a light extravaganza by Lowry Burgess, CAVS Fellow from 1971-1976 and now a research affiliate at CAVS.

Events planned by other artists at CAVS include:

"Suspended Oracle" by Joan Brigham, CAVS Fellow. A small grandstand constructed of scaffolding and with seats for 20 will be bathed in steam coming from pipes laid at ground level. People seated in the grandstand will hear taped whispers of ancient Delphic oracles.

"Floating Snowflakes and Stars" by Virginia Gunter, CAVS Fellow. Five helium-filled weather

balloons will support and will be encased by many smaller balloons. Attached to the balloons will be materials shimmering and sparkling in the glow of multi-colored theatrical lights.

"Sledding" by Nancy Doll, administrative assistant in CAVS. Elaborately decorated sleds will be made at December workshops and exhibited at downtown locations the last week of 1976. If there is sufficient snow, sled races will be held reviving an old Common custom. Prizes will be given for the fastest and best-looking sleds.

"Lighthouses" by Elizabeth Goldring, CAVS Fellow. Three beacons—one donated by the US Coast Guard—will interrelate in an orchestrated sequence. Rich Kuslieka, MIT '76, is engineering the display.

Premiere performance of *Grimm Duo*, two short operas composed by Paul Earls, CAVS Fellow. The two operas, based on Grimm's fairy tales "The Sparrow and the Dog" and "Bremontown Musicians," will be presented in Old South Church by the New England Chamber Opera Group conducted by Philip Morehead. Visual designs are by CAVS and costumes, by Otto Pieni, CAVS director, under a grant from the National Endowment for the Arts. Taped dances are by Gus Solomons, Jr., MIT '61.

Paul Earls and John Langstaff also adapted the "First Night Theme" from a song by William Billings. Billings was the first native American composer and is buried in an unmarked grave on Boston Common.

First Night 1977 is sponsored by the First Night Committee in collaboration with the Boston Department of Parks and Recreation, the Office of Cultural Affairs, Boston 200, the Friends of the Public Garden and the Common, and the MBTA.

For further information about First Night festivities, consult your local newspaper or call 523-0514.

Will Faller Photographs On Exhibit in Gallery

Photographs by New York photographer Will Faller, "Will Faller: Catherine's Book and Self-Portraits," are on view in the Creative Photography Gallery (Rm W31-310) through December 22.

The "Catherine's Book" part of the exhibition shows a series of black and white studies of one woman in various locales—in the country and city, at home and the market, in a park and a car. There are also some tinted photographs of parts of her body.

Faller's "Self-Portraits" is a series primarily of color studies of Faller's face expressing a range of emotions—horror, amazement, disgust and wonder. Some of the portraits are sharply focused; many are not.

Faller is adjunct instructor in photography at New York University and in the video tape workshop at Empire State College. He is editor of *Photograph*, a new monthly publication on photography.

He has had both one-man and group shows at Park Gallery and Exposure Gallery as well as a one-man show at Furman University in S.C. and group shows at the Rhode Island School of Design and San Juan Fiesta.

He is author of *Mansight* (Full

Circle, Inc., 1967), *Violence* (Paulist Press, 1969), *Discovery in Sight* (Paulist Press, 1970) and is currently at work on a fourth book, *Catherine's Book*.

His photographs are in the permanent collections of the Metropolitan Museum of Art, Smithsonian Institution, and the Philadelphia Museum of Art.

The Creative Photography Gallery is open from 9am to 10pm on weekdays, from 10am to 6pm on Saturdays, and from noon to 8pm on Sundays.

Slide Adapter now Available

The MIT Graphic Arts Service has purchased a Xerox 6500 Slide Adapter II for its Xerox Color Copier which will make it possible to make color enlargements directly from 35 mm or any other two-by-two inch slides, according to James W. Coleman, director of Graphic Arts.

The slide adapter is located in the main Quick Copy Center in the basement of Building 3 (Rm 3-033), where the color copier is. The cost is \$1 per slide copy.

In addition to enlarging slides, the new adapter can reproduce large-size color transparencies and color diazo transparencies at their original size. It is also capable of superimposing text on graphics on enlarged slide images, and can transfer images to overhead projection materials, preprinted paper, color stock and other acceptable copying stock.

Notice To Foreigners

Foreign students or faculty members who plan to travel outside the United States during the holidays should visit either the Foreign Student Office, Rm 3-107, or Ginger Lyons, Rm 7-121, as soon as possible to obtain the appropriate certificate of eligibility. Both offices are open daily from 9am to 5pm.

CLASSIFIED ADS

Ads are limited to one per person per issue and may not be repeated in successive issues. All ads must be accompanied by full name and Institute extension. Only Institute extensions may be listed. Members of the community who have no extensions may submit ads by coming in person to the Tech Talk office, Room 5-111. Please submit all ads before 5pm Wednesday, Dec. 29. They will be printed on a first come first serve basis as space permits.

For Sale, Etc.

Girl toddler sz 9 ice skates, sig runner, lined, Bauer, lk nw, less yr old, \$23 nw, ask \$15. Tony, x8-3051 Draper.

Hyde hcky skates, sz 6 1/2 youth; nw blk ski pants, m sz 36, x3-2217.

Capital zig zag cabinet mdl sew mach w/blt in button-holder, full parts wrnty, \$100. Diane, x3-4827.

TV game, orig Odyssey w/13 dif games, exc cond, accessory input socket for experimenting, \$40 or best reas. x3-1342.

Sears port manual typwrtr, \$15. Call 267-7525, evgs.

F diamond ring, wht gold, 3/4 carat, \$870 approxed value, ask \$400. Dale, x8716 Linc.

Side tbl, \$5; k sz bed, \$100; chr, \$5; low tbl, \$3; set drapes, \$30; mag shelf, \$1; phone tbl, \$3; iron, \$3. Call 666-2294, 50 Craigie St, apt 35, Som.

Artificial Christmas tree, 7' Scotch pine, used once, best. Call 628-2217, 7-9pm.

Pr radial snows, 175SR13, fit Pinto, Mustang, Toyota, etc, driven 5 K, \$50/pr. Bernard, x3-2017.

Stud 6.00x13 snows, \$35 or best. Ken, x3-7894.

Dining tbl & chrs, all mpl construction, exc cond, \$150 or best; sofabed w/mlp accn, \$35. Call 494-9078.

Lvg cntry, must sell bef 12/27: 3 beds, w/matt, spr, matt, \$25 & \$10; 2 armchrs, \$15 & \$10; dining tbl; vac; washer; bar tbl. x3-3211.

Dbl matt, \$45; fan, \$8; yel/brn carpet, 4x8', \$15; grn 8x11' carpet, \$15; st sl set 8 forks, knives, sm & lg spoons, \$20; set 6 wht cups, bowls, dessert & dinner plates, \$18; refrig, \$60; yel draperies, \$15/ea set. Call 926-2129.

(2) conga drums: Gonpop conga & Valjay Quinto, both oak, padded cases. Call 547-3498.

Back issues of Camera, Aperture, nego. Bill, x3-2503.

Kay cello, exc cond, \$150; 9 cu ft refrig, \$15; furn; rugs; etc; Jolly Jumper, \$4; changing tbl, \$12; walker, \$1; other baby items; chldrn ice skates; toys; clothes. Call 623-6704.

Koss ESP-6-A electrostatic phones, exc cond, \$50 or best. Matthew, x5-6259 Dorm, kp try.

Plants, usual & unusual, one of a kind collection. Pam, x3-6711.

Heathkit 50 W transmitter, DX-20, best. Frank Gillespie, x8-3632 Draper.

Boosey & Hawkes trombone w/case, gd cond, \$65; nw Unguard burglar alarm sys w/batt, \$50. Nigel, x8-1345 Draper.

Bell & Howell manual slide proj, 500 W, slide trays incl, \$30. x3-3872.

Sony T-350D r-to-r stereo tape deck, exc cond, \$175. Barbara, x3-2502.

Pr almost nw 5.60x15 Delta stud snows. Mark, x198 Linc.

HP 65 calc w/3 application packs, exc cond, \$350 or best. Lamont, x3-1461.

RCA stereo, mpl finish, gd cond, best. Lee, x3-5655.

Pioneer 424 rcvr, 12 W/ch, 2 yrs, exc cond, \$120 or best; Acoustiphase spkrs, exc match for 424, 6 1/2" woofer, 1" mylar dome tweeter, 48hz-20kHz response, yr old, exc cond, \$75/pr. Andrew, x5-9440 Dorm.

Port stereo w/amfm radio, spkr nds work; port b&w 12" TV; port typwrtr. Call 494-8886, aft 6:30pm.

Spinnet piano, exc cond, w/bench, \$650. x3-6046.

Bose 1801, nw \$986, \$475; Sony TA 200F, nw \$600, \$200; Nikko STA 5010, nw \$250, \$125. Mike, x3-6903.

Guitars: beaut 10 yr old Martin D-18 w/hard shell case, \$400; smaller Guild M-20, all mahog body, case, \$150. Kathleen, x3-7744.

Hotpoint conv dishwasher, 2 cycles, harvest gold, btchr blk top, gd cond, \$100. Len, x8-1354 Draper.

Kodak Ektargraphic AF-3 mdl slide proj w/lens, remote cntrl, carousel, v little use, nw \$262, \$110. Don, x8-1425 Draper.

Pr stl radials, 165SR15, b nw, \$35/ea. Ed, x3-5763.

Canon TL 35mm camera a/50mm lens, 1.8 electronic flash & set of closeup lenses, leath case, \$169. x3-1609.

G Schwinn bikes for Christmas, exc cond: 20" Lil Miss, \$15; 24" & 26" Breeze, \$20 & \$35; 20" Bantam, \$40. R.Gamp, x8-1200 Draper.

Used cpntne Magic Chef elec range, 4 nw top brnr elements, v gd cond, can be seen, \$75 firm. Roberta, x3-7078.

M racoon coat, gd cond, cln, approx sz 38, \$50; 25 gal aquarium & std, \$10. Richard, x8-4288 Draper.

Sterling slvr jewelry, hi class at 1/2 price, bought in Mexico, hvy weight, gd design; multicolored wool rebozos. Call 241-7218, bef 9am or aft 6pm.

Frigidaire frost-free 15 cu ft refrig, \$50; Cricket BR chr; formica LV tbl. Terry, x8-4061 Draper.

(3) 13" Ford whls w/tires, \$15. x3-6116.

Ski boots, 3 pr, all bckl, exc cond: f sz 9M red plastic Sears, nvr worn, \$20; f sz 5M blu Raichle, 2 seas, \$15; m sz 10N blk frglas reinforced Sears, 3 seas, \$10. Ed, x8-4552 Draper.

K sz waterbed w/frame, platform, htr, thermo, etc, \$120. Jack, 277-3164, evgs.

All chrome 20" boy beginner spider bike, \$25; girl sz 1, 3 & 4 ice skates, boy sz 5 ice skates, \$5/ea. x3-2710.

GE compact stereo, amfm radio, changer, yr old, \$150 nw, \$90; 3 spd bike, gd cond, \$25. Maurice, x3-5604.

Polaroid Super Shooter Plus w/timer, case, film, nvr used, \$25. David, x3-3068.

Pr Gdvr H78x14 F/G stud snows, mtd Pontiac rims, \$50; 4 Frstn 500 HR78x14 stl radials + 1 bias spare, all Pontiac rims, \$125. Lee, x485 Linc.

Schwinn 10 spd, gd cond, \$50 or best; 30 yr old sew mach, \$20 or best. Eillen, x5-2370 Dorm.

Brass hdbrd for dbl bed, \$100; carved Spanish hdbrd for k sz, \$150; wht porcelain enamel indus lite fixtures, \$20. x3-3019.

Guitar, hollow body elec, no amp req, lk nw, orig \$150, \$90 or best. Chris, x3-6309, lve mag.

Perf Christmas present: Amer Indian jewelry, turq, slvr, etc, in rings, bracelets, neck pces, earrings, pcer for both m & f. Arlene, x3-6779.

Tot's sz 10 ice skates. Don, x7777 Linc.

Lvg cntry: Triumph parts, trans, seats, etc; also '69 Pont Firebird, 6 cyl; Minolta 101 w/1.4 lens; Hanimex slide proj; Minolta telefoto lens, 135 mm; 4' grow lamps; AC; more. George, 254-0986.

General Radio pine chests, exc for storage, toys, valuables, furn & shipping, 3 mdl, \$10 & up. x5-6676 Dorm.

Canon camera body, FTB, exc cond, ideal for expanding your sys this Christmas, \$145. Kevin, 547-4135, most evgs.

Nikormat camera, perf cond, w/3 Soligor lenses, strobe, case, access, \$200. Nancy, x3-6651.

Harvard, 1 1/2 acres, 200' frontage on qt cntry rd, no hses abutting land, all perk tested, approx 1 1/2 mi from Rte 2. Ken, x7592 Linc.

Dynaco A25 spkrs, \$75/pr; Scott rcvr, 25 W/ch, \$70; Dyna FM-5 tuner, mint, \$90; Dual 601 belt-trmbtl & Shure V15-3 crtrg, b nw, \$160. Call 623-3641.

Gd looking dark brn furn: bureau w/mirror, \$25; desk, \$18; many-shelved pole bkcses, \$20; beanbag chr; toaster; asst items; best. Call 623-3641.

Ancient stereo compl w/tubes, preamp, spkrs, Lab 80 trntbl, \$10. Judy, x3-4071.

Pentax S3, \$85; Schneider 135, f3.5 & 35 f2.8, \$50/ea; electronic flash, \$15; nw Pentax Bellows II, \$60; nw slide copier, \$30; Kodak registration frame, \$40; misc access. Ray, x8-1369 Draper.

Handsome brn tweed rug, 1 month old, 2 sectns, ea 2'x12", \$20/sectn. Call 1-545-5960.

Pr stud snows, unmted, G78x14, \$30. x3-6632.

Argus Cosina 708 super 8 movie camera, \$160; Bell & Howell 456 super 8 proj, \$120; Minette 55 super 8 viewer/editor, \$45; all lk nw. Charlie, x8-3595 Draper.

Kenmore gas dryer, lk nw, auto moisture sensor, pilotless, \$75. x3-2235.

Pr BSO tekts, Th, Dec 16, exc 1st balc seats, \$14. John, x3-4462.

Telescope from Edmond Scientific, 3" reflector, 30X-180X, 3 sec resolution, 1" & 2" f.1. eyepces, 3X adj Barlow lens, cast iron equatorial mt. Call 923-1826.

Tape deck & r-to-r tapes, Revox A-77, solenoid cntrl, srvc manual, \$200; BASF, lo noise; Scotch Dynarange; Audiotepe formula 10, others, less than 1/2 price, nego. John, 354-2050.

Bearcat 4 scanner, 1 mo old, w/crystals, full grnty, \$119 or best. Donald, x8151-56-102 Haystack.

M Raleigh 3 spd bike, \$30; car bike rack, \$10; desk & chr, \$15; mtch bkcs, \$5; spool tbl, \$8; sm tbl & 4 chrs, \$25; 10x12 persian style blu rug, \$20; 17" b&w VHF TV, \$15; 5 gal fish tank & access, \$10; best. Mel, x3-1870.

Handmade Holly Hobby dolls, washable, \$17; exotc shell jewelry from Orient, strl slvr & gold chns, under \$10; Sony TC-55 min tape rcdr, batt pack, AC adapter, 6 tapes, \$85. J. May, x8-2843 Draper.

AR trntbl, \$45. x3-3546.

Handcrafted cutting brds, great Christmas, NY, Chanukah gift, \$10. x3-3719.

Fender vibrolux, 2 yrs, \$225; Ampeg ReverboRckt w/Utah 12", \$125. Joe, x7671 Linc.

Boy CCM hcky skates, sz 1, used 2X, \$15; Hyde fig, sz 2 & 6, lk nw, \$10/ea; m fig sz 10, lined, used, \$5; f ski boots, sz 7, lk nw, \$20. Nancy, x650 Linc.

B nw early Amer style Elgin wall clock, batt powered, w/pendulum, in carton, \$65. Kathy, x7029 Linc.

Vehicles

'59 Chevy 3/4 ton Apache .leatside pick-up, \$200. Bob, x3-6487.

'62 Chevy wgn, basic transp, reliable, starts in cold weather, gd tires, on its way to being a classic, \$100. Prof Mazlish, x3-4441.

'63 VW bug body, frame exc cond, eng nds reassembly. Hugh, 547-1250.

'65 Ply Belvedere, slant 6, auto, rear end nds work, otherwise gd cond, \$170 or best. Ed, x8-1547 Draper.

'67 Dodge Coronet, 2 dr sed, 273 V8, 2 barrel carb, std trans, 71 K, 1 ownr, \$400. Michael Lusch, x3-1851.

'68 Karmann Ghia, auto, runs well, \$300 or best. Mike, x3-5069.

'68 Saab, 72 K, runs well, nw brakes, batt, avail 1/15, \$500. Vivian, x3-3042.

'69 Pont Lemans, v gd cond, lvg cntry, must sell; also sub BR apt in Arl. x3-6027.

'69 VW pop top camper, tent, aux htr, snows, compl srvc rcdr, 62 K on nw clys, \$1,900. x3-1418.

'69 Mustang, 302 V8, 3 spd, std, 68 K. Ray, x3-7235.

'70 Chevy Nova, 6 cyl 250 eng, 2 dr, auto, gd cond, \$975 or best. Lew, x7126 Linc.

'70 Opel GT, red, 56 K, radials (incl snows), exc cond except dented fender, \$1,000. Bob Griffin, x3-5597.

'70 Malibu, V8 307 cu in, 79 K, p st, auto, 1 ownr, well maintained, xtra access, ask \$900. Abe, x5846 Linc.

'70 Ford wgn, 52 K, auto, p st & br, AC, gd cond, ask \$1,200. Udy, x3-6416.

'71 Fiat 124 spec sed, auto, 68 K, nds eng work, best. Irving, x3-4899.

'71 Ford Pinto, snows, some rust 1 dr, runs v well, \$500. Call 666-2294, 50 Craigie St, apt 35, Som.

'72 Vega cpe, std, 47.5 K, nw muff, back brakes, clutch, radials, exc mech cond, \$750. x3-5424.

'72 Datsun, 52 K, 4 dr std, snows, minor dents, sound run cond, \$900. Judy, x3-3876.

'72 Dodge Dart Swinger, yel, 6 cyl, auto, cin, \$1,450. Norman, 242-5300.

fine cond, amfm stereo cassette, \$1,700 or best. John, x5-7635 Dorm.

'73 Austin Marina, 39 K, 4 dr, radials, auto, gd running order, nds some work, \$800. Allan, x3-3594.

'74 Vega GT htchbk, 4 spd, sport int, mag whls, many xtras, exc cond, \$1,500. Roman, x8-3725 Draper.

'74 Capri, yel, V6, 4 spd, decor grp, gd rubber, 35 K, \$2,800 or best. x7603 Linc.

'74 Chevy Luv pick-up, cln, exc cond, 18 K, \$1,975. Lou, x205 Linc.

'74 Toyota Land Cruiser wgn, 4 whl drive, 4 spd std, trlr hitch, amfm radio, rear seat heater, 19 K, orig owner, nvr plowed, \$4,200. Landry, x5857 Linc.

'75 Ventura SJ, V6, amfm stereo, stl belt radials, 2 dr hdtpr, exc cond, 26 K, \$2,895 or best. Pete, x441 Linc.

'76 Ford Granada, tan, 6 cyl, 2 dr, exc cond, low miles, best reas offer. x3-2772.

Housing

Arl, 6 rm Dutch colonial, Brackett Sch, 3 BR, lg mod K w/d&d, steps to T & Robbins Farm Pk, ask \$46,500. Call 646-8225, aft 6pm.

Brockton, 6 rm ranch, 3 BR, B, den, attach garage, ww, other xtras, FHW ht 1/4 acre treed lot, exc cond & loc, nr schools, shops, churches & bus, low low 30's. Robb, x3-2031.

Bkline, spac 2 BR w/mod K, hrwd fls, AC, sunny open view, Kent St nr T, avail around 1/10, \$286 incl ht & pkg. x3-6847.

Bkline, Beac St, prof lvg area, lg BR apt avail 1/1, incl pkg, \$290. x3-7967.

Camb, furn studio, Chester St, 20 min MIT, AC, mod Kette & B, \$198 incl ht, ht wtr. x3-5907.

Lynnfield, mod 4 BR, 2 1/2 B, lg fully appli K, ovrlks inground pool, fam rm, frpl, porch w/sliding glass drs, exc sch, 20 min Camb. Call 1-334-4810.

Peabody, unfurn 2 BR apt avail 12/22, \$275; also selling all furn. Call 531-0865.

Som, 2 BR apt avail now, nr T, conv pkg & shopping avail, \$225 incl ht, ht wtr, nego. Steve, x3-5306.

Wht Mtns, lakefront ski chalet 2 hrs from MIT, slps 9, avail Christmas-NY wk, nr major downhill ski areas, exc Xcntry skiing, skating, hiking, ice fishing, also seas share, 1/4 share avail, gd for cpl, own BR. Roy, 547-6093, evgs.

Lg furn rm for rent on qt str nr Porter Sq, nr T. John, 547-5268, aft 6:30.

Conway, mod ski chalet avail mid Dec-end Jan, slps 10, reas terms to reliable party. Frankel, x3-6824.

Nice rms in Ashdown hse avail 2nd term. x3-6295.

Animals

M kittens, 2, part Abyssinian, nd gd homes & gd people. x3-5755.

(4) free kittens, healthy & litter trained. Bert, x8-1255 Draper.

Samoyed, all wht polar type northern sled dog, AKC reg, 3 1/2 yrs, about 40 lbs., great w/chldrn, fluffy Christmas gift under your tree, \$150. John, x7266 Linc.

Furry, frndly 4 1/2 mo Alaskan malamute pup, born our hse but our old m dog fights him; desperately nds permanent, loving home, price nego. Oney Crandall, x3-7001.

Perfect gift, 7 wk old kittens. Olga, x3-7801.

Lost and Found

Lost: set of keys, approx 12, Audi car key w/blk rubber top. x3-5010.

Lost: red mittens nr Nw Hse. Sue, x5-7169 Dorm.

Lost: spec eyeglasses w/binocular inserts, in Main St/Vassar St area. J. M. Dhose, x3-3301.

Found: f watch, Sat, Nov 20, Killian Ct. x3-3461.

Wanted

Pr slightly used J78x15 or E78x14 unstud snows. Earle, x8-1130 Draper.

Used, inexpensive tuner, gd cond. x3-5755.

Enough furn for sm hse free if you've got about 1,000 sq ft work-storage spac htd above freezing, pref 495 area, w or N of Bos. Mark, x3-3430.

Radial snows, 1.65x14, nd by 12/16. Eunice, x3-5010.

Stu flute; bass & folk guitars; metronome. x7500 Linc.

Riders wanted to share driving & cost to Harrisburg, Pa, lvg early morn, 12/23. Tim, x5484 Linc.

Land: forest/meadow, 100+ acres, spring or running water requiste. Call 323-2903.

Someone to bleed sev rabbits twice wtkly from Dec 27 to Jan 6, \$2.65/hr. Carole, x3-6705.

Subjects for simple speech test, only 1 hr, \$3, should be native Eng spkr. J. Lin, x3-7314.

Going south? I nd ride to Durham, NC, wd like to lve about Dec 21, wl share driving & exp. Chip Farley, x3-6050.

Wanted: skiers looking to join ski grp in Stow, Vt. Jay, x3-4107.

Want to look at a European type feather bed so I can copy construction details. Margaret, x3-3475, lve msg.

Roommates

M rmmate to share apt w/MIT sr, partly furn, \$150. Jon or Bill, 267-7525.

F rmmate to share apt nr T, \$65 incl ht. May, 247-4112, 7-10pm.

Share 4 BR Allston apt, 3 mi MIT, 1/2 blk grn line, avail 12/15, \$112.50 + util. Call 254-2506.

Rm avail 1/1 in Ashdown, shre dbl rm in beaut apt, incl LR & K, \$512/sem, incl IAP. Paul or Bob, x5-9865 Dorm.

M grad stu (25) seeks apt to share w/m or f, Back Bay or Beac Hill area, beg 2/1, up to \$150 incl util. Rainer, 482-0447, evgs.

Wash, DC area, rmmates nded to share lg hse 2nd term. Dave, 965-2504.

Share lg, lovely apt w/frpl, bktyrd, on Wrtwn & Waverly bus lines, 5 min Harv Sq, own BR, partly furn, lndry next bldg, free pkg, \$125 + util. x3-2291.

Newton, attrac furn apt in 2 fam home to share, or rm w/K priv, pkg, avail 2/1. Call 969-8412, evgs.

Carpools

Want ride to MIT from W Rox area, moms only, start 9am. x3-4493.

Gensons, Rt 111, Nashua, NH to Linc, 8:15-4:45pm. Earl, x5881 Linc.

Miscellaneous

Typing, fast & accurate, theses, term papers, manu, letters, almost anything. Sandy, x3-4342.

WI do gen, tech or thesis typing, IBM Selec. x3-1713.

General contracting & bling in carpentry, plumbing, exterior work, let us renovate your rm, avoid paying premium price profs charge, by hiring skilled, competent stu labor. Mark, 494-0271.

Creative singing & piano lessons, Conservatory grad now accepting stu in all levels, its never too late to start, patient organized instr designed to suit indiv needs, free intro lesson, all inquiries welcome. Call 729-75

preferred. 35 hrs/wk. Flexible work schedule. (7am-3pm, Mon. thru Fri. are the most likely hours.) B76-539.

Mechanic B (Heat and Vent), hourly, in Physical Plant. Applicants should have a minimum of 2 years experience in operation of Central Station Air Conditioning equipment and controls, and General Building Mechanical equipment and service systems. Rotating irregular work schedule which covers 24 hr./day, 7days/week operating schedule. H76-133 (12/8).

Drive-Utility, hourly, in National Magnet Laboratory to drive, pick up and deliver mail; clean and care for assigned work area and equipment. A high school graduate with an unrestricted Mass. license, Class 1 or 2, a good driving record and 3 years commercial driving experience required. Applicants must be 25 years of age or older and be able to pass special examinations required of drivers. A basic knowledge of material and equipment handling, rigging, carpentry, painting and the use of hand tools is desirable. H76-128 (12/8).

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:
A75-71, Documentation Manager, Admin. Info. Systems (7/14)
A76-37, Director, MIT Educational Council, Admissions (9/29)
A76-44, Applications Programmer, Off. of Admin. Info. Syst. (12/1)
A76-45, Special Assistant, Off. of the Chairman (11/3)
A76-46, District Officer, Resource Devel. (11/10)
A76-47, Facilities Inventory Auditor, Off. of Facil., Mngt. Syst. (11/17)
A76-48, Investment Real Estate Off., Treasurer's Off. (11/17)
A76-49, Programming Analyst, Info. Processing Ctr. (11/24)
A76-51, Applications Program, Off. of Admin. Info. Syst. (12/1)
A76-52, Applications Programmer, Off. of Admin. Info. Syst. (12/1)
A76-53, Systems Analyst, Off. of Admin. Info. Syst. (12/1)

BIWEEKLY:
B76-334, Sec. III, Sloan School (8/25)
B76-498, Sec. IV, Biology (10/27)
B76-511, Asst. Computer Op. III, Office of Admin. Info. Syst. (10/6)
B76-562, Sec. III-IV, Treasurer's Off. (11/3)
B76-563, Jr. Programmer V, Center for Space Res. (12/8)
B76-592, Sec. III-IV, Mechanical Eng. (11/24)
B76-605, Sec., Recept. IV, Medical Dept. (12/1)
B76-609, Sec. IV, Sloan School (12/1)
B76-610, Sec. IV, Physical Plant (12/1)
B76-613, Sec. IV, Ctr. For Policy Alternatives (12/1)

ACADEMIC STAFF:
C76-6, Microbiologist, Medical Dept. (4/21)
C76-18, Nursing Super., Medical Dept. (10/20)
C76-19, Institute Archivist, Librarian, Libraries (10/27)
C76-20, Chemical Engineer, Energy Lab. (10/27)

SPONSORED RESEARCH STAFF:
75-48, Economist, Energy Lab (6/24)
D75-161, Economist/Policy Analyst, Energy Lab (9/15)
D76-17, Biochemist, Res. Lab. of Elec. (2/25)
D76-49, Plasma Physicist, National Magnet Lab. (4/14)
D76-67, Biologist, Biomedical Engineer, Mech. Eng. (5/5)
D76-70, postdoc. res., Physics, Lab. for Nuclear Sci. (5/5)
D76-71, postdoc. res., Physics, Lab. for Nuclear Sci. (5/5)
D76-108, Eng. Prog., Res. Lab. for Elec. (7/14)
D76-115, Immunologist, Clinical Res. Ctr. (7/14)
D76-121, Res. Engineer, Energy Lab. (7/28)
D76-123, Staff Biophysicist or Biochemist, National Magnet Lab. (7/28)
D76-126, Immunologist, Clinical Res. Ctr. (8/11)
D76-131, Research Analyst, Ctr. for Policy Alternatives (7/28)
D76-140, Operations & Instrumentation Manager, National Magnet Lab. (8/25)
D76-151, Magnet Design/Mathematical Analyst, National Magnet Lab. (9/15)
D76-154, Experimental Physicist, National Magnet Lab. (9/15)
D76-172, Chemist, Elec. Eng. (10/6)
D76-175, Scientific Prof., Earth & Planetary Science (10/6)
D76-179, Programmer, Ctr. for Space Res. (10/13)
D76-180, postdoc. res., Physics, Lab. for Nuclear Sci. (10/13)
D76-181, coal/gas combustion res., Energy Lab. (10/13)
D76-182, Staff Engineer, Elec. Eng. & Computer Sci. (10/13)
D76-185, Mechanical Eng., Lab. for Nuclear Sci. (10/13)
D76-187, Postdoctoral Scientist, Ctr. for Space Res. (10/13)
D76-188, Postdoctoral Scientist, Ctr. for Space Res. (10/13)
D76-203, Scientific Progr., Elec. Syst. Lab. (10/27)
D76-204, Tech. Asst., Physics (10/27)
D76-208, Technical Writer, Aero/Astro. Innovation Center (11/3)
D76-210, Radiochemist, Nuclear Reactor Lab. (11/3)
D76-211, Plasma Physicist, National Magnet Lab. (11/10)
D76-212, Fusion Reactor Res., National Magnet Lab. (11/10)
D76-213, Reading & Writing Specialist, Provost's Off. (11/10)
D76-217, Programmer/Analyst, Joint Ctr. for Urban Study. (11/17)
D76-218, Biologist, Ctr. for Cancer Res. (11/17)
D76-220, Research Analyst, Ctr. for Policy Alternatives (11/24)
D76-221, Scientific Programmer, National Magnet Lab. (12/1)
D76-222, Cell Culture, Ctr. for Cancer Res (12/1)

EXEMPT:
E76-41, Principal Oper., Physical Plant (12/1)
E76-42, Nurse Practitioner/Phys. Asst., Medical (12/8)
E76-43, Admin. Asst., Urban Study & Planning (12/8)
E76-44, Nurse Practitioner/Phys. Asst., Medical (12/8)

The following positions have been FILLED since the last issue of *Tech Talk*:
B76-608, Cashier III
B76-432, Secretary IV
B76-604, Secretary III
B76-611, Secretary III
B76-595, Secretary IV
B76-186, Sponsored Research Staff
B76-602, Secretary IV
B76-601, Clerk Typist II-III
B76-598, Secretary IV
B76-621, Secretary IV
C76-11, Acad. Staff

The following positions are on HOLD pending final decision:
B76-603, Secretary IV
A75-71, Administrative Staff
E76-40, Exempt
D76-113, Sponsored Research Staff
H76-131, Stock Clerk
B76-614, Admin. Asst. V.
B76-622, Secretary III

Pension Association Merger Planned

(Continued from page 1)

cial matter to be considered by the membership of the Pension Association at its meeting on December 20, 1976.

Effects of Dissolving the Pension Association and Combining the Plans

For many years it has been recognized that the provision of retirement and related benefits for Faculty and Staff through two Plans, i.e., the Pension Association and the Supplementary Retirement Plan, and the separate trust funds thereunder, is cumbersome and expensive to administer. The multiple documents and provisions associated with the two Plans complicate interpretation, calculation, and communication of benefits, as well as the bookkeeping and auditing of the trust funds and the various government filings. This structure increases administrative expenses such as legal, consulting, investment, actuarial, and internal expenses and complicates, unnecessarily, amendments to the program. Until recently there have been significant advantages to the Plan Members in maintaining the Pension Association which have justified the additional administrative expenses. However, the most important advantage of the Pension Association, certain exemptions from Massachusetts Income Tax, no longer exists.

It is therefore now appropriate to consider, when the plans must be amended and restated for ERISA, if there are any advantages to retaining the Pension Association versus the advantages of combining the Plans into a single new Retirement Plan for Staff Members.

The most obvious advantage of combining Plans is that a single Plan will simplify administration and reduce expense. Another important advantage which is not so obvious is the added flexibility in making Plan changes. In addition to approval by the US Internal Revenue Service and, since ERISA, the Department of Labor, the Pension Association is subject to a Massachusetts law under which any amendments must be approved by the Commissioner of Insurance. The different criteria for approval by state and federal agencies complicate the adoption of plan changes.

One constraint on the Pension Association under present Massachusetts law is that members must contribute. Member contributions can never be eliminated; and the degree to which they can be re-

duced is uncertain. Furthermore, such contributions must be from income after taxes. The Trustees realize that dissolving the Pension Association could result in the loss to the membership of the designation of two of the five Trustees, the approval of Plan amendments affecting the By-Laws of the Association, and the forum provided by meetings of the membership to discuss matters affecting their retirement plan. Therefore, the proposed combined Plan contains provisions for a Retirement Committee to administer the Retirement Plan for Staff Members to consist of two persons elected by the plan members and three persons appointed by the Executive Committee of the MIT Corporation, thus essentially duplicating the provisions of the Pension Association. This Committee would be responsible for administration of the plan, except for the investment of the funds.

All other benefits provided by the By-Laws of the Pension Association, including spouse benefits and disability benefits, would be continued in the reconstituted Plan.

Effects of ERISA

Previous reports to the members have indicated that ERISA affects the Retirement Plan for Staff Members primarily in minor technical respects related to Plan administration. The most significant effect is a greatly increased administrative burden and expense. The law is extremely complex and interpretation is difficult. The changes have been reviewed at previous meetings of the Association, and the technicalities, as interpreted in those temporary regulations which have been issued, are included in the draft of the reconstituted Plan which will be available at the meeting on December 20, 1976. Two changes in the Plan as a result of ERISA deserve some comment.

Vesting Rules

The most significant change is advantageous to those who leave MIT prior to retirement. Under ERISA, when a Plan participant has become 50% vested in employer contributions he can no longer forfeit his benefit from those vested contributions, even if he withdraws his own contributions. Under the Retirement Plan for Staff Members, a member has been and will continue to be 50% vested in MIT's contributions when he joins the Plan. Therefore, commencing

January 1, 1976, terminated members who withdraw their own contributions from the Retirement Plan for Staff Members will still be entitled to a retirement benefit based on the vested portion of the Institute's contributions retained in the Plan for their benefit.

Minimum Pension

The Supplementary Retirement Plan has provided a minimum pension for retiring members which is related to years of service and the final ten year average salary to a maximum of 50% of such average salary. However, because of investment performance and the resultant distribution to members' contribution accounts, the earned retirement benefit has consistently exceeded the benefit payable under the minimum formula and can be expected to continue to do so.

Under ERISA, providing for such a minimum pension in a Plan in which retirement benefits are based on a member's contribution account becomes very complicated. If a minimum pension is provided for retiring members, ERISA requires that the same formula be applied to fully vested ter-

minating members. It would be a rare instance when the minimum would apply to such a member. Nonetheless, a complicated calculation would be required for each member with 10 years or more of service on termination. Again, should a staff member request information on his accrued benefit at any time, a similar calculation would be required.

Because the minimum pension was never intended to apply to terminating members, because of the administrative complexities, and because of the expectation that the minimum pension will apply even less in the future than it has in the past, the Trustees have recommended the removal of this provision from the Plan for years of service after December 31, 1975.

The matters discussed in this summary are complicated and difficult to communicate. Nevertheless, it is very important that the members of the Pension Association understand the proposed changes. The December 20th meeting provides an opportunity to discuss any questions. Hence, each member should make every effort to attend this meeting.

US and United Europe To Be Jenkins Topic

(Continued from page 1)

vidually and collectively, to gain better control of an increasingly dynamic world.

The lecture series is part of a program of studies MIT has been carrying out during the US Bicentennial year aimed at bringing better understanding of how to deal more intelligently and humanely with some of the changing world conditions the United States will face in its third century.

The members of the Bicentennial lecture series committee are: Manson Benedict, Jagdish N. Bhagwati, Lincoln P. Bloomfield, John M. Deutch, Bernard T. Feld, Ted R.I. Greenwood, Amelia C. Leiss, George W. Rathjens, Walter A. Rosenblith, Jack P. Ruina, Eugene B. Skolnikoff, Leon Trilling and Norman C. Dahl, chairman.

Mr. Jenkins, a Labor member of Parliament since 1948, has been Secretary of State for the Home Department twice (1965-67 and from 1974 to the present) and was chancellor of the exchequer from

1967 to 1970. He bid unsuccessfully for Labor Leadership earlier this year.

A dedicated European, he will become the first British president of the European Commission in January. The commission, headquartered in Brussels, Belgium, is the executive agency for the three European communities—the European Economic Community (EEC) or Common Market, the European Atomic Energy Community (Euratom) and the European Coal and Steel Community (ECSC).

Mr. Jenkins was educated at Balliol College, Oxford, and served in the Royal Artillery during World War II. After entering Parliament in 1948, he served as Parliamentary Private Secretary to the Secretary of State for Commonwealth Relations.

From 1955 to 1957, he was a United Kingdom representative to the Consultative Assembly of the Council of Europe and the Assembly of the Western European Union.

When Labor took office in 1964, he joined the Government as Minister for Aviation. In 1965 he became Secretary of State for the Home Department. In 1967 came his appointment as Chancellor of the Exchequer.

At the change of government in 1970 he was elected Deputy Leader of the Labor Party and as such was a member of the Shadow Cabinet, but he resigned from these positions in 1972 over the European Community issue. In 1973 he returned to the Opposition Front Bench as an elected member of the Labor Shadow Cabinet. He became Secretary of State for the Home Department a second time on the return to office of the Labor Party in 1974.

Mr. Jenkins has contributed frequently to British newspapers and periodicals on a wide range of subjects. He is the author of several books, including *Pursuit of Progress* in 1953, which suggested the lines on which the Labor Party should plan its future program.

He was awarded honorary doctorates at Leeds, Harvard, Glasgow, Pennsylvania, Oxford and Dundee Universities. He is a foreign member of the American Academy of Arts and Sciences, and president of the University of Wales Institute of Science and Technology. In 1972 he was awarded both the Charlemagne and the Robert Schuman Memorial Prizes for promoting European unity.

FOOD SERVICE SCHEDULE DURING 1976 HOLIDAY SEASON STUDENT CENTER

Thursday, Dec. 23	Lobdell	Breakfast	7:30am to 10am
		Lunch	11am to 2pm
		Snacks	2:10pm to 4:30pm
		Dinner	5pm to 7pm
	Twenty Chimneys		CLOSED
Friday and Saturday, Dec. 24 & 25	Lobdell and Twenty Chimneys		CLOSED
Sunday, Dec. 26	Twenty Chimneys		9am to 7pm
	Lobdell		CLOSED
Monday, Tuesday, Wednesday and Thursday, Dec. 27-30	Lobdell	Breakfast	7:30am to 10am
		Lunch	11am to 2pm
		Snacks	2:10pm to 4:30pm
		Dinner	5pm to 7pm
	Twenty Chimneys		CLOSED
Friday and Saturday, Dec. 31 & Jan. 1	Lobdell and Twenty Chimneys		CLOSED
Sunday, Jan. 2	Twenty Chimneys		9am to 7pm
Monday, Jan. 3	Lobdell	Breakfast	7:30am to 10am
		Lunch	11am to 2pm
		Snacks	2:10pm to 4:30pm
		Dinner	5pm to 7pm
	Twenty Chimneys		CLOSED
Tuesday, Jan. 4	Lobdell and Twenty Chimneys	resume regular schedule	
	Walker		
Morss Hall and Pritchett CLOSED from 6:30pm Wednesday, Dec. 22-Sun., Jan. 2, 1977			
Monday, Jan. 3	Morss Hall	Breakfast	9:30am to 11am
		Lunch	11am to 2pm
		Dinner	CLOSED
	Pritchett		CLOSED
Tuesday, Jan. 4	Morss Hall	Breakfast	9:30am to 11am
		Lunch	11am to 2pm
		Dinner	CLOSED
	Pritchett		3pm to 12 Midnight
Wednesday, Jan. 5	All Dining Halls Resume Regular Schedule.		

This Week in Sports

Young Volleyball Team Bows to Experience

By JILL A. GILPATRIC

Director of Sports Information

The MIT women's volleyball team was unable to break out of their pool and into the double-elimination competition at the AIAW Small College Women's Volleyball Championships at Pepperdine University, Malibu, Cal., Dec. 8-11.

The 16 teams participating in the tournament were initially divided into four pools of four teams each with the top two teams from each pool moving on in the tournament. MIT's pool was made up of last year's tournament winner and top seed this year, Texas Lutheran, Lewis & Clark (Portland, Ore.) and Kearney State (Neb.).

Tech's first match of the tournament was against Lewis & Clark at 3:30pm on Wednesday. MIT lost this match with extremely close scores of 17-19, 16-14 and 12-15. In their toughest competition of the tournament, the MIT team met top seed Texas Lutheran at 6:30pm Wednesday night. Tech was shut out 2-0 in their second match of the day with scores of 3-15 and 7-15.

The match with Kearney State the next day was anti-climactic for

the MIT women since they knew that there was no chance for them to move into the double-elimination tournament after their loss to Texas Lutheran. This final match they lost 12-15, 15-5, and 12-15.

Texas Lutheran, a team that plays volleyball year-round, took top honors again this year in spite of the serious problems they encountered on their way to the title. The team came down with food poisoning Wednesday night and five of the team members had to visit the hospital that night. But the team recovered fast and even in their weakened condition went on to win the tournament for the second year in a row.

The MIT women's volleyball team had an exceptional season this fall. The two-year old team ended their regular season play with a perfect 17-0 record, took first place in the Eastern Championships held at Mansfield State, Pa. and travelled to California to participate in the National Championships. All in all, it was a very productive year for the Tech women's volleyball team.

Soccer Player Honored

Senior fullback Frieder Krups (Solingen, Germany), captain of the 1976 MIT soccer team, ended his collegiate soccer career with a selection to the honorable mention All-New England Area Team.

Krups, who had been plagued by injuries throughout his varsity career, was able to play in less than half the games during MIT's disappointing 1975 season. But this fall,

with Krups in the lineup for the entire season, the team brought in a vastly improved 4-7-1 won/lost record.

In addition to his selection to the Honorable Mention All-New England Team, Krups was recently honored with selection to the Greater Boston All-Star League Team and was also voted most valuable player by his teammates.



The MIT Club of New Bedford, recently awarded stipends of \$150 to three MIT students in support of their study and research. James Champy, right, executive vice president of the Alumni Association presented stipends to Manuel A. Domingas, left, a sophomore in management from Dartmouth, Mass., and Michael M. Gifford, a sophomore in mechanical engineering from Rochester, Mass. Diane F. Gorczyca, a freshman from E. Freetown, Mass., was recipient of the third award, presented earlier in New Bedford.

United Way Drive Closes

(Continued from page 1)

which might be helpful in next year's campaign.

"I think the Institute can derive a great deal of satisfaction in knowing that it launched a successful campaign," said John Wynne, MIT vice president for administration and personnel, chairman of the MIT Advisory Committee on Charities and a member of the board of directors, United Way of Mass Bay. "Although it would have been nice to achieve our projected goal, a 16 percent increase is indeed a respectable achievement," he continued.

"MIT has done well in dollar amount," Mr. Wynne said, "but there is much to be done in the area of participation. I hope that in future campaigns we will be more successful in convincing people of the value of their gift, no matter how small."

Jim Culliton, vice chairperson for the education division and assistant to the vice president for administration and personnel at MIT, said that MIT has been cited by the United Way for mounting a highly successful campaign.

"The education division did respond to the appeal of the United Way," he said. "There are still many untapped resources within the division that need to be developed, but we have seen an overall improvement in this year's drive."

Blood Drive Slated for IAP

One of the many IAP activities open to the entire MIT community this year is the traditional IAP Blood Drive which will be held Thursday and Friday, Jan. 6 & 7, from 10:45am to 4:30pm in the Sala de Puerto Rico in the Student Center.

Unlike the larger blood drives held in the spring and the fall, no appointments will be scheduled ahead of time, according to Frank Basa, drive chairman, a senior in electrical engineering and computer science from Gaithersburg, Md. Anyone planning to donate blood should just walk in whenever they have the time. Mr. Basa noted that persons who gave blood during the fall blood drive are eligible to donate again in January.

For information concerning the blood drive, call x3-7911.

Viking Scientists to Test Relativity

(Continued from page 1)

Measurements were directed by a special Ranging Team, headed by Thomas Komarek and assisted by Arthur Zygielbaum, both of the Jet Propulsion Laboratory.

The effect of the sun's gravity on the travel times of radio waves was first proposed by Dr. Shapiro in 1964 as a test of Einstein's theory.

Such a test is important to scientists because general relativity ranks as the fundamental theory of gravitation, one of only four basic forces known in nature. Although it is the weakest of these forces, gravitation governs all large-scale motions of matter and radiation in the universe.

Gravitation is also a key element in understanding the formation and evolution of diverse astrophysical objects such as galaxies, black holes, and neutron stars.

Despite its great importance to astrophysics, general relativity has been subjected to the fewest tests of any fundamental theory because of lack of opportunity. For laboratory experiments, the effects predicted by general relativity are too small to be detected by present measurement techniques and it is only when the scale of the experiment encompasses the solar system, that it is possible to carry out such tests.

The first crude test of the effect of the sun's gravity on the travel times of radio waves, which were carried out in the 1960s using radar signals sent from Haystack Observatory and reflected from the planets Venus and

Mercury, agreed with predictions to within an experimental error of five per cent.

Tests with the Mariners 6 and 7 spacecraft reduced the error factor to three per cent, and with Mariner 9 to two per cent. Tests of other predictions of general relativity—the bending of light by the sun and the advance of the perihelion of Mercury's orbit—have provided verification at a level of one per cent experimental error.

For the new test, the Viking spacecraft are particularly suitable not only because they enable the scientists to measure the round-trip delays with high accuracy, but also because they can be used to separate other factors that contribute to the delays from the relativistic effect—which itself is at most only one part in ten million.

These other contributing factors are the orbits of earth and Mars, which are not known with the desired accuracy, and the solar corona.

The orbits of earth and Mars can be determined most accurately by measuring the round-trip times of the radio signals sent to the Viking Landers. The Landers sit firmly on the Martian surface, just as the radio tracking stations—in Canberra, Australia and Goldstone, Calif.—of the Deep Space Net are fixed to the earth. Knowledge of earth and Martian orbits can be improved by a factor of 10 by making a series of measurements of round-trip delays of signals over a large fraction of the Martian "year," which is one and a half earth years.

The Viking Orbiters, however, could not be used for precise determination of planetary orbits and for the relativity tests because

they are buffeted by many other forces—including direct sunlight, reflected from Mars, and gases ejected from the spacecraft—which would make it almost impossible to determine the Orbiters' own paths around Mars well enough to separate the orbital effects from the measured delays with sufficient accuracy.

The solar corona, an envelope of electrons and protons through which the radio signals must pass, also contributes directly to the delay of the signals. But the effect of the corona on the radio waves depends on the frequency of the signals—if the frequency is doubled, the delay caused by the corona is reduced fourfold.

The predicted relativistic delay, however, is independent of the radio frequency. Thus, to separate the coronal delay from the measured delay, measurements have to be made simultaneously at two different radio frequencies.

Although the radio system of the Viking Landers operates in only a single radio frequency, the Orbiter radio system operates at two—2.2 billion cycles per second and 8.4 billion cycles per second—and can be used to determine the coronal delay.

Because of the very rapid changes in the sun's corona, especially near the surface, signals to a Lander and an Orbiter have to be sent simultaneously. To do this, the tracking stations in Canberra and Goldstone must be used because only from these two stations is Mars now visible simultaneously—for about three hours per day—during the time Mars passes behind the sun.

Thus, with the orbital and coronal delays accounted for, the remainder of the measured delay can be attributable to the relativistic effect.

Muriel Cooper Profile Featured

A feature article on Muriel Cooper of the MIT Press appeared in the December 6 issue of *Publishers Weekly*.

The article, by Paul D. Doebler and subtitled, "Finding room within publishing to explore the outer horizons of book design," was one of five profiles of leading figures in the book design field that composed a review, "Book Design: 1976." Ms. Cooper is media director of the MIT Press, director of the Visible Language Workshop in the Department of Architecture, and research affiliate of CAVS.

The article begins: "In recent years the discerning observers of book design have followed the titles from the MIT Press for a special kind of quiet leadership in innovation and new directions. MIT books have established their own distinctive visual character among the many thousands of volumes issued annually, and they have graced many a book show in the last decade. But more than this, they also have exhibited a uniquely consistent growth in technique and accomplishment, a systematic experimentation with contemporary book design in a continuing pursuit of new forms and formats to fit the modern technological age."

Mr. Doebler goes on to trace the development of new design ideas in MIT books and the progression of Ms. Cooper's career. He notes several innovative books she designed: the highly experimental *File Under Architecture*; *Bauhaus*, probably her best-known work and described by her as "one of those exceptional projects" in which all of the factors of content and form "came together in just the right combination;" and *Is Anyone Taking Any Notice?*, a definitive photographic volume.

The article also describes the managerial progression of Ms. Cooper's work at MIT and how she has systematized the design process at MIT Press. After discussing her perceptions of what prohibits greater use of graphic innovation in books and what contributes to good systems for book design, Mr. Doebler concludes the article by turning to her most recent interests, described by him as lying on "the unconventional innovative edges of the communications world...the merging of high technology with art and design, the use of printing processes and computers" as interactive media for both artist and non-artist.

Women Students Occupy Alternative Living Group

A new alternative in living situations for women on the MIT campus was made available this fall—the Women's Independent Living Group.

Similar in structure to campus fraternities and other small living groups, WILG offers women an opportunity to choose an alternative to coeducational living other than McCormick, the only all-women dormitory on campus. The first group of its kind on campus, WILG is not a sorority, nor is it based on a philosophy affiliated with the women's movement.

"We are in such a transitional stage at this time that it is hard to pinpoint a definition of WILG," said Pamela Pollen, house chairperson, a sophomore in earth and planetary sciences from Newton, Mass. "Basically we are a group of women who want to live with other women without the institutional setting of a dormitory," she continued. "We want the responsibilities and commitment that come only from living in a small group."

Long in the planning stage, WILG became feasible through a happy confluence of events, according to Alice Seelinger, assistant dean for student affairs at MIT. Factors cited by Dean Seelinger include interest of the Interfraternity Conference (IFC) and the Dean's Office in expanding the stock of undergraduate living groups in order to maintain the proportion of students living in independent groups as the size of the student body increases; the growing interest of MIT women in forming an independent living group, and the availability of a site which when reasonably renovated could house the group.

The group is now living at 351 Massachusetts Avenue, Cambridge, an apartment complex acquired by the Institute from Northgate Corporation, an affiliate of MIT. They will move to 355 Mass. Ave. following renovations. Costs for purchase and the extensive renovations are estimated at about \$500,000, roughly half the cost of building a new residence.

There are currently 18 WILG members in residence, but a number of other students are involved in the group. WILG hopes to enlist a total of 45 members by next fall.

WILG has been actively involved in the architectural planning of their house and its character will lend itself to the flexible nature of the group. Rooms are planned so that singles can be turned into doubles and doubles into suites. There are lounges planned for each floor but a central kitchen, dining room and a large living room will provide the focus for the group.

"It is difficult to tell from this year what the nature of WILG will be," said Beth Tavrow, house manager, a sophomore in earth and planetary sciences from Englewood, Colo. "The structure of the group is still evolving but our main goal is clearly to provide a sense of community. We plan to maintain a high level of interaction starting with community meals that we will prepare and a general meeting place that we all can share," she said.

"We want to avoid the formation of small cliques—one of the main problems with dormitory living—and we have agreed to relocate once every six months in order to achieve this. This way we will all have a chance to live together and to get to know one another," Ms. Tavrow continued.

WILG has received strong support from several MIT alumnae who are in the process of forming a corporation with the students which will take over the mortgage on the house. Funding is currently provided by the Institute in an unprecedented gesture of support. Assuming the availability of funds, the mortgage will be taken over by the Independent Residence Development Fund, a special loan fund established by MIT and supported by specifically designated gifts from alumni and others.

"There has long been a need for such a group at MIT, but there have just not been enough women for a new living group in the past," said Nancy Wheatley, director of conferences and special programs for the Alumni Association and a member of the alumnae group supporting WILG. "The women involved in this project are to be commended for their outstanding commitment to an undertaking that requires an enormous amount of time and energy."