Massachusetts Institute of Technology

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MIT Press Issues 'Sputnik, Scientists, and Eisenhower'

On October 4, 1977, twenty years after the launching of Sputnik—the world's first successful space satellite-the MIT Press will publish Sputnik, Scientists, and Eisenhower: A Memoir of the First Special Assistant to the President for Science and Technology, by James R. Killian, Jr. (\$14.95).

Dr. Killian, a former president of MIT and now honorary chairman of the Corporation, was appointed to the position of Special Assistant by President Eisenhower. Sputnik, Scientists, and Eisenhower is his story of how those at the highest levels of American government

Dr. Killian's Memoir as First Science Advisor

responded to the challenge from Sputnik and their own countrymen and initiated a new era in American science and technology.

Drawn from Dr. Killian's recollections and from recently declassified materials in the Eisenhower Library, Sputnik, Scientists, and Eisenhower takes the reader behind the scenes and shows what it was like to shape national policy in those crucial days between McCarthyism and the '60s. At a time when many feared that the Cold War might be heating up on a space

launching pad, Eisenhower and "his" scientists worked hard to establish a sane, realistic program for the development of America's science and technology-a program that would lead not to war, but to the peaceful expansion of humans into space.

At the request of President Eisenhower, Dr. Killian became chairman of the newly-formed Science Advisory Committee (PSAC). The committee's task was to provide the best scientific and technological advice to the President himself. PSAC had been organized in part to reassure alarmed Americans that the Soviets had not acquired technological supremacy, as implied by the Sput-

The Committee was to play a crucial part in American history. Dr. Killian reveals how PSAC, supported by President Eisenhower, resisted heavy pressure to make the "space race" a totally military program. At a time when the nation was not long removed from the "vapors of McCarthyism," PSAC

refused to be drawn into a satellitefor-satellite, missile-for-missile competition with the Soviets-a competition that could have proved as deadly as it was unneces-

This is PSAC's story, the story of scientists in a unique collaboration with an American President. Written in a thoughtful, witty style, Sputnik, Scientists, and Eisenhower will be of interest to all those who want to understand how policy is shaped and, to some extent, why our world is as it is. Sputnik, Scientists, and Eisenhower is an American contribution to the twentieth celebration of humankind's space

Flat Tires, Worn Shoes Plague Visiting Cyclist



WORLD TRAVELER "Sammy" Kawano, above, chats with scientists from the research laboratory of Dr. Arnold Demain, professor of industrial microbiology and graduate admissions officer. Masaru Yoshida, left, with the Fujisawa Pharmaceutical Co., of Japan and Professor Atsuhiko Shinmyo, back, professor at Osaka University are research associates in the Department of Nutrition and Food Science. Sammy stayed at the home of Dr. Shinmyo.

By CATHRYN M. CHADWICK problems with accommoda-Staff Writer

After seven flat tires, four pairs of sandals and with 9,800 miles behind him, world traveler, Masami Kawano of Osaka, Japan, arrived at MIT last week to visit friends he met at Niagara Falls last summer.

"Sammy" began his trip on July 26, 1976, and has thus far travelled through Australia, New Zealand, Samoa, Hawaii, from Los Angeles, California, to Alaska, across five Canadian provinces and down the East Coast to Massachusetts.

The 27-year-old judo and karate expert was a trainer in a sports center in Japan and had never been out of the country before. He picked up English in Australia where by chance he met a former president of Rotary International. The upshot of that meeting is that Sammy has letters of introduction to Rotary clubs around the world. Between the hospitality of the Rotary clubs and local police stations, Sammy has had few

tions. The former economics student tries to keep his food pairs of worn out shoes, two pairs of sandals and with 9,800 and stops when necessary to do odd jobs for support.

He rides a 15-speed Panasonic bike, specially designed by his boss, the first Japanese to make the trip. The bike weighs 100 pounds loaded, 125 pounds wet, and is equipped to carry five canvas bags, a sleeping bag and pup tent. He averages between 80 and 100 miles per day at about 20 miles per hour but the bike is capable of travelling 60 mph on downhill grades. The longest Sammy has travelled is 140 miles in one day.

The cyclist travels with a camera and takes pictures of children everywhere he goes. He loves children and thinks they provide the most accurate image of a country. He plans to exhibit his work upon his return to Japan.

Why did he do it? "I wanted to make friends,

(Continued on page 8)

rged in Food Policies hange

The federal government is inconsistent in making decisions on food safety, and the government's role in resolving these issues is arousing "Major public discontent," says a national expert on food and drug laws.

Therefore, the US must reshape its basic policy on food safety, according to Peter Barton Hutt, former chief counsel of the federal Food and Drug Administration (FDA) and now a partner in the Washington, D.C. law firm of Covington & Burling.

To build such a policy, he told a symposium at MIT, it is necessary to understand "the true dimensions" of

food safety and to separate this problem from other environmental safety issues.

"The first rule of a new policy," Mr. Hutt said, "must be that there is no such thing as absolute safety," and a second rule "must be that safety will be viewed as a relative concept among the competing alter-

The changes were urged by Mr. Hutt in the 15th Underwood-Prescott Memorial Award lecture which he presented Tuesday, Sept. 27, at MIT. Mr. Hutt, who served the FDA from 1971 to 1975, received the 1977 Underwood-Prescott Award at a luncheon and award ceremony in the Sala de

Puerto Rico in the MIT Student Center.

Proliferation of Chemicals

Following the luncheon, a symposium on "Government Regulation: How Much is Enough?" was presented in Kresge Auditorium by Mr. Hutt, Dr. Ogden C. Johnson, and Dr. Gordon F. Bloom. Dr. Johnson is Corporate Vice President of Scientific Affairs, Hershey Foods Corporation. Dr. Bloom is senior lecturer in MIT's Alfred P. Sloan School of Management and a specialist on productivity, marketing and distribution, and labor management in the food retailing industry.

(Continued on page 8)

agrees with the Friends of the

Earth on the desirability of conser-

vation in more developed countries

to Discuss Energy Futures Rose, Lovins

Professor David J. Rose of the Department of Nuclear Engineering and Amory Lovins, author of the recently published book Soft Energy Paths, will discuss Energy Futures for the World on Monday, Oct. 17, at MIT.

The debate will begin at 1pm in Rm 9-150 and continue, possibly, until 3pm, Professor Rose said. "We hope to entice the audience into an interactive debate," he said.

There is no formal agenda for the debate. Professor Rose said the debaters will assume that the audience is familiar with the general views of Lovins and his parent organization, Friends of the Earth. The announcement said Friends of the Earth promotes a future with maximum energy conservation, small distributed power sources run as much as possible by renewable resources and no nuclear

Professor Rose pointed out that other groups have different views. The World Council of Churches, for example, with which Rose has been working for some time, and on the use of renewable resources. However, it maintains it is not possible at this time to close out the nuclear energy option.

MIT United Way Campaign Plans Kick-Off Reception on Thursday

A special reception to kick off the 1977 United Way Drive at MIT will be held for coordinators and chief solicitors on Thursday, Sept. 29, from 4-6pm in the Mezzanine Lounge at the Student Center.

Co-chairpersons Lucian Pye, Ford International Professor of Political Science and Philip Stoddard, vice president for operations will be in attendance along with Paul Gray, MIT chancellor, John Wynne, vice president for administration and personnel and chairperson of the MIT Advisory Committee on Greater Boston Charities, John Newcomb, keyperson for the MIT campaign and several United Way of Mass Bay representatives.

"We want to review the campaign and its goals and express our thanks for your efforts on behalf of this most worthwhile endeavor," Professor Pye said.

The MIT drive will begin with distribution of pledge cards in the staff and hourly payroll on Friday, Sept. 30, followed by biweekly payroll on Wednesday, Oct. 5, and the exempt on Friday, Oct. 14. Closing date is Friday, Nov. 18.

The overall goal for the 1977 United Way of Mass Bay Campaign is \$18.6 million. The slogan "The One Out of Four We Help Could be You," refers to the fact that one out of four people

in the Mass Bay area benefits in some way from the services of a

United Way agency. Area coordinators for the MIT campaign were appointed for the second time this year. Their names were listed in Tech Talk on August 10, 1977. The names of this year's chief solicitors will be available in next week's issue. For further information about the drive contact Michelle Whitlow. x3-7914.

No Papers

Tech Talk will not be published October 12 and November 23.

October 12 is a Monday holiday week when classes are suspended for both Monday and Tuesday. November 23 is Thanksgiving week. Both are weeks of lowered activity at

The Institute Calendar in the October 5 issue of Tech Talk will cover the period of October 5 through October 23. Deadline for calendar listings, notices and classified ads is noon Friday, Sept. 30.

Appropriate notice will be given before the suspended November 23 issue.

Parking Notice

Campus Patrol parking personnel wish to remind all members of the community that, effective Monday, October 3, 1977, proper display of a 1977-78 MIT parking permit will be required for use of all MIT parking locations (between 7:30am and 5:30pm weekdays).

Offices planning for seminars, conferences, etc. at MIT are cautioned that present parking resources make it impossible to accommodate any large groups. Publications should indicate parking difficulties to those attending.

Persons having questions relating to these topics may call parking personnel at Campus Patrol, x3-2997, during regular business hours.

League to Sponsor Fall Foliage Tour

The MIT Women's League will sponsor a foliage tour of the Mystic Seaport Museum, Mystic, Conn., on Friday, October 15.

The tour will leave from the Sloan School parking lot at 9:30 am and return at approximately 5:30 pm. Tickets, \$6.50 for adults and \$3.50 for children, include transportation, admission to Seaport and an afternoon snack. Participants should bring a picnic lunch.

Tickets may be purchased all day, Mon-Fri, Oct 3-15, in the Foreign Student Office (Rm 3-107) or from 11am-1pm in the Lobby of Building

Bloomquist To Direct **Associates**

Cynthia C. Bloomquist, who has been assistant director of the MIT Associates Program since February, has been promoted to director of the program.

Ms. Bloomquist succeeds Thomas R. Henneberry who has taken another position at MIT. Her appointment was announced by Dr. Samuel A. Goldblith, director of Industrial Liaison at MIT.

The Associates Program was organized in 1961 as a means of fostering an exchange of information between industry, commerce and the MIT faculty and research staff. Some 40 companies are members of the program.

Ms. Bloomquist received the SB degree in interdisciplinary science

with emphasis in computer science, psychology and civil engineering from MIT in 1970. From 1970she 74 was assistant director of admissions with responsibility for student recruit-



Ms. Bloomquist

ment in the southeastern US as well as performing regular functions connected with the admissions process.

In 1974 Ms. Bloomquist was appointed industrial liaison officer in the Industrial Liaison Program, a program similar to the Associates Program but geared to the needs of larger companies. From 1975-77 Ms. Bloomquist was also responsible for the publications section of the Industrial Liaison Program office.

Ms. Bloomquist, the former Cynthia Helgerson, is married to Kenneth R. Bloomquist. They live in Lexington.

INSTITUTE NOTICES

Announcements

Embroidery Classes-the MIT Women's League will sponsor four fall classes: Beginning Crewel Embroidery, 11:30am-12:30pm and Intermediate Crewel Embroidery, 12:30-1:30pm, Tues, beginning Oct 18, Emma Rogers Room (10-340), instructor Mrs. Priscilla Gray; Advanced Crewel and Canvas Workshop, Wed, beginning Oct 5, 9:30-11:30am, Jackson Room (10-280), instructor Mrs. Rene Fell; Creative Stitchery Classes, Thurs, beginning Oct 20, noon-1pm, Emma Rogers Room, instructor Mrs. Gray. Info: Nancy Hollomon, 734-4763, Priscilla Gray, 729-4098.

Foliage Tour-Fri, Oct 15, to Mystic Seapo Museum, Mystic, Conn, sponsored by MIT Women's League. Leaving Sloan Sch pking lot, 9:30am, return approx 5:30pm. Tickets: adults \$6.50, children \$3.50, on sale, Mon thru Fri, Oct 3-15, Foreign Student Office, Rm 3-107 & Lobby, Bldg 10, 11am-1pm. Tickets include transportation & admission to Seaport plus snack. Bring picnic lunch.

MIT Furniture Exchange-Open Tues & Thurs, 10am-2pm, 25 Windsor St, to buy or sell used furniture.

Graduate Student Council-Open Hearings for Institute Committees, Thurs, Sept 29, Internat'l Student Lng, Walker Memorial Bldg, Rm 50-210 (directly above Muddy Charles Pub). Interviews: 6pm, the Corporation Joint Advisory Committee on Institute-wide Affairs, contact: Max Donath x3-3202; 6:30pm, Discipline Committee; 7pm, Committee on Graduate School Policy, contact: Harvie Branscomb x3-2195 or Greg Paris, x3-3724; 7:30pm, Library Systems Committee, contact: James Mays, x3-3361; 8pm, Committee Preprofessional Advising & Education; 8:30pm Medical Advisory Board, contact: Jay Kunin x3-5882 or 8-547-1217. If there is no contact person listed under the committee in which you are interested, call the Graduate Student Council office, x3-2195.

IPS Seminars-Fri, Sept 30, first class of course. Intro to JCI for the Non-programmer, Deborah Colaw, & Intro to Graphics at IPS, Maria Bozzuto. Sponsored by the Academic and Computing Services, Information Process ing Services. Preregister, Rm 39-427, x3-1744.

Japanese Flower Arranging-MIT Women's League to sponsor beginning and advanced classes, Wed, 9:30-11:30am, taught by Mrs. Fumiko Masubuchi in her Arlington home

beginning Wed, Oct 26. Contact: Mabel Nevins, 272-1556.

NSA-Group meeting, Mon, Oct 3, 1:30-3pm, Rm 12-170, Phil Gollucci, chief of Research and Development Architectural Branch of National Security Agency. NSA offers outstanding and unique career opportunities in a wide variety of engineering, computer and mana-gerial disciplines. This presentation is a MUST for serious minded seniors and graduate students who are interested in a career with a dynamic agency that operates a technical facility which equals and surpasses those

found in industry.

Official Notice—Graduate students, applications for advanced degrees in Feb, 1978, must be returned to Registrar's Office, Rm E19-335 by Sept 30.

Pistol Course-The MIT Pistol & Rifle Club is sponsoring a basic pistol marksmanship course designed to acquaint the novice with safety & basic skills. Thursdays, Sept 29-Oct 27, 6:30pm, du Pont Shooting Range, \$20. Info: Pat Melaragno, x3-3296 or Andy Platais, x8-1419 Draper.

Preprofessional Advising-Meeting, Thurs, Sept 29, 3:30pm, Rm 4-231 for students interested in Harvard Law School. Speaker, Assistant Dean Patricia Lydon. Mon, Oct 3, Dean William Keogh, Stanford Law Sch, noon, Rm 5-217: Dr. Jacob Swartz, associate dean for admissions, BU School of Medicine, "The Medical School Interview." Thurs, Oct 6: Tamar Frankel, professor, BU Law Sch, 4pm,

Strobe Lab-Open house for Graduate Students, Thurs, Sept 29, 3-5pm, Rm 4-405. Special demonstrations and slides of highspeed photography subjects will be shown.

Teaching and Research Assistants-A pay ment equal to one-quarter of the balance of your Fall Term fees is due at the end of each month, Sept thru Dec. If this amount has not been deducted from your paycheck, please make the payment at the Cashier's Office, Rm 10-180, or at Student Accounts, Rm E19-215.

TWO Crafts Fair-The Technology Wives Organization is seeking participants for its Crafts Fair, Thurs & Fri, Dec 15-16, 8am-4:30pm, Lobby Bldg 10. Contact: Marcia Schwenke, 862-3516 or Penny Quint, 738-8299.

Placement

The following companies will be interview ing during the time period covered by the current Institute Calendar. Those interested may sign up in the Career Planning and Placement Office, Mon-Fri, 9am-3pm, Rm 10-140, x3-4733. Monday, October 5— Gould, Inc.; IBM Corp.; Univ. of Chicago/Grad Sch of Business.

Tuesday, October 6 — IBM Corp.; General Atomic Co.; Hercules, Inc.; Jet Propulsion Lab; Systems Research Co.

Wednesday, October 7 - Gen. Atomic Co.; Hercules Inc.; Jet Propulsion Lab; Exxon-

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.

Bioengineering Unit: Hardware and Software Mass General Hospital

The Bioengineering Unit of the Department of Anesthesia has opportunities for electrical engineering students with interests in hardware or software development. Work could include: microprocessor applications, analog circuit design, development of software for NOVA minicomputer. Software may be designed for interfacing a Selectric typewriter for editing and typing of manuscripts within the laboratory. Hardware development could include analog circuit design on neuromuscular monitor. Projects would be arranged according to the interests of students. Pay or credit available.

Quadex Corporation

Cambridge Quadex Corp., a manufacturer of computer systems for text processing, has projects which may be of interest to computer science students: 1) Data Management Systems - evaluating data structures and access algorithms for text and accounting data bases. Simulation of multi-user operation and implementation of pilot system. 2) Text Processing Applications -design of computer procedures to set complex text on phototypesetters. Special areas of concern are mathematical equations and full page make-up. Detailed projects can be arranged on an individual basis.

Computer Simulation of Curved Space

An opportunity for an undergraduate to investigate a simple method for understanding and simulating curved universes. Project would involve writing programs corresponding to various curved surfaces and universes and exploring the geometry in them, including gravitation around black holes! No specialized knowledge beyond calculus. Minimal dependence on previous programming experience.

Dynatech R/D Company

Dynatech would like to meet students interested in the following area: Biocompatible Polymers - an ethical drug delivery system has been developed based on polymers which are slow to release the therapeutic agent. Delivery systems for sustained release through tissue compatible hydrolyzable polymer matrix in which the medicant is dispersed. As the polymer disintegrates through hydrolysis into metabolizable fragments, the physically entrapped drugs are released. Applications are to fertility control, treatment of narcotic patients and prevention of malaria.

Boston VA Hospital

An opportunity is available in a neurology lab for a student with an engineering background and interest in psychology. The program of research is devoted to an analysis of the manner in which brain damage affects language and thinking. One current project focuses on the capacity of brain-damaged patients to communicate information that arises naturally within their environment. In this study very close attention is being paid and attempts made to codify the aphasic's use of gesture to communicate semantic intentions. There may be opportunities to deal with neur-ology patients and attend case conferences and

Arteriosclerosis Center and Mass General Hospital

An opportunity is available to work in the research program at the Arteriosclerosis Center. The project involves the preparation of Fab fragments from antisera to the plasma lipoproteins and their use in the electron microscopic visualization of lipoproteins in blood vessels. Biochemistry as well as the techniques of immunology and pathology will be utilized. The student should be an upperclassman in chemistry, chemical engineer ing or life sciences. Some work will be done at the Mass General Hospital.

Research in Spatial Data Management

This project involves exploration of the concept of a multimedia, spatially managed data base, using high-bandwidth, interactive peripheral devices. The system uses a mini-computer network including full color graphic and multi-channel sound. Interested students must have programming experience.

Contact: Dr. Richard A. Bolt, Rm 9-532,

Graduate Studies

Woodrow Wilson Women's Studies Research

The Woodrow Wilson National Fellowship Foundation awards grants of up to \$1,000 to encourage original and significant reseach about women on such topics as the evolution of women's role in society and particularly contemporary American, women in history, the psychology of women, and women as seen in literature. Students in doctoral programs in any field of study at graduate schools in the US and who have completed all pre-dissertation requirements are eligible to apply

Contact: Graduate School Office, Rm 3-136. Deadline: Nov. 1, 1977.

Awards for Outstanding Dissertations in **Higher Education**

The Association for the Study of Higher Education is sponsoring awards intended to improve the quality of dissertations on higher education. Dissertations may be from any discipline but must examine some aspect of higher or postsecondary education. Faculty members are invited to make one or more nomination. To nominate a dissertation, five copies of the dissertation abstract, or a 1-2 page summary must be submitted to the selection committee by Oct. 15, 1977. Contact: Graduate School Office, Rm 3-136

Howard Pyle Safety Research Fellowship

The National Safety Council is sponsoring the Howard Pyle Safety Fellowship designed to provide encouragement and financial support to competent graduate student disserta tion research in the field of safety. Applicants must have an approved dissertation topic in the general area of safety research, preferably in an area with potential application to the practical reduction of accident risk or injury. The fellowship provides tuition and fees up to \$4,000, a stipend of \$2,500 and a total allowance of \$450 for dependent children.

Contact: Graduate School Office, Rm 3-136. Deadline: Jan. 15, 1978.

The Medical Foundation, Inc.

The Medical Foundation supports a postdoctoral fellowship program in the bio-sciences and in problems of health in the community. Candidates should have completed their primary postdoctoral fellowship training and have demonstrated competence and a reasonable degree of independence in their research endeavors. Applicants must be US citizens or in the process of securing US citizenship.

Contact: Graduate School Office, Rm 3-136. Deadline: Oct. 17, 1977.

Churchill Foundation Fellowships

The Winston Churchill Foundation of the US offers 10 scholarships annually to US citizens to spend one to three years studying at Churchill College, Cambridge University. Appli-cants must be in the sciences, mathematics, or engineering and must hold the bachelor's degree before taking up the grant.

Contact: Graduate School Office, Rm 3-136. Deadline: Nov. 7, 1977.

CABLE TV

SCHEDULE

September 28 - October 4, 1977

Recorded 2/25/77.

RHETORIC & JOURNALISM

Course 21.940) with Ed Diamond

THE PRESIDENT & THE PRESS

(Course 17.27) with Ed Diamond. Guest: Carolyn Lewis of Boston University. Recorded 3/3/77.

FRANK CHURCH, U.S. Senator

FRANK CHURCH, U.S. Senator. Recorded 5/2/77 for the "World Change and World Security" lecture series.

THE GROGO AFFAIR: RACISM AT MIT? A panel discussion over the issues raised by the Grogo Affair. Produced by "Experiments in Cable Programming" Class.

Wednesday, Sept. 28

Thursday, Sept 29

Channel 8:

3-4:30pm

Channel 8:

11am-12noon

Foreign Studies

Marshall Scholarships

Marshall Scholars study for two years at a university or institution in the United King-dom. Applicants must be US citizens and must hold the bachelor's degree by the time of the

grant. Contact: Graduate School Office, Rm 3-136. Deadline: Oct. 22, 1977

German Academic Exchange Service Awards The DAAD (German Academic Exchange Service) offers awards to young scholars for one year of graduate study in the Federal Republic of Germany. Applicants must be US citizens between the ages of 18 and 32 and must have German language proficiency

Contact: Graduate School Office, Rm 3-136. Deadline: Nov. 1, 1977.

Club Notes

Association for Women Students**-Meeting, Sun, Oct 2, 10am, Cheney Rm (3-310).

MIT Baha'i Association-"The Role of Example in Revolutionizing the World," talk & discussion, Wed, Sept 28, 7pm, Stu Ctr, West Lng. Free. Info: Mahmood, 492-2889

Beginner's Sailing-Instruction, Mon & Thurs, 5:15pm, MIT Sailing Pavilion.

MIT Bridge Club*—ACBL duplicate open pairs game Thurs, 7pm, Stu Ctr Rm 407. Info: 494-8593. Admission .25.

MIT/DL Bridge Club**-ACBL duplicate bridge. Tues, 6pm, Stu Ctr Rm 473

MIT Chess Club*-Informal speed chess, analysis, etc., every Sat, 1-7pm, Stu Ctr Rm 407. Info: Brad, DL5-8156.

MIT Comic Book Club*-Weekly discussion meetings, Wed, 7pm, Rm 7-102.

Gays at MIT*-Going to see the film, "Outrageous," Fri, Sept 30, Orson Welles Theater. Call 253-5440 for meeting time and place. Organizational meeting, Sun, Oct 2, 5pm, Gay Lng (Rm 50-306). New members wel-

MIT Go Club*-Regular meetings, Mon, Wed, 8-12pm, Rm 4-145. Play Go, instruction available, occasional lectures on basic strategy (announced in advance).

MIT Goju Karate Club*-Instruction, Wed & Fri, 7-9pm, Stu Ctr Rm 491 or 407. Info: x3-2018.

Hobby Shop ** -- Mon-Fri, 10am-6pm, Rm W31-031. Fees: \$10/term for students, \$15/term for community. Info: x3-4343.

MIT Judo Club**-Mr. Yanagi. 6th degree black belt, chief instructor. Judo practice: Mon, Wed, Fri, 5:30-7pm; Sat, 1-3pm. Du Pont exercise rm. Teaches conditioning, coordination and balance. Beginners welcome. Mike, 3-7319, Lance, 3-2559

MIT Juggling Club*-Juggling practice and get-together Suns, 1-4pm, Kresge Oval (in front of Stu Ctr). We teach beginners.

MIT Math Club**-Sundays, 4:30pm, Rm 4-182. All undergrads welcome. Info: DL5-8442.

Scuba Club**-Meetings Tues, 7pm, Rm 20E-021 to discuss upcoming weekend dives. Pool sessions after meetings or alternate Tues. Scuba rentals available from scuba locker. Check schedule at pool.

MIT Shotokan Karate Club**-Rigorous training in classical style of karate. PE credits may be earned. Active in intercollegiate competition. Varsity Club Lng, du Pont Gym. Call x3-6550 or DL5-9633 for dates and times

MIT Space Habitat Study Group*-Interdisciplinary discussions of space industrialization, colonization & related issues. Thurs, 7pm, Marlar Lng (Rm 37-252)

Tech Model Railroad Club-Meetings, Sat, 4pm; Operating Sessions, Fri nights; Rm 20E-214, x3-3269.

MIT Tiddlywinks Association -- Meetings Wed, 8pm, Stu Ctr Rm 473.

Travel Club-First meeting, Thurs, Oct 27, 10am, at the home of Pat Crandall, Tabor Hill Rd., Lincoln, Jane Lorenz is taking us 10,000 miles to a wedding! Our co-hostesses will be Isabel Pelloux and Florence Vivian. Please call Mrs. Pelloux, 729-0984, or Mrs. Vivian, 646-3129, if you wish to join us. We welcome new people at all meetings or at any you find interesting.

Friday, Sept. 30 1-2pm

THE PRESIDENT & THE PRESS (Course 17.27) with Ed Diamond. Guest: Carolyn Lewis of Boston University. Recorded 3/3/77. RHETORIC & JOURNALISM (Course 21.940) with Ed Diamond. Recorded 2/25/77.

Channel 10:

LOOKAROUND Produced by the

Monday, Oct. 3 1-2pm

2-3pm Channel 10:

12noon-8pm

(Course 17.27) with Ed Diamond. Guest: Carolyn Lewis of Boston University. Recorded 3/3/77. RHETORIC & JOURNALISM (Course 21.940) with Ed Diamond. (Course 21.940) wit Recorded 2/25/77.

THE PRESIDENT & THE PRESS

NEWS/SPORTS SHOW Produced by the Video Club.

Tuesday, Oct. 4 Channel 8: 11am-12noon

12noon-1pm

SALVAGING THE MONITOR A videotape on this summer's salvage operations off Cape Hat-teras of the Civil War ironclad ship BASEMENT VIDEO PRESENTS

BASEMENT VIDEO PRESENTS
SALVAGING THE MONITOR A
videotape on this summer's
salvage operations off Cape Hatteras of the Civil War ironclad ship
the "Monitor." MITV REFLECTIONS Produced by MITV. LIVE from 9-350.

Religious Activities

front of Stu Ctr).

Unicycle Club*-Learn to ride, play uni-polo,

learn stunts, etc. Sundays, Kresge Oval (in

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

Campus Crusade for Christ-Fri, 7:15pm, Rm 37-252. Info: Dan Lu, DL 5-9641.

Chinese Bible Study Group-Fri, 8-10:30pm, The Cambridge Church of the Nazarene, 234 Franklin St., Cambridge. Info: Chris Law, DL

Christian Students Fellowship—Thurs, Sept 29, Christian students fellowship, "Surrender to Christ," 7pm, Rm 1-236.

Christian Worship Service - Sundays, 10:45am, chapel. Prayer following service

You are invited to the weekly Interdenomina tional worship and holy communion, Wed, 5:05pm, Chapel, sponsored by the Lutheran Episcopal Ministry. Get-acquainted supper following, \$1 donation. Info: Randy Clark,

MIT Islamic Society*-Friday Prayers will be held in Kresge Rehearsal Rm B at 1pm.

Jewish Holiday Services*-Mon, Oct 3, Mincha-Ma'ariv, 6:25pm, Kosher Kitchen; Tues, Oct 4, Traditional Servs/Yizkor, 8:30am, Kolker Rm. Simchat Torah: Tues, Oct 4, 6:30pm; Wed, Oct 5, 9am. Joint services with Harvard at Congregation Beth Shalom, 8 Tremont St., Cambridge.

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

MIT Seekers—Sun, 9:55am, leave for AM Service at Park St. Church, Boston, from McCormick Hall; 4:55pm, group leaving for PM Sevice and College Fellowship Time, Park St. Church, from McCormick Hall. Info: Scott Cunningham, DL 5-9224.

Southern Baptist Students-Sun, 9:45-11am, Metropolitan Baptist Church, Porter Sq, Cambridge. Info: Roch Skelton, 262-5090

Tech Catholic Community*-Liturgies, Sun, 9:15am, 12:15 & 5:15pm; Tues, 5:05pm; Thurs, 5:05pm; Fri, 12:05pm. Chapel.

United Christian Fellowship-MIT-IVCF prayer, singing and teaching, Fri, 7pm, Rm 1-236. Info: Bill Spencer x3-6813.

Echoes

September 24 - October 1 50 Years Ago

Mrs. Talbot, widow of the late Dean Henry P. Talbot who was a noted authority on chemistry, donated 200 complete volumes on chemistry and several sets of chemical journals to the library. In the opinion of Professor Henry M. Smith of the chemistry department, this material, which includes complete records of chemical experiments and data, should be of great assistance to researchers.

40 Years Ago

Continuing an 11 year tradition freshmen at the Lake Massapoag Camp dunked Raymond C. Foster, president of the sophomore class, in the icy waters. Because of his disguise as assistant hockey manager, Foster was able to evade the freshmen until Saturday afternoon but was quickly and noisily assisted into the lake by 15 freshmen upon his discovery.

25 Years Ago

In a recent announcement the Institute decreed that bathing suits shall be worn at all times in the Alumni Swimming Pool in order to avoid distracting secretaries working in the newly opened biology building

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

> **TECH TALK** Volume 22, Number 8 September 28, 1977

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Address news and editorial comment to MIT News Office, Room 5-111, MIT, Cambridge, MA 02139. Telephone (617)

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It's Still September But IAP Planning Is Underway

Distribution of the IAP Announcement this week and the kick-off luncheon for IAP coordinators today (September 28) herald the beginning of the 1978 Independent Activities Period.

The Announcement, a guide for those who want to organize an IAP project, is being mailed to faculty and staff along with Policies and Procedures, a handbook detailing policies governing IAP. The Announcement is also being distributed in bulk at key locations throughout the Institute.

The kick-off luncheon, to be held at noon in the Student Center Mezzanine Lounge, will acquaint IAP coordinators with their roles during IAP. Presentations will be given by members of the faculty, the IAP Policy Committee, IAP Administrative Committee, and IAP Office, as well as by several former coordinators.

IAP, initiated in January, 1971, as a time of more flexibility and freedom for students and faculty, provides a chance for everyone at MIT-students, faculty, employees and their families-to take advantage of the educational resources at the Institute. More than 500 activities, ranging from one-timeonly events to intensive minicourses, were offered in IAP 77, and an equal

or greater number is anticipated for

For the first time the Announcement has a form for suggesting activities, a place where people may list activities they would like to have offered during IAP. All suggestions will be printed in the first Guide to

The Announcement also has an activity listing form. Listings should be submitted to the IAP Office. Rm. 7-108 (x3-1668), staffed by office manager Jane Sauer and guide editor Mary Enterline. Together they distribute information and answer inquiries about IAP.

Activities are described in two IAP Guides, newspaper-like catalogues scheduled for publication in November and December. Deadline for submitting entries to the first Guide to IAP is Wednesday, Oct. 19; to the final Guide to IAP, Monday, Nov. 21. Activities organized too late for inclusion in the Guides will be advertised on the cable TV network, in the IAP section of the Institute Calendar in Tech Talk and on the IAP bulletin board in Lobby 7

In keeping with the innovative and imaginative nature of IAP, few constraints are imposed on activities. Major limitations are the normal safety, legal and health codes in

effect at MIT. Since the emphasis is on learning rather than grades, few offerings carry credit and those that do must be able to have the credit recorded under an existing departmental subject number listed in the General Catalogue; usually a "special problem" subject number is

Some financial support is available for IAP activities ineligible for departmental or laboratory funding. The IAP Activities Fund Committee has \$15,000 to allocate to deserving activities. Priority is given to activities offered for the first time and to those initiated by students. The committee is chaired by William Westcott, administrative officer of the Department of Mechanical Engi-

Regulations governing IAP were established by the faculty and are supervised by the IAP Policy Committee chaired by Dr. Michael S. Feld, associate professor of physics and director of the Spectroscopy Laboratory.

Operational details of IAP are carried out by the IAP Administrative Committee chaired by Richard Caloggero, administrative officer of the Department of Electrical Engineering and Computer Science.

Those organizing IAP activities



CIRCLE OF DANCERS who performed in Lobby 7 during IAP 77 forms an interesting pattern in a live-conversion photograph used as a motif for

are responsible for arranging and scheduling their own meeting places through the Schedules Office (Rm. E19-338, Ext. 3-4788).

At the end of IAP a questionnaire

will be sent to all activity leaders and to a random cross-sampling of students and professors to gauge their participation in the response to

Seminar to Probe Nature of Matter

The search for the ultimate nature of matter could shift in the coming years from the accelerator to the telescope. This, at least, is a hope shared by many astrophysi-

Professor Kenneth Brecher of the Department of Physics, who will speak at the Physics Colloquium Thursday, Sept. 29, at 4:15pm in Rm. 26-100, will examine ways in which astronomical observations of neutron stars can be used to test the fundamental laws of physics can be tested under more extreme conditions and often with greater

precision than is possible in Earthbound laboratories

His lecture is entitled "Do Neutron Stars Obey the Laws of Phys-

As an example of the way in which astronomical observations can be used to probe the foundations of physics, Professor Brecher will discuss how recent measurements of the arrival times of pulses emitted by neutron stars in binary X-ray sources require that the speed of light to be independent of the velocity of its source to an ac-

curacy of better than a part in a Two Exhibits Featured In Photo Gallery Opening

By KATHARINE S.C. JONES Staff Writer

MIT's Creative Photography Gallery has opened its 1977-78 season with two shows—one is devoted to projects by people who teach in the Creative Photography Laboratory (CPL) and Visible Language Workshop (VLW), both of the MIT Department of Architecture; the second is a photo-documentary of last spring's Cambridge River Festival by eight Boston-area photographers.

Both shows continue through Tuesday, Oct. 4, when a public closing will be held from 5-7pm. Most of the artists will attend, and Jim Metzner, publisher of "Sound Image," will play stereo field re-cordings of the festival.

Those represented in the show hung in the outer gallery, all affiliated with the MIT Department of Architecture, are Muriel Cooper. lecturer and special projects director at the MIT Press; Charles Harbutt, visiting professor for the spring term; Ron MacNeil, instructor; Arno Rafael Minkkinen and Starr Ockenga, both assistant

professors of photography.
Images of the festival, hung in the inner gallery, are the result of an invitation, extended by CPL to area photographers, to document last spring's Cambridge River Festival sponsored by the Cambridge Arts Council. Photographs in this show are by John Benson, Donald Dietz, Stephen Elston, Stephen Frank, Peter Laytin, Tom Norton, Rosamond Wolff Purcell and Cary Wasserman.

Projects exhibited in the outer gallery show the range of talents of the professional staffs at CPL and VLW. Harbutt's photographs, characterized by sharp blacks and whites, reveal a fascination with light, reflected images and diagonals. Often an image is framed by a mirror, window or doorway Reflected images lead to unusual juxtapositions of people, animals

Minkkinen's photographs of the human body are noted for their delicate gray tones. Each shows a portion of the human anatomy, often so as to accentuate its symmetry-a torso is cradled by a canoe, a gaping mouth and shoulders appear over a boardwalk's edge, disembodied arms and shoulders fold compactly into a corner.

Ockenga's photographs focus mainly on facial expressions of young people. They are characterized by a sense of repose and timelessness. Often the people photographed are compared to a work of art-a woman lounges on a sofa mirroring the pose in a painting, a person balances on an ornately carved pillar, a young woman poses on a pedestal.

The projects by MacNeil and Cooper show some of the experimental work they do at VLW. Prints MacNeil made on an offset printer show enlarged, everyday objects-a salt cellar, bottle of ketchup, the contents of someone's pocket. The enlargements serve to accentuate detail and lend an aura

of importance In addition to some color prints, Cooper has on exhibit five books she designed and edited for the MIT Press. The books reveal the number of ways a book's design -its style of type, paper and presentation-contributes to the subject matter. The books range from the handsome and imposing The Bauhaus to an informal, corregated-cardboard-bound volume, File Under Architecture.

The photographs of Cambridge River Festival show people at play in the spring. The images of balloons, parades, crew races and families at leisure all have a festive air.

The Creative Photography Galery, at 120 Massachusetts Avenue in Cambridge, is open to the public free of charge from 9am to 10pm on weekdays; from 10am to 6pm on Saturdays; and from noon to 8pm on Sundays.

billion. This is the most sensitive and direct test of the second postulate of the special theory of relativity to date, Professor Brecher

"The limit set by these measurements is about a million times better than has been achieved in laboratory experiments on Earth," he

Seminar Series Begins Sept. 28

The first seminar in the Fall '77 Technology Studies Seminar Series will take place in Rm 20D-205 at 4pm on Wednesday, Sept 28.

'The Home Efficiency Movement in America, 1900-1930," will be presented by Professor Carroll Pursell, professor of history at the University of California at Santa Barbara. Author of numerous publications and an expert on the history of technology, Professor Pursell will discuss the attempt to bring modern science and technology into the American home and to define the woman's role in the home as "household engineer."

The Technology Studies Seminar Series, offered each term by the Technology Studies Program, is open to the public, free of charge. This year for the first time, the series will revolve around a major theme: Perspectives on the Social History of Technology. Seminars are held in Rm 20D-205 at 4pm preceded by coffee served in the same room at 3:30pm.

The next scheduled seminar, to be held on Wednesday, Oct. 12, will feature Dolores Hayden, associate professor of architecture and history in the MIT Department of Architecture, speaking on "Regions of Delight: The Architecture of American Utopian Communities."

Forum to Hear Panel Discussion

"Opportunities for Working Woa panel discussion of programs at local universities for working women, will be sponsored by the MIT Women's Forum at noon on Monday, Oct 3, in the Emma Rogers Room (10-340).

Dorothy Bowe, associate director of the Financial Aid Office, will chair the panel discussion. Participants will include Mary Rowe, special assistant to the president and chancellor for women and work, and women in similar positions at Northeastern, Tufts and Boston Univer-

Forum meetings are held on the first and third Mondays of each month. The format is an informal, bring-your-own lunch lecture or discussion meeting and is open to all women and men in the MIT commu-

Wilson Decries WSJ **Energy Editorials**

The following letter from Carroll L. Wilson, Mitsui Professor in Problems of Contemporary Society, Emeritus, at the Sloan School of Management, was printed in the Wall Street Journal of Sept. 19.

Professor Wilson directed the Workshop on Alternative Energy Strategies (WAES) which recently published its report after a two and one half year study of the oil situa-

The Oil Horse

Editor, The Wall Street Journal:

Recent editorials in this paper have added unpardonable confusion to the already confused debate

on energy policy.

When they have implied that no one should talk about scarcities until we have deregulated energy prices, junked President Carter's 'bankrupt" energy program and seen what the resulting incentives will produce in new reserves, they have failed to look at the clock. And when these writers insist "it has become increasingly difficult for any serious person to believe we face the imminent exhaustion of energy resources" (the Journal of Aug. 11), they state a truism, but they obfuscate the point.

The point is that the enormous and growing demand for oil, on which the world depends for more than half its energy, is likely to outrun global production before the end of the next decade. This will happen even if we move massively into coal and nuclear power, cut the growth rate of oil by half and raise the real price of oil 50 percent. Since it takes 5 to 15 years to design and build the vast alternative energy systems that must be in operation in time to replace oil as it becomes increasingly unavailable, what is "imminent" is the deadline for action.

These are the major conclusions unamimously reached by 35 leaders from industry, government and universities in 15 countries, who spent two and one half years as participants in the MIT-sponsored Workshop on Alternative Energy Strategies (WAES) making the first global analysis of demand and supply of energy out to the end of the century. Their report, "Energy: Global Prospects, 1985-2000," was published recently.

The vital timing of the deadline for action, WAES concluded, is mainly in the hands of the "swing producers" of the Arabian peninsula, which have half the non-Communist world's oil reserves. Led by Saudi Arabia, they can stave off the prospective energy shortage until the late 1990s, WAES concluded, provided they are willing to triple their current oil production over the next two decades. But will they be willing?

At a net receipt per barrel of \$10, they now receive \$130 million a day for their 13 MBD output. With great effort they may be able to

spend \$30 million per day domestically, leaving \$100 million per day or \$36.5 billion a year, to invest abroad. Tripling that productioneven if they did not increase the real price of oil-is clearly out of the question.

An obvious alternative for them is to hold to present production levels in order to stretch out the life of their increasingly valuable natural resource on the reasonable assumption that oil in the ground is worth more than dollars they cannot prudently use. But such a course would pitch the world into an acute crisis only four to five years from now-much too short a time to allow us to adjust.

Since this would undermine their own economies as well as ours, they might agree to boost their production enough over the next decade to ease our transition away from oil. As a quid pro quo they are likely to require solid proof during that decade that the industrialized consumer nations are taking vigorous steps to conserve energy and develop alternative sources.

So far as the "swing consumer"-the United States-is concerned, neither President Carter's nor the Journal's proposals will produce this proof. Faulty as some of the President's recommendations may be, he is moving in the right direction. But the US projections in the WAES analysis indicate clearly that his energy plan is too timid to do the necessary job in the time that will probably be available

Though I believe that allowing the price of new domestic oil to rise to the world price would modestly reduce demand and increase supply, I don't share The Journal's faith that a free market alone will produce an energy balance sufficient for a prosperous and growing future. The WAES analysis indicates it is too late for the price mechanism alone to rescue us. The mammoth Middle East oil fields discovered after World War II kept the price of oil too low for too long. Escalating consumption has depleted global reserves beyond the point where higher prices now can produce enough new oil reserves and production to do the job, even if the growth rate of demand is cut in half. We no longer have enough leverage. We are in the same spot as Shakespeare's Richard III at Bosworth Field, when he tried to buy a horse with his kingdom.

It will take cooperative action by both private and public sectors to achieve a transition to other energy systems soon enough to avoid an acute global crisis. Neither the market nor the government, acting alone, can do it.

-Carroll L. Wilson

Cambridge, Mass.



September 28 through October 9

Events of Special Interest

The F. O. Schmitt Lecture in Neuroscience 1977* - Roger Guillemin, of The Salk Institute, San Diego, CA, will speak on The Hypophysiotropic Peptides of the Hypothalamus. Presented by the Neurosciences Research Program. Wed, Oct 5, 4:30pm, Rm 10-250.

MIT Women's League* - Student Plant Sale to benefit the Student Service Fund. Thurs, Oct 6, 9am, Stu Ctr steps.

Seminars and Lectures

Wednesday, September 28

Overview of ARCS' Operating Systems* - Arthur Anger, academic & research computing services. Information Processing Services Seminar. 12n-2pm, Rm 39-530. Required texts, IPS memos G1-2 & G1-23.

The Home Efficiency Movement in America, 1900-1930* - Carroll Pursell, history, University of California, Santa Barbara. Technology Studies Seminar. 4pm, Rm 20D-224.

Materials Technology in the Economy of Israel* — Isaac Minkoff, materials engineering, Technolom — Israel Institute of Technology. Jacob Kurtz Memorial Lectureship in Materials. 4pm, Rm 66-110. Coffee 3:30pm.

Standoff Distances on a Flat Flame Burner* - Colin R. Ferguson, G. Mechanical Engineering Seminar. 4pm, Rm 3-343.

The Primeval Cosmic Explosion* - Rainer Weiss, physics. Undergraduate Physics Colloquium. 4:15pm, Rm 4-339. Social hour follows.

Thursday, September 29

Blood-Brain Barrier Transport of Amino Acids and Glucose* - Dr. William Pardridge, medicine, division of endocrinology & metabolism, U.C.L.A. Center for the Health Sciences. Nutrition & Food Science Seminar. 12n, Rm 6-120.

Introduction to Terminal Use* - Jose Bauzo, academic & research computing services. Information Processing Services Seminar. 12n-2pm, Rm 39-

The Press in South Africa* - Raymond Louw, general manager, Rand Daily Mail. MIT African Luncheon Seminar. 1-2:30pm, Rm E53-461. Bring

Spatial Light Modulators & Their Applications* — Cardinal Warde, electrical engineering. EECS Optics Seminar. 3pm, Rm 36-428.

Analysis of Complex Mixtures by Laser Spectroscopic Techniques Jeffrey Steinfeld, chemistry. Analytical Chemistry Seminar. 4pm, Rm 8-

Linear Source Coding* - J.L. Massey, electronic systems lab. Electrical Engineering & Computer Science Seminar. 4pm, Rm 39-500.

The Metallurgy & Microstructure of Cast Iron* - Isaac Minkoff, materials engineering, Technion - Israel Institute of Technology. Materials Science & Engineering Seminar. 4pm, Rm 13-5101. Coffee 3:30pm.

Do Neutron Stars Obey the Laws of Physics?* - Kenneth Brecher, physics. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45pm,

Friday, September 30

Turnover & Metabolism of Cholesterol in Man* - Dr. DeWitt Goodman, College of Physicians & Surgeons, Columbia University. Arteriosclerosis Center Seminar. 12:30-2pm, Rm E17-421. Bring lunch.

Technology Innovations & Transportation* - Sherwood C. Chu, acting chief, R & D Policy Implementation Division, US Dept of Transportation. Center for Transportation Studies Luncheon/Seminar. 12:45pm, Stu Ctr Mezzanine Lge, Free. Buffet lunch 12n, \$1.

Conversion of Fuel-Bound Nitrogen Components to NO_x During Combustion* - B.R. Taylor, G. Chemical Engineering Seminar. 2pm, Rm

Catalytic Hydrodenitrogenation of Quinoline* - J.F. Cocchetto, G. Chemical Engineering Seminar. 3pm, Rm 66-110.

Mining 2 Miles Below the Surface* - Austin Whillier, director, Environmental Engineering Laboratory, Chamber of Mines of South Africa. Mechanical Engineering Seminar. 3pm, Rm 3-133. Coffee 4pm, Rm 1-114.

Functional Architecture of the Striate Cortex Studied with a New Method* — Dr. Michael P. Stryker, neurobiology, Harvard Medical School Psychology Colloquium. 4:30pm, Rm E10-013. Coffee 4:15pm.

Monday, October 3

Scale-up of Heterogeneous, Photoassisted Catalysis* - David Ollis, chemical engineering, Princeton University. Chemical Engineering Seminar. 3pm, Rm 66-110.

Finding Minimum Cutsets in Reducible Graphs* - Adi Shamir, mathematics. Applied Mathematics Colloquium. 4pm, Rm 2-338. Refreshments 3:30pm, Rm 2-349.

The Next Steps in Twelve Metre Yacht Design* - Alan Payne, Sydney, Australia. Ocean Engineering Seminar. 4pm, Rm 3-270.

Nile River Hydrology & Development* - Fouad Z. El-Shibini, Deputy Director, Institute of Water Resources, Ministry of Irrigation, Egypt. Water Resources & Environmental Engineering Seminar. 4-5pm, Rm 48-316. Coffee 3:45pm. Rm 48-410.

Active Animals of the Deep Sea Floor* - John D. Isaacs, Scripps Institution of Oceanography, La Jolla, CA. 4:30pm, Rm 4-402.

Tuesday, October 4

System Dynamics Applications in France* - Jean D. Lebel, French engineer & physicist. System Dynamics Seminar. 9:30am, Rm E52-461.

Black Politics in South Africa* — Benjamin Pogrund, deputy editor, Rand Daily Mail. MIT African Luncheon Seminar. 1pm, Rm E53-482. Bring lunch.

British View of Arms Limitation* - Lord Kennet, member, British House of Lords, 1971-74 Opposition spokesman on Foreign Affairs & Science Policy. MIT Technology & International Security Seminar. 4-6pm, Rm E53-

Chemistry - The Heart of Energy Research* - A. Schriesheim, Corporate Research Laboratories, Exxon Research & Engineering Co. Seminar in Physical Chemistry. 4pm, Rm 4-370. Coffee 3:45pm, Rm 6-321.

Level Crossing & Envelopes for Vector Valued Processes* - Daniele Veneziano, civil engineering. 4pm, Rm 2-338. Coffee & tea 3:30pm, Rm 2-

Productivity Improvement in Light Water Reactors* - Dennis Bley, nuclear engineering. Energy Assessment Seminar. 4pm, Rm 24-121

Report on IAU Symposium 77 & 79: On Galaxies* - Alan Toomre, mathematics. Astrophysics Colloquium. 4:15pm, Rm 37-252. Refreshments

The Problem of Genetic Diversity* - Richard Lewontin, Harvard University. Biology Colloquium. 4:30pm, Rm 4-270. Coffee 4pm, 5th flr vestibule, Bldg 56

Wednesday, October 5

How to Apply to Graduate Schools* - Robert Hulsizer, physics. Undergraduate Physics Colloquium. 4:15pm, Rm 4-339. Social Hour follows.

Thursday, October 6

Optically Pumped Electronic Transition Lasers* - Robert Field, chemistry. EECS Optics Seminar. 3pm, Rm 36-428.

Biochemical & Physiological Studies on the Endorphins* - Dr. Roger Guillemin, T.Y. Shen Visiting Professor, Salk Institute, San Diego, CA. Chemistry Seminar. 4pm, Rm 4-370.

Recent Work on Numerical Hydrodynamics at ENSTA* - Daniel Euvrad, Director, Naval Hydrodynamics Research Group, Ecole Nationale Superieure de Techniques Avancees, France. 4-5pm, Rm 48-316. Coffee 3:45pm, Rm 48-410.

Supercells & Pseudopotentials for Surface & Bulk Electrons* - Marvin L. Cohen, physics, University of California, Berkeley. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45, Rm 26-110.

Friday, October 7

Characterization of Solid Surfaces by Physical Adsorption Techniques* Frederick A. Putnam, chemical engineering. Chemical Engineering Seminar. 2pm, Rm 66-110.

Role of Microstructure & Environment on the Threshold for Fatigue Crack Propagation* — Robert O. Ritchie, mechanical engineering Mechanical Engineering Seminar. 3pm, Rm 3-133. Coffee 4pm, Rm 1-114.

Community Meetings

Wives' Group** — Group leader, Charlotte Schwartz, sociologist Myra Rodrigues, social worker, both from Medical Dept; Carol Hulsizer, faculty spouse in residence, Ashdown Hse. Wed, 3-5pm, Stu Ctr Mezzanine Lng. Babysitting Stu Ctr Rm 473. Karen, x3-2916.

T.W.O. Weekly Exercise Class** — Technology Wives Organization, An hour of exercise led by Marilyn deKleer. Newcomers welcome. Every Thurs evg. 8-9pm, Exercise Rm, 2nd fl, DuPont Gym. Donation: 50¢. Info: Linda Morecroft, 494-8434.

Swimming Program for Parents & Children** - Sign up now for swimming program for parents & children 2-5 yrs, sponsored by Child Care Office. Classes Sat, Oct 1 thru Sat, Dec 3, 9am. Fee: \$30. Info: Child Care Office. fice, x3-1592.

IFC Freshman Symposium* - MIT Interfraternity Conference. Workshops in Athletics, Entertainment, MIT Organization, etc. Sat, Oct 1, Registration, 12n, Rm 54-100. Refreshments. Info: x3-2170.

Speed Chess Tournament* - MIT Chess Club. Informal speed chess tour nament. All entry fees will be returned as prizes. Sat Oct 1, 2pm, Stu Ctr Rm 407. Entry fee 50¢. Info: Brad, x5-8156 Dorm.

The Women's Forum** - Mon, Oct 3, 12n-1pm, Rm 10-340. Dotty Bowe will chair a panel discussion of programs at local universities for working

Social Action Coordinating Committee* — Actions Analytic Organization will give a lecture with slides on its European social life-praxis organization. Mon, Oct 3, 7pm, Rm 6-120.

Placement Office Career Seminar* - Tues, Oct 4, 4pm, Rm 10-250. David P. Parker, '63, of D.P. Parker & Associates, Inc. Personnel Consultants, will speak on "The Interview Process: How an Employer Evaluates

MIT Women's League* - Advanced Crewel & Canvas Workshop, taught by Mrs. Rene Fell, First class, Wed, Oct 5, 9:30-11:30am, Rm 38

AREA VII Bioelectrical Engineering Open House** - New grad students invited to meet students & professors in this area. Social Hour with refreshments, brief talks, demonstrations. Wed, Oct 5, 3-5:30pm, Rm 36-

An Introduction to Change Ringing* - Wed, Oct 5, 6:30pm, Rm 9-150. MIT Guild of Bell Ringers will present a lecture by Beryl Nelson, Ringing Master, including handbell demonstration, tower bell recordings, and an introduction to the principles of Change Ringing. Info: Beryl Nelson, 492-4569 or Bill Engelhardt, x5-6656 Dorm.

Faculty Club Special Dinner*** - Prime Rib Night, salad bar, dessert table, \$7,50 incl tax. Thurs Oct 6, Happy Hour, 4:30-6:30pm, dinner served 5:30-8pm. Reservations, x3-4896.

Movies

75¢ w/MIT or Wellesley ID.

The Manchurian Candidate* — Humanities Dept Film. Thurs, Sept 29, 9pm, Rm 4-270. Free.

Murder by Death** - LSC Movie. Fri, Sept 30, 7 & 9:30pm, Kresge. Admission 75¢ w/MIT or Wellesley ID.

Line of Demarcation (Chabrol)* - MIT Film Society. Fri, Sept 30, 7:30 & 9:30pm, Rm 6-120. Donation, \$1.25.

Chinatown** - LSC Movie. Sat, Oct 1, 7 & 10pm, Rm 26-100. Admission

Theatre of Blood** — LSC Movie. Sun, Oct 2, 6:30 & 9pm, Rm 26-100. Ad. mission 75¢ w/MIT or Wellesley ID.

Only Angels Have Wings** - Humanities Dept Film. Thurs, Oct 6, 7pm Rm 4-270. Free.

Monty Python Meets Beyond the Fringe** - LSC Movie. Fri, Oct 7, 7:30 & 10pm, Kresge. Admission 75¢ w/MIT or Wellesley ID.

Theresa Raquin (Carne)* - MIT Film Society. Fri, Oct 7, 7:30 & 9:30pm Rm 6-120. Donation, \$1.25.

Camelot** - LSC Movie. Sat, Oct 8, 6:30 & 10pm, Rm 26-100. Admission 75¢ w/MIT or Wellesley ID.

Ben-Hur** - LSC Movie. Sun, Oct 9, 8pm, Rm 26-100. Admission 75¢ w/ MIT or Wellesley ID.

Social Events

MIT — Another Side** — Freshman Advisory Council. Informal gathering for students with broad interests, especially in non-technical areas, to meet for students with broad interests, especially in non-technical areas, to meet other students who share their interests. Thurs Oct 6, 4-6pm, Stu Ctr Me_Z . zanine Lge.

15 Lansdowne Disco** - MIT Night sponsored by the Undergraduate As. sociation. Thurs, after 10pm, 15 Lansdowne St., Boston, near Fenway Stadium. Admission free with MIT ID.

Theater and Shows

Evening of One Act Plays* - Fri, Sept 30, Sat Oct 1, 8pm, Kresge Little Theatre. Bus Riley's Back in Town by Inge, directed by Mark De Lemos Theatre II by Beckett, directed by David Dreyfuss. Free.

Dance

MIT Dance Workshop* - Open meeting for all interested dancers. Wed Sept 28, 6pm; Mon, Oct 3, 5:15pm; T-club lounge, W31, lst floor.

Waltz Workshop* - MIT-Wellesley Ballroom Dance Club. Sun, Oct 2, 2:15pm, Sala. Donation 50¢. Beginners welcome.

Formation Dancing* - MIT-Wellesley Ballroom Dance Club. Experienced dancers (those who can pick out beat in music) sought to start up Ballroom Dance Formation Team. Sun, Oct 2, 4pm, Sala. Info: Sharon Pastoriza, x5-8667 Dorm.

Yoga* — MIT Women's League. Mon, Oct 3, Beginners: 7:05pm, Intermediate: 5:45pm. Tues, Oct 4, Beg/Int, 5:45pm. Rm 10-340. Info: Ei Turchinetz, 862-2613.

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

Exhibits

Banned Books* — An exhibit of books which have been banned for assorted reasons at various times and places. Thru Sept 30, Humanities Library Reading Room, 14S-200.

Watercolors by Carolyn Latanision* - Thru Sept 30, Faculty Club.

Paper Forms* — Handmade paper projects, both paintings and sculptures by Kenneth Noland, Ellsworth Kelly, Alan Shields, Frank Stella, and Robert Rauschenberg. Sponsored by the MIT Committee on the Visual Arta Thru Wed, Oct 5, Mon-Sat 10am-4pm, Hayden Gallery and Hayden Corridor Gallery. Public Reception in the Gallery, Fri, Sept 9, 8-10pm.

Center Beam Memorabilia* - Thru Sun Oct 30, Mon-Fri, 9-5, Center for Advanced Visual Studies Exhibition Hall.

Ruth Boyce: Paintings, Etchings, Drawings* - Thru, Oct 31, Mon-Fri, 9am-11pm, MIT Faculty Club. Photography by Burk Uzzle & Mary Ellen Mark* — Fri, Oct 7 thru Tues,

Nov 8, Mon-Fri, 9am-10pm, Sat, 10am-6pm, Sun 12n-8pm, Creative Photography Gallery, Bldg W31. Public opening Fri, Oct 7, 6-9pm. Unfinished Works* - Music Library, Rm 14E-109. Examples of unfinished

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

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

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

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

Athletics

Maggie's Self-Design Fitness Class** - An athletic class that can fit into anyone's schedule: choose 12 hrs for 2 credits. 12n-1pm, 1-2pm, 5-6pm, Mon-Fri. du Pont Wrestling Room.

Intercollegiate Ice Hockey** - Organizational Meeting, Thurs, Sept 29 5pm, Stu Ctr Rm 407. All interested persons, grad & undergrad, should at nd to prepare for Oct 17 presesson ice practice Info: Tom Stagliano 2433 8am-2pm, or Coach Wayne Pecknold, 354-0167, 9am-5pm.

MIT Rugby Team** - Practice, Tues & Thurs, 5pm, Briggs Field. Game every Saturday, 1pm. Oct 1, Albany Law.

MIT Grad Soccer* — Mass Industrial League. Uniform: Dark blue shirt w MIT seal on left breast, white trunks & socks. Show up dressed to play before home game time. All games Sat, 2pm, Briggs Field. Oct 1, Waltham

Home Schedule* - Wed, Sept 28, V Baseball, Babson College, 4p Briggs Field. Thurs, Sept 29, V Field Hockey, Pine Manor, 3:30pm, Brigg Field. Fri & Sat, Sept 30 & Oct 1, V Water Polo, MIT Invitational, Fri. 8pm, Sat 9am-8pm, Alumni Pool. Sat, Oct 1, V Baseball, University Lowell, 12n, Briggs Field; JV & V Soccer, Trinity, 2pm, Briggs Field. Sat & Sun, Oct 1 & 2, W V Sailing, NEWISA Man-Labs Trophy, 9:30am, Charles River Lower Basin. Tues Oct 4 — V Baseball, Brandeis, 4pm, Briggs Fiel Wed, Oct 5 — V Golf, Boston College & Bentley, 1pm, Brae Burn Count Club, Newton; M V Tennis, Tufts, 4pm, duPont Tennis Court; Thurs, O 6, V Baseball, Mass Bay Community College, 4pm, Briggs Field; V Volleyball, Boston College, 7:30pm, duPont Gym. Fri, Oct 7 — V Baseball Babson, 4pm, Briggs Field. Sat, Oct 8 - V Cross Country, Lowell Boston College, 1pm Franklin Park; JV Soccer, Harvard, 2pm Briggs Field Sat & Sun, Oct 8 & 9 - W V Sailing, Emily Wick Trophy, 9:30am Charles River Lower Basin.

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

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

***Open to members only

Send notices for Oct 5 through Oct 16 to the Calendar Editor, Room 111, Ext. 3-3270, before noon Friday, Sept 30.

Solar Energy Seen Best Means of Achieving Goals

A paper proposing that the United States choose solar energy over nuclear fusion as the best means of achieving traditional social and political goals has won a \$10,000 prize for a staff member at

Charles J. Ryan of Brookline, executive director of the System Dynamics Group at MIT's Alfred P. Sloan School of Management, is one of five winners this year of the \$50,000 George and Cynthia Mitchell Prize. The prize competition is part of "Alternatives to Growth," a 10-year international program on the nature of growth in equitable and sustainable societies sponsored by the Club of Rome, the University of Houston in Texas and the Mitchell Energy and Development Corp. of Houston, Texas.

In his paper, "The Choices in the Next Energy and Social Revolution," Ryan argues that the uses and availability of energy sources have been a major determinant of social structure and the growth, stability and decline of nations throughout history.

"Past civilizations have collapsed either through loss of their energy source or through high energy costs of maintaining their

social structure," he writes.
The two ultimate energy alternatives, Ryan believes, are conventional solar energy and possibly nuclear fusion if it is technically and economically feasible in a social setting.

Fossil Fuels Depleting

With fossil fuels rapidly depleting, he says, the choice of an energy system to replace them will determine whether the United States and other industrial nations ultimately have an Orwellian "largescale centrally controlled society striving to maintain growth, a Malthusian-type decline due to resource scarcity, or a sustainable, small-scale Jeffersonian-type decentralized society with reduced energy needs." The history of the United States

has been marked by continuous physical and economic growth, but a social discontinuity was caused by the shift from a solar to a fossil fuel based economy, Ryan be-

What has occurred, he suggests, has been a tradeoff between wealth (expanding economic growth and

per capita income) and tradition. "The introduction of fossil fuels destroyed the institutions, customs and values of early solar-based America," he writes. "A stable set of new institutions, customs and values were never able to replace the old because constantly increasing energy production and consumption endlessly rearranged the social fabric.'

Past events, he continues, suggest that future reliance on nuclear fusion and the large-scale transition technologies associated with it will tend to exacerbate this situation and produce the American version of Orwell's 1984.

"The lesson of history seems to say that attempts to increase the energy budget and the introduction shifted from that of producer to consumer.

Family Survival Threatened

On the family: "The survival of the family as the basic unit of society is threatened because the functions which created it and held it together-the necessity of production, the transfer of knowledge, attitudes and values, and the shared experience of time passing together in many functional ways which form the bonds of affective relations—are spun off little by lit-

"The anticipation of the next new product or service breeds discontent for what is currently in use and increases expectations that what will be tomorrow will be better than today."

—Charles J. Ryan

of larger scale technologies increase centralized control and increasingly subjugate individual needs to those of larger institutions," Ryan writes.

On the other hand, he adds, solar alternatives and small-scale transition technologies may produce less energy, but they also require less energy because of the smaller institutional structure involved.

Jeffersonian Scale

"By comparison with today, communities would be smaller. There would be less need for mobility. Smaller technologies would tend toward more generalized ownership of capital and therefore more distributional equity . . . The focal point of social organization would necessarily return to a Jeffersonian scale centering on the individual, the family and local communities."

Ryan concludes that ultimate nuclear fusion and the large-scale transitional alternatives (nuclear power) are undesirable because of the risks and costs attached to them and because of the hostile social environment they will tend to create.

Solar energy, he continues, "should be pursued as the energy source to replace fossil fuels. Dependence on solar energy sources can create a future that is harmonious with the institutions, traditions and values that have brought humanity down a millionyear path."

The paper relates many problems of national concern to the social consequences of energy expansion and rapid growth.

On the indiviudal: "As more and more of the work input to the economy was provided by fossil fuels, the role of the individual in serving the economy increasingly tle to other institutions."

On local autonomy: "The influences on neighborhood life, values and activities were increasingly determined by distant corporate headquarters and government agencies than by local institutions.'

On government: "Government activities that, on the one hand stimulate growth, create the need on the other hand for more government services to tend to the social dislocations created by growth. In this self-reinforcing process, political constituencies increase on both sides of government activities, and growth industry."
growth industry."
walues: "With increasing government itself becomes a

abundance and personal income, 'more' became a permanent part of social values, and expectations were fixed to expanding possibilities provided by large institutions. The operational belief in 'more' was a necessary element for the continuous expansion of the production/consumption system.

On consumption: "The anticipation of the next new product or service breeds discontent for what is currently in use and increases expectations that what will be tomorrow will be better than today.'

On the industrialized nations: 'If the advanced nations hold true to historical performance, as they approach their limits to growth, they will push to expand their energy budgets, overextend the physical and/or social base of their nations and consequently decline." **Human Scale**

Ryan sees the next century as the second chance of achieving the social and political goals on which the nation was founded. "The coming century offers the opportunity to realize a Jeffersonian design, not because it is traditional or

human, focusing on local communities where the life of the individual and the family are, of necessity, rooted.'

American, but because its scale is

Among his specific recommendations are these:

"The technical, economic and regulatory incentives that have favored growth for more than a century should be gradually withdrawn as government's role in seeking long-term social and economic stability. An increasingly high tax rate should be placed on fossil fuels reflecting the value of their depletion to society. All forms of subsidies for the development of future energy systems should also be withdrawn. This will tend to bring about an equilibrium between energy sources, technologies, and social structure that can otherwise be skewed by the political power of dominant institutions that place self-interest before that of society at large."

The money for the Mitchell Prize is donated by George and Cynthia Mitchell of Houston. The awards will be made at the second of five biennial "Alternatives to Growth" conferences in Woodlands, Texas, October 2-4. The winning papers will be published next year by Ballinger Books.

The System Dynamics Group at MIT of which Ryan is executive director conducts research into the causes and consequences of change in social systems. The program is headed by Dr. Jay W. Forrester, the Germeshausen Professor at MIT.

Before joining MIT in 1975, Ryan was a Washington-based private consultant in energy and resources. From 1968 to 1974 Mr. Ry-



Mr. Ryan

an was a senior policy analyst in Washington with the National Commission on Materials Policy, the National Science Foundation, the Secretaries of the Department of Commerce and the Department of Health Education and Welfare. As secretary general of the Atlantic Institute in Paris from 1963 to 1968, he managed this private international think tank and conference center working in the areas of Atlantic political, economic and cultural affairs.

He received his BS in business administration from Fordham University in 1955 and his MA in American Literature from New York University in 1960. He worked for two years at the Sorbonne on his doctorate. He holds the honorary awards of French Government Scholar and Fulbright Lecturer.

Dramashop to Present One-Act Productions of Inge, Beckett Plays

Two one-act plays by contemporary playwrights-Bus Riley's Back in Town by William Inge and Theatre II by Samuel Beckett-will be produced by MIT Dramashop on Friday, Sept. 30, and Saturday, Oct. 1, at 8pm in Kresge Little Theatre.

The two plays span the full range of contemporary treatrical styles, from the stark middle-American, mid-50s realism of the Inge play to the haunting, stylized theater-poetry of the Beckett play. Mark de Lemos, a senior in mathematics from Palo Alto, Calif., will direct Bus Riley's Back in Town, and David Dreyfuss, a graduate student in aeronautics and astronautics from Akron, Ohio, will direct Theatre II.

Bus Riley's Back in Town was written in the early fifties when Inge's best plays-Come Back, Little Sheba, Picnic and Bus Stop-were being acclaimed on Broadway. The play is set in the Fiesta Bar of a

small hotel in the mid-Texas town where a local man, who has returned after several years' absence, meets his old girlfriend. A study of small-town American life by an important, realist playwright, the play is reminiscent of O'Neill and early Tennessee Williams.

Curtis Fennell, a senior in aeronautics and astronautics from Miami, Fla., plays the title role, and Ellen Sullivan is the former girlfriend.

Beckett's Theatre II, published in 1976 and his newest play, is striking for its lucid conventionality when compared to his other recent work.

The play depicts two characters as they discuss and sum up the life of a third. Theatre II is a new version of Beckett's particular vision of baffled

Coffee and critique will follow the productions. The public is invited to attend free of charge.

Johnson, Rosales Promoted In Industrial Liaison Office

Eric C. Johnson and Arturo A. Rosales, senior industrial liaison officers, have assumed additional tors of the Industrial Liaison Program.

Announcement of the promotions, effective July 1, was made by Dr. Samuel A. Goldblith, director of Industrial Liaison.

"The experience of Mr. Johnson and Mr. Rosales, both of whom have been associated with the program for several years, will bring added strength to its direction as it continues to grow," Dr. Goldblith said.

Mr. Johnson is a 1967 graduate of MIT with the SB degree in metallur-

gy and a master's degree in operations research from Case Western Reserve University. From 1967-70 he was manager of administration and operations research in the casting labora-

Mr. Johnson of Cleveland, and from 1970-72 he

was associate planning engineer at Kennecott Copper Corporation in Salt Lake City, Utah.

industrial liaison officer in 1972. He lives in Stoughton with his wife and three children.

Mr. Rosales received the SB and SM degrees in aeronautics and astro-

nautics in 1969 and 1970 respectively from MIT. Before returning to MIT as industrial liaison officer in 1973, Mr. Rosales was employed by Mc-Donnell Douglas Astronau-



tics Co., St. Mr. Rosales Louis. As an aerodynamicist in the advanced design group he worked on the space shuttle program and several naval missile projects.

Mr. Rosales, his wife and three children live in Natick.



aerodynamic drag. Yamaha is equipping the skiers.

The skiers faced a 50-mile-an-hour wind while standing

in regular boots and bindings on a delicate balance that

measures changes in drag as body position changes. The bindings were bolted to a plywood panel to prevent the skiers from unknowingly shifting their feet from a normal skiing position. To provide instant information to the skier an indicator, not visible in the picture, was mounted a few feet in front of the skier. Flanders and the other skiers-David Currier, John Lingelbach and Ron Biedermann-could then see how slight changes in their positions increased or decreased drag. The tests were contracted for by Yamaha.

tory at Chase Brass and Copper Co., -Photo by Calvin Campbell

CLASSIFIED X3-3270

Ads are limited to one per person per issue and may not be repeated in successive issues. All ads must be accompanied by full name and Institute extension. Only Institute extensions may be listed. Members of the community who have no extensions may submit ads by coming in person to the Tech Talk office, Room 5-111, and presenting Institute In stitute Identification. Ads may be telephoned to Ext. 3-3270 or mailed to Room 5-111. Please submit all ads before noon, Friday, Sept 30. They will be printed on a first come first serve basis as space permits.

For Sale, Etc.

Royce Union Itln 10 sp bike, 27" whls, 22" frm, wrks fine, \$45. Manuel, x3-6631.

Two tekts, Symphony, 10/11; Harv ftbl, 10/15. x3-5561.

Sansui SP 5500X spkrs, 4 way, 15" woofer, 120 w max input, perf cond, \$170/pr. Vince, x5309 Linc. Clymer repair manual for Audi 100LS '70-'76 series, \$6. x3-5788.

Ice skts: F Bauer toddler sz 9, wht, sgl runner, lined, lk nw, nw \$23, ask \$12; F Hyde toddler sz 10, wht sgl runner, lk nw, nw \$33, ask \$17; M BASCO hockey w/tendon grd, sz 8, nvr used, \$15. Tony, x8-3051 Draper

Scintfe clculatr, not prgrmmbl. Jim, x3-6460.

Wshng mchn, vy gd cond, 1½yrs, rarely used, \$130. Kim, Jin, or Joo Hooi, 354-7981, aft 5. Kenwood rcvr, mdl KS-33, ask \$100. x3-6050.

Harmony mandolin, 4 yrs, S holes, \$50. Call 547-

Sgl horse trir, gd cond, nw paint, rgultn sz. x3-

Amb-Olds flute, exc cond, \$80, x3-4280.

Brother elec typwrtr w/stnd, \$85; Formica dinette, 4 chrs, \$65; Trunk mntng ski rack w/lock, \$10. Bruce, x3-5867.

'65 Ply Fury, 129K, gd wrkng cond, just tuned, \$200 or best. Call 648-2569.

Sears refrig 19 cu ft, avcdo, trade for freezer, or \$100. Call 369-2773.

Aladdin kerosne cookr/htr, used little, \$50. Tony,

Adidas soccer/ftbl shoes, sz 8, exc cond, must sell due to injury, \$7. Bob, x3-1589.

Quasar 19" clr tv, 1 yr, w/stnd, all mod featrs, \$300. Bob, 491-8978, aft 7.

M brn lthr spt ct, 38/39 reg, wrn 3x, nw cond, nw, \$125, ask \$65; Bushnell Banner Instafocus Bnn-culr, 7x35, cse, lens caps, eyeglss cups, nw, nvr used, nw \$110, aks \$50; VW bug rf rck, \$15; Fender Palamino accstc guitar, vlvt-lnd hrd cse, exc cond, \$150. Pat, x3-3840.

Gas stove, 4 brnr, 20" wd, nearly perf cond. Call 354-2382, evgs.

Qn sz Simmons Beautyrst bx sprng & steel frm, gd nd, \$35. Call 444-7991

Bikes, 10 sp: nw Mossberg alloy frme, hubs, whls, Sugino crank, Suntow V-T lux derailleur, \$160; Bottechia spcl, Suntour V-T derailleur, nw tires, exc cond, \$110 or best. David, 522-1918.

Akai CS-34D stereo csstt deck W/Dolby, \$150. Susan, x3-6782.

Nikon equpmnt: 55 micro-Nikkor w/PK3 extnsn tube, \$145, mint cond, w/orig box. Lee, x5-9838 Dorm, aft 8

Panasonic Wthr amfm, \$35; Garrard 42M, (nw Pickering Date 4 \$19) \$35; Sanyo auto-stop csstt rcrdr, 5 mo, \$30. Nick, 661-7794, evgs.

Cmra outfit, 35mm, lk nw: Konica T3 w/50mm f1.7 auto Hexanon w/cse, \$170; 35mm f2.8 auto Hexanon, \$75, Pr closeup Inses, \$10; Lens shade, \$5; Sunpak strobe Auto 20, \$25. Call 723-6588.

Dresser, \$15: K cbnt, \$10: Mhgny tbl w/lf, 4 chrs, \$50; K tbl, 4 chrs, \$40; DR cbnt, nds paint, \$15; 10 sp Motobecane M bike, \$75. Call 864-6570, evgs.

Sz 10 rust wool wntr fl lngth coat, rently bght, wrn

few x, less than 1/2 prce, \$35. Jeanne, x3-3951. Sgl mttrss, \$5. x3-1550.

Gd strng bx sprng, cmfrtbl, gd quality. x3-4912.

Dslvng prsnl cllctn of Orientl geomtrcl tribál rugs

s, Iranian, mstly scttr sz, vw by appntmnt. Call 489-2298. Pace CB, Mdl 166, 23 chnl, br nw, cost \$210, scrfce

\$55. x8-4459 Draper.

Chst of 5 drwrs, 13x14 1/2x32, \$15. x3-2674. Sml cheap desk, \$5. David, Mike, Tom,

Thorens trntbl, Mdl 125, AB Mark II w/dst cvr, Shure V 15/type 3 crtrdg w/xtra stylus, ownd 1 yr, mint cond, \$450 nw, ask \$250. Barbara, x3-5673. Ltd edition 1939 12 1012" blu & wht Wedgwd din-

ner plts, each displays diff MIT bldg, nego. Ginger, x8-1135 Draper.

Dorm flr ensdrng selling 1 or 2 pinbl mehns, both in use, w/financial & maintnee rerds, \$500/pr nego Brad, 494-8652.

Door, Mhgny, 6'6"x30", grt dsk top, \$10; Prestone antifreeze, \$4/gal; Radial tire, 150 on whl, gd cond, \$20; Nrthfce wkend bckpck, \$20. Call 492-5725.

Dynaco PAT-4 Preamp, \$75; Pts for Unvrsl Tiger

amp, \$75. x5-9303, lt evgs. Solid cherry bureau, \$50; Antique cst irn stve, \$150; K tbl & chrs, \$20; Lg wool Amer Orntl rug, \$40; 10x10 blu floral rug, \$20. Call 492-7343.

Viscount 10 sp bike, 3 mo; 2 mtrcycl hlmts. Al, 846-

Wdn arm chrs, yllw, nw, uphlstrd, \$30. Amparo,

Sailbt, Ranger 29, \$16,500. Al, x5873 Linc.

Hrdryr, Contntl Pro Styl, 900 w, 4 settings, \$15; Rossignol Strato 105 Equipe skis, 185 cm, Spandemn plate bindings, still undr wrnty, \$200 nego. Linda, x3-7023.

Mst sell: 3 T sqrs, drftsmn drwng instrmnt kit & brd; Hsehld items: pots, pans, dshs, glaswre; Sml applines: tstr, tstr ovn, wffi irn, prcltr, 3 clck radios, 3 dsk lmps, uprgt vacuum, clocks, 4 m elec shvrs. Call 782-2373.

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Jack Kramer tennis raquet, 4 5/8 grip, gd cond, \$10; Head VIP skis, 185 cm, gd cond, \$10. David, x3-6050.

Upright piano, \$235. x3-6069, 2-4pm.

Elec oven, \$25, x5-8130 Dorm.

Grn 9x12 rug, \$15. x3-3075.

Accordion, fl sz, mint cond, \$400 or best. Ralph, x5525 Linc.

Canon FDBN, blk bdy, 50mm, f1.4 lens, nw, sldm-ly used, \$250; Canon case, \$10; Lens hd, \$5. x3-4217.

Smth Crna manl prtbl typwrtr; Blu twn elec blnkt; Vaprzr; M 21" 3 sp bike, gd cond. Art, x3-6631.

Gd upright piano, mst sell immed, \$150. x3-4061. Cmputr tps, exc cond, 11 2400' reels, \$85. Dick, x3-

M 26" Columbia 3 sp bike, vy gd cond, bskts, lgt, xtra tubes, blu, \$50. x3-2345.

F 26" bike, \$40. Call 661-8408, aft 5.

Rims, 2, 13", for Pinto or simlr car. Mark, x3-6030. Loft bed w/attchd dsk & couch, mttrss incl, \$125 or best, incl dlvry; TEAC tape dck, mdl 2300S. \$250: Advent Dolby systm, \$100. x492 Line

Sears f bike, approx 5 yrs, wrkd wl until whls stln, as is, best. Call 876-0295, evgs.

Surveyor 23 chnl CB, Mdl 2300, \$50. Len, x3-4215. (2) Cribs w/mttrss & bmpr; 2 infnt car sts; Feeding tbl; Lrg fldbl wdn playpn; 9'x6' beaut orng w/brn Rya Rug, \$50. Call 924-4667.

Old hvy ironing brd, \$7.50; Mtl dryng rck, \$5; Polaroid Super Colorpack, \$15; Daylt dsk lmp, \$20. x3,4875.

Remington supr wrtr used typwrtr, gd cond, \$30. x5881 Linc.

Leathr pants, sz 9, navy blu, exc cond, \$150nw, ask \$50; Mtchstk shade, 42", nvr used, nw \$10, ask \$6; Yel rain bts, sz 7½, wrn 2x, nw \$35, ask \$10; Markel space htr, long, 3 temp, nw \$85, ask \$45. Carol, x3-1491.

Magnavox stereo, gd cond, \$25. x5-6225 Dorm

Burroughs Friden kybrd/prntr mdl 9350-2, w/cntrl unit & crd reader, RS-232-B, 150 Baud, wrkng cond, nds minor mech adjstmnts, w/dcumntatn, \$250. Paul, 862-5904, aft 6.

Alum rf cargo rck, fts any car, adjstbl straps & sctn cups hold it in place, \$5. Sharon, x3-2675.

Old refrig, \$35; Old rice cooker, \$5; Elec coffee pot, \$5; Rug. \$5; Cutting brds, mixing bowls, pots, pans, dishes, baking utnsls, misc K utnsls, hsehld itms, evrythng goes. Jeannie, x3-7579.

Stl bltd tires w/br nw Sears tire chn, 1K, 2/\$40. Kazumasa Moriya, x3-3679.

TI SR 52 prgrmmbl cleultr w EE prgrm lbry, \$150. x5-7203 Dorm.

Motobecane 22" m bike, 3 mo, Cotterless crnks x5-6537 Dorm.

Girl Scout uniform, sz 7, jmpr & blse, perm press, \$10; Boys blk figure skts, Hyde, sz 11, lk nw, \$15, Call 358-4013.

Diacro sht mtl, shear, 12", \$50, x3-5565.

Tl52 prgrmmbl clcultr w/xtra mgntc cards, \$165. x8-1133 Draper.

Tire, Shell 175-13 radial, 2K, perf cond, \$25 or best. Call 661-3870, kp tryng. Bunk beds, \$25, sld sep for \$15/ea; 1 lb bags shred-

ded polyurethane foam, 25¢/ea. Jim D, x3-7220. F X-cntry boots, sz 7½N, \$18; Fabiaon M Hyde hockey skts, sz 8, \$15; F figure skts, sz 8, \$5; F Reidell figure skts, sz 7½N, \$20. Call 862-1935.

Nw Gdyr cstm pwr cshn polygls tire, F78-14, \$15; 9 used tripl trk strm wndws, \$40. John, x5832 Linc.

Nw grn rug, 12x14, \$60; wht crib, \$30; wlkr, \$6; Humdfier, \$6; Bk shlvs, \$5; mtl bk shlv, \$10; Rug $84\times 114_2$, \$8; Tbl, 4 chrs, \$35; Sofabed, brwn, \$10; Tea wgn, yllw, \$15. Call 494-8448.

Br nw Pappagallo shoes, wht lthr, sz 9M, orig \$32, now \$5. x8-2577 Draper.

Share in '67 IFR Cessna 182, beaut cond, based at Hanscom Fld, \$2,650. David, x3-6022.

Gold Maytag wshr & Sears dryer, exc cond, \$300/both Howard, x8-3411 Draper.

Strategic games, br nw, nvr used; France 1940, \$5; Risk, \$8. Victor, x3-3960.

Lovest, mtchng chr, lk nw dsgnr slipcvrs, warm yllw/grn chintz, \$175. Call 723-3297, aft 6.

Long modular phone line cords, \$2, all styles & colors of phones. Alan, x3-7512.

Potbelly stv, brns wd or coal, 28" hi, fts anywhr, lk

nw, \$80 or best. Buck, x3-3185. Admiral 25" clr console, nds wrk, \$50. x3-7235.

Spinet piano, wlnt Starr, gd cond, \$395. Jake, x8-

Hsptl bed, no mttrss, x8-4486 Draper.

Pioneer stereo trntpl, PL12D, incl crtrdg, \$49; Wdn swivel armchr, imtn mhgny. x3-234

Sz 7 2 Addidas soccer shoes, \$5, gd cond. x3-1670. Frpl screen & tools, \$15; 2 K chrs, \$5; TV, \$20. x3-

Old Ivers & Pond of Bos uprght piano, beaut wd, deep bass, rich tone, \$495 or best. x8-1595 Draper. Snows, E78-14, on Ford rims, \$35; W/out rims, \$30;

650-13 snows, \$25. Ray, x7573 Linc Snows, radial studded, 165-15, 1 mtd on Volvo rim. x3-7708.

Wint DR chrs, 4, 2 arm, 2 side, uphlstrd sts, \$45

Wdn crtns, \$30; Dbl bed, Luxe Simmons, bx sprng, mttrss, \$130; Sgl bed, Luxe Simmons, bx sprng mttrss, \$100, 7 mo. Call 494-9258, evgs.

For Sale: Selmer Bundy tenor & soprano; Wanted: Fender Stratocstr & Ampeg B15, x7500 Linc.

Vehicles

'63 VW, 70K, eng & tires gd, bdy, cltch, brk poor, no stickr, \$75 or best. Subodh, x3-6662.

'64 Ford, 66K, \$250. Charles, x3-4724.

'65 Chrysler 300, creampuff, exc mech & bdy cond, pwr st, brks, wndws, nw tires, 6 rims, \$550. George, x3-6483.

'67 Porsche 912 coupe, sm reprbl rust, othrwse exc cond, \$2,000 or best. Lou, x8-3535 Draper.

'67 Saab, nw clutch, mchncly exc, some rust, \$425 or best. x3-5033.

'69 Buick Skylrk hi K, gd cond, nw bttry, \$200 or best. Hung-Chih Wang, x3-3679.

'69 Renault R10, 31K, 4 dr. nw dsk brks, amfm, 30mpg, \$800. Linda, x3-5718, aftns. '69 Scotty trvl trlr, slps 6, stve, snk, gas htr, icebx.

Call 322-8533 '69 Toyota wgn, ptly reblt eng, some bdy rst, gd tires & snows, \$500 or best. Call 492-2643.

'70 Ford Ltd wgn, pwr st & brks, auto, 351 eng, \$500. x8-3022 Draper.

'70 Gremlin, nw tires, snows, exh syst, shocks, gd bdy & eng, \$700. Call 494-8348, evgs.

'71 Capri 2000, 4 sp, amfm stereo, nw brks, clutch, 69K, gd bdy & running cond, mst sell, ask \$975, x3-4894.

'71 Ford Torino 500, V8, auto, pwr st, ac, grn w/grn vinyl rf, hi K, exc running cond, gd trnsprtn. x3-

'71 Pinto, 57K, 2 dr, 4 sp, radio, nw radials, bttry, exc cond. \$900, x3-4234

'71 Renault 10, 40K, no rust, exc cond, \$1,000 or best. Call 666-5757.

'71 VW fstbk, 61K, radio, esc cond, 2 nw snows

'71 VW fstbck, 61K, radio, exc cond, 2 nw snows,

\$1,195. Call 646-9064, evgs '72 Buick Century, amfm stereo radio, strng ac, pwr st, brks, wndw, chr. 56K, nw mfflr, vinyl rf, exc cond, \$1,600. Call 776-6823, early morn, late

'72 Chevy Subrbn, 65K, fm, 8 trk stereo, exc cond. ask \$800. Pat, x3-4113.

'72 Corvette 2T-1, red, mint cond, 4 sp, nw tires 30K, custm rear, \$5,000 or best. x3-5164

'72 Dodge Sprtmans Van, auto, pwr st & brks, ac, fine bdy, crptd, lw K, \$2,600. Mitchell, x467 Linc. '72 Fiat cnvrtbl, mint cond, stereo csstte, \$1,395. Call 598-1761.

'72 Ply Valiant, 4 dr, lgt blu, low K, gd running cond, \$1,700 or best. Call 325-9236.

72 Volvo 142E, blu, 4 sp, ac, 82K, snows, no rust Larry, x5-9123 Dorm.

'73 Ply Custom Srbn 9 pssngr wgn, all pwr, ac, rl rack, radials, orig owner, exc cond, 59K, \$1,950. x3-6739. '73 Volvo 164EA, 6 cyl, auto, ac, amfm, 8 trk, leather, studded rådial snows, maroon, no rust, \$3,650 or best. x3-5775.

'74 Chevy Vega, 2 dr, orng, nw radials, pwr st, 4 sp trans, 32.5K, exc cond, \$1,650. Call 548-2880, aft 5.

'74 Ford Pinto wgn, mst sell, exc cond, 42K, orng w/beige int, 4 sp, \$1,750. Mark, x3-3242. '74 Saab 20-L.E., 21K, exc cond, orig ownr. Call

'75 Ford Grand Torino Elite, red w/blk vinyl rf, pwr st & brks, ac, exc cond, 33K, \$3,600, x7168 Linc '76 Pontiac Astr, 4 cyl, auto, 17K, exc cond, stl bltd radials. Janice, x3-2757.

Housing

Arl, nr T, sub 10/1-7/1/78, 3rd flr furn 4 rms, BR, \$290 incl util, gar. Cathy, x3-7420.

Blmnt, room for rnt, nc nghrbrhd, shrt wlk to T, K priv, \$25/wk. Call 484-8478.

Brk, 8 rm apt, avail 11/1, 3BR, 1^{1} 2B, htd, ht wtr, bk prchs, pkg, elec K, 3 apt hse. x3-2527. Cncrd, Whte's Pond, 2 f, 25-35, nded to shr nwly prehsd 12-yr gambrel, sunny, spes, 5BR, Ig K, frpl, hrdwd ffrs, ½ acre, avail 10/1, \$180, no smkrs or pets. Call 259-0040, evgs.

Malden, 3 or 4BR hse, \$385 + sec dep, avail 10/15. Call 321-1392

Scituate, 2nd cliff ovrlkng ocn, 45 min to Boston, ideal for 1-2 stu, \$250. Call 489-1518. Bos, Cngrss St, cmmrcl space for rnt, 2500 sq ft, 4th flr w/pssngr & frght elvtrs, skylts, gd bldg & loc, \$320 incl ht. Janie, x3-3355.

Animals

Free kttns, 2m, 2f, slvr gray, all blk, drk tiger, b&w, bx trnd, 6 wks. x3-2741.

For sale: Mastiff pups, AKC, 5 wks, wormed & shots, m & f, fawn & brndle, mthr on premises. Peg, 924-4874, aft 4.

Cat for boarding: wl supply loveabl cat, fd, etc, if you wl house him. Wendy, x3-3120.

Lost and Found

Lost, shidr bag w/prsnnlly val stuff, money & cmra least imprnt, nd note bks & film, etc, no ques asked, reward. x5-6641 Dorm, evgs excpt Tues.

Wanted

Sml refrig. Charlie, x3-2704. Refrig. Brad, x5-9838 Dorm, aft 8.

Used microfiche rdr, prtbl or statnry. x3-3407.

Mature m stu sks rm in apt, or prsn to look for apt, approx \$160. Call 547-3847.

Used typwrtr, x3-1392. Prfssr's fmly wnts to rnt gd sz cntry hse in New Eng nr skiing, 12/15-1/15, prhps lngr. x3-6674.

VW Karman Ghia, 67, 68 or 69, w/poor or blwn eng. x8-2471 Draper. WI buy copy of '76 Technique. Les, x3-2514.

Babystr, some days, some evgs. Call 547-3415. M 10 sp 19" bike, x3-1577.

'76 Tolkien clndr by Hildebrandt, to buy or xerox. Gar for wntr storage of car, in grtr Bos or Camb area. Fred, x3-1720.

Canoe, gd used cond, wl pay up to \$100. Bob, x3-Managerial Acentral Prnepls, Anthony/Reese; Econ of Phle Finance, Blindel; Who Bears the Tax Brdn; Tin Kazoo; Running for Pres; Why Not the Best; File cbnt. Call 494-8888.

Roommates

Camb, share apt w/2 MIT stu b/w Cntrl & Harv Sq. nice resdntl st off Mass Ave, \$100. Call 547-Camb, sub 10/1-1/7/77, BR in 2BR furn apt, 270 Harv St. Call 492-9193.

Camb, rm in 8BR apt nr Cntrl Sq, 10 min wlk to MIT, \$90. Rajan, x3-3920.

Camb, 2 f wntd to compl coop hsehld nr Cntrl Sq, 15 min wlk to MIT. Call 547-5539. Camb, 3f sk 4th for 4BR hse, \$125 incl ht. Jane, x3-7121, M, W, Th.

Camb, mature prsn to shr 2BR hse, minutes to campus, no pets, wtr beds, ref & sec dep req, pkg, lndry, \$157.50. Call 868-9835.

Som, f for spac apt, \$75. x3-5835.

Parking

Note to parking sticker swappers: please remember to inform your supervisor and the Campus Patrol of the exchange you have made so that their records accurately reflect your new parking area.

WI swap W gar for Albany, x3-7062

WI swap W gar for E or Albany. x3-4153.

WI swap W gar for E or Albany. x3-7371.

Wl swap Tang for W gar. Norma, x3-5961. WI swp W gar for E or Albany. x3-2394.

WI swap W gar for E or Albany. x3-7173. WI swap Windsor for E or Albany, x3-7287

Carpools

Beverly area to Draper area, 1 more membr to compl crpl. x8-3584. Draper.

Brkin, Rawson Rd, Tappn St Str Mkt area, wl join or form crpl. Andy Levine, x8-3583 Draper.

Frm Medfield area, wl shrtly buy car to share driv-

MIT-Newtn (Comm Ave at Chstnt). Mike

Miscellaneous

WI do babysting in my hise or yrs, if nr MIT or Cntrl Sq. Saro, 492-4650, aft 6.

WI type thesis, manu, tech, fast & accur, IBM Cor-Selec. x3-1848.

Air Time: what wld you like filmd in yr evrdy life, wrk, play, anythng. Cable Film Proj, x3-2870, M-F 4-6.

Typing: papers, theses, reprts, gen or tech, IBM Correcting Selec, price incl prfrdng, 3 type styls. Ginny, x3-3929.

WI type theses, manu, etc. Cathy, x3-7303.

Typing, thesis, manu, long papers, IBM Selec. MJ, x3-3112. Heating, air cond, vntltn, instlltn wrk to be done. Arthur DuBois, 891-7499, aft 4:30.

Thesis and manu typing, effic & accur, IBM Correctng Selec. x3-7106.

Surplus Property

Can be seen by contctng W. Derry, x3-2777: Send sealed bids to rm E19-717, opened Tues, 10/4, 12:10pm: '71 Interntnl Hrvstr Wgn, blu, 8 pssngr,

MIT surplus property for transfer or sale for

Ltd & Strg Indetr 20.458; Rgultd Pwr Supply 10.067; Heath Servo-rerdr, Mdl EU-20B, & serial #9773967, & Mdl EUW-20A, serial #72551165; AD-YU Elctrncs abs Step; Variable Delay Std Type 20Al; EICO Mdl 710 Grid Dip Mtr serial #23; Blu M Magni Whirl Vsblty Bth serial VB 381; Mdl MW1167, Mfg 1958;

Honywl Temp Cont & Indctr, serial GOOg8599003; Brn Pur-O-Vane; Honywl Temp Cont & Indctr, serial 878661; Brn Pur-O-Vane;

Hewlett Prckrd Vcuum Turbo-Vltmtr; VEECO Vcuum Gauge Mdl GV-3V; Step Varbl Delay Std Pipe 20Al, serial 3931; Arulab Preamp, serial PA-Hewlett Pckrd 53 Sanbrn Co, serial 378; Bethey Cnvatr; Mdl V35RB Dgtl Vltmtr, serial V35RBw6; Non-Linear Syst Inc; Rgultd Pwr Spp-ly, serial 0-481M. W. Derry, x3-2777.

POSITIONS AVAILABLE

This list includes all non-academic jobs currently available on the MIT campus. Duplicate lists are posted on the Women's Kiosk in Building 7, outside the offices of the Special Assistant for Women and Work (10-215) and Minority Affairs (10-211), and in the Personnel Office, (E19-239).

onnel Interviewers will refer any qualified at plications on all biweekly jobs as soon as possible after their receipt in Personnel.

Persons who are NOT MIT employees should call

Information on openings at Lincoln Laboratory (Lexington, Ma.) is available in the Personnel Office. Employees at the Institute should continue to con-

tact their Personnel Officers to apply for positions for which they feel they qualify.

(Secretary - Ann Perkins) Virginia Bishop Mike Parr 3-1591 Ken Hewitt (Secretary - Paulette Chiles)

Carolyn Scheen

3-4275 Lewis Redding Richard Cerrato (Secretary - Jenni Leibman)

Academic Staff, Social Worker, in the Medical

Academic Staff, Social Worker, in the Medical Department to assist employees in resolving problems that interfere with job performance; conduct educational programs for supervisors and employees; collaborate with other Institute employees who provide employee services; refer employees as necessary to treatment facilities outside the Institute. An MSW and at least 3 years experience required. In addition to casework skills and clinical training, applicants should be experienced in planning programs in a complex institution and specifically in alcohol and drug abuse. C77-36 (9/21).

Admin. Staff. Staff Writer, for Proposals and Publications in Resource Development to work with three other writers in preparing proposals, publications and correspondence in support of the MIT Leadership Campaign. Demonstrated writing, editing and research skills are necessary as well as a high degree of initiative and ability to work independently and well under severe time constraints. A Bachelor's degree and prior professional writing experience, preferably in a related setting are also required. Knowledge of MIT and of graphic design/production are helpful. A77-67 (9/28). Sponsored Research Staff, temporary, in Meteorology to perform diagnostic analysis and in-terpretation of the dynamics of the ozone of the MIT Stratospheric General Circulation model

Will also oversee computer coding and operation of Will also oversee computer coding and operation of data library associated with the model, as well as analysis of input data. A Master's degree in Meteorology (upper atmosphere chemistry/dynamics) required. Knowledge of numerical input methods desirable. R77-175 (9/28). Sponsored Research Staff, Staff Scientist, in the Neurosciences Research Program to participate in planning work sessions and conferences on subject related to all aspects of neuroscience. Competence may be in molecular and cellular neurobiology.

may be in molecular and cellular neurolology, neurology, neurophysiology, neuroanatomy or other aspects of brain science. Applicants should have sufficient research experience to be capable of critical evaluation of scientific literature and of creative conceptualization. Appointment requires willingness to spend full time on theoretical rather than experimental work. R77-177 (9/28). Sponsored Research Staff, Nuclear Engineer Fusion Reactor Design in the National Magnet Lab to participate in high field tokamak fusion reactor designs: study reactor maintenance: mechanical

ing. Physics or Electrical Engineering required. Plasma physics background also necessary. Ex-perience in tokamak design and neutral beam heating of tokamaks desirable. R77-176 (9/28). Sponsored Research Staff in the Center for Cancel Research to be responsible for purification and characterization of enzymes and viral proteins prepare antibodies to proteins and characterize reactivity; prepare and maintain non-infected cel cultures and those infected with leukemia and sar coma viruses; assay viruses by both biological and biochemical methods. Bachelor's degree in biological

or biochemistry plus 2-4 years experience in biochemical animal virology research required

R77-171 (9/21).

designs, study reactor and magnet systems; use of cold plasma blanket for impurity control; possible use of divertors; cooling of reactor first wall neutral beam heating. Ph.D. in Nuclear Engineer

R77-171 (9/21).

Sponsored Research Staff, Combustion Engineer in the Energy Lab to carry out research involving turbulent combustion: investigating practical combusion systems using modern prediction procedures and combustion diagnostic techniques including laser doppler anemometry, temperature, species concentration mapping and noise emission measurements. Ph.D. in Chemical or Mechanical Engineering and 3-5 years post doctoral experience, including some in industry, and familiarity with applying laser diagnostics, noise and pollutant emission measurements from flames required. Experience in use of mini-computer including data handling and analysis also necessary. R77-170 (9/21).

R77-170 (9/21). Exempt, Scientific Programmer in the Center for Space Research to help reduce solar wind data from spacecraft. Knowledge of Fortran required and familiarity with either 36 OS or graphics helpful. Bachelor's degree in physical science desirable but not essential. E77-45 (9/28).

Exempt, Administrative Assistant in the Nuclean Reactor Lab to assist in fiscal planning, budget preparation, monitoring fiscal status of projects; maintaining vacation, payroll and travel expense records; verifying accounting statements; participating in yearly inventory; performing secretarial duties as required. Excellent administrative and secretarial skills and knowledge of fiscal planning, accounting and budgeting required. Ability to organize a variety of tasks also necessary. E77-44 (9/21).

Admin. Asst. V in Meteorology for a joint US USSR oceanography research project to assist in preparing budget proposals; monitoring monthly accounts, purchase orders, invoices; handling travel and conference arrangements; in coordinating various activities of 20 institutions in the US and abroad. Secretarial and administrative experience propers or activities and demander of the control of the perience, proven organizational capabilities and ability to establish priorities and delegate responsibility required. MIT experience helpful. B77-520

Admin. Asst. V in the Sloan School of Management to the Management Science Group to monitor funds; authorize travel, computer expenses; prepare budgets; coordinate student teaching; handle seminar arrangements; handle general secretarial duties for 2 faculty members. Excellent secretarial and administrative ability, as well as the ability to work under pressure required. Several years of progressively responsible secretarial experience desirable. B77-509 (9/21). Admin, Asst. V in the Urban Studies and Planning Community Fellows Program to handle all ad ministrative aspects of the Program: provide infor-mation on Program content, admission procedures etc. to prospective students and others; act as

dayson with other institute departments; pian and arrange travel for Program staff and guests; develop and monitor budgets; assist in all aspects of orientation of new Program participants. General clerical skills, including typing as well as experience in managing projects, particularly their financial aspects, required. Written and spoken communications skills also necessary. B77-510 (9/21) Technical Asst. IV in the Research Laboratory Electronics will operate a microwave radiometer at Faulkner Hospital breast cancer clinic. Experience with diagnostic equipment and familiarity with hospital environment required. B77-530 (9/28).

liaison with other Institute departments; plan and

Sr. Secretary V in the Office of the Director of Recruitment and Placement in the Sloan School to assist in organization and maintenance of recruitment efforts; type correspondence; maintain student resume files; interact with business, university and government, servesentatives A. college. dent resume files; interact with business, univer-sity and government representatives. A college degree or equivalent combination of education and experience, previous office experience, excellent typing and machine transcription skill, as well as ability to organize and act independently required. 40 hr./wk. B77-541 (9/28),

Secretary V to the Director of the Nuclear Reacto Laboratory and the Director of the succear reactions. Will handle a variety of duties including: meeting arrangements, appointments, travel arrangement typing of correspondence and reports and other secretarial activities. Applicant should be able to organize work priorities, sometimes work under pressure, have maturity, tact and judgement and provide training and supervision for junior secretarial staff. Excellent general secretarial skills d several years experience are required. B77-431

Secretary V in the Harvard MIT Division of Health Sciences and Technology to the Associate Director for Medical Engineering and Medical Physics to type reports, correspondence; prepare material related to faculty appointment process and main tain related records; act as secretary to admission committee; provide admissions information prospective students in person as well as through correspondence and telephone contact; coordinate Excellent general secretarial skills including shorthand/speedwriting ability required. MIT experience preferred, B77-555 (9/28).

Secretary V to Director of Corporate Relations. Resource Development will be involved in the organization of a new Institute office which will be responsible for solicitation of funds from corpora-

This Week in Sports

Women Sailors Fare Well

By JILL A. GILPATRIC

Director of Sports Information The MIT women's sailing team opened their fall season on Saturday and Sunday, September 17 & 18, by hosting the NEWISA Singlehanded Championships. Fifty-one women came from New England colleges to compete in the two-day event and of the 16 women who qualified for the finals on Sunday, five were members of the Tech team

Top honors were taken by a Boston University woman with a low score of 21 points. MIT's senior Sally Heusted (Camarillo, Cal.) followed close behind her with 23 points for a second place finish. Senior Diana Healy (Enfield, Ct.) and junior Barbara Biber (Needham, Mass.) captured fourth and fifth places respectively. Junior Audrey Greenhill (Roslyn, N.Y.) took eighth and MIT's team captain Debra Meyerson (Pacific Palisades, Cal.) finished up in twelfth place.

This Saturday, the women will

compete in the President's Trophy at BU, the Brown Invitational, and the Learning Regatta at MIT. On Sunday they will participate in the Captain's Cup hosted by Tufts.

The Tech soccer team won their first match of the season, a scrimage against Bentley on September 17, with a score of 1-0. The following week the team travelled to Clark and brought home a 3-2 win. Junior forward Zanda Ilori (Kwara State, Nigeria) assisted by sophomore forward Suk Chang (Seoul, Korea) scored MIT's first goal to tie the game up 1-1. Then iunior halfback and team tri-captain Mike Raphael (Ottsville, Pa.) put MIT in the lead on an assist by senior forward Rich Okine (Kumasi, Ghana). The gamewinning goal was put in by junior halfback Luis Boza (Lima, Peru) assisted by junior fullback Bob Sullivan (E. Longmeadow, Mass.).

This past weekend, MIT suffered a heartbreaking 1-0 loss at the

Proposals for Special Summer Programs for 1978 are being accepted at the Office of The Sum-

mer Session, Rm E19-356, from now until the deadline on Friday, Nov. 4.

The one- and two-week Special Summer Programs, in operation from June 12-Aug 25, provide an opportunity for professional men and women, from outside the Institute, to keep pace with new developments in their fields. There is no set format and faculty members are encouraged to discuss pro-

hands of undefeated Babson, the 1975 NCAA Division III Champs. Although Babson came on very strong from the outset, Tech played a good defensive game, keeping their aggressive opponent at bay until seven minutes into the second half, when the only goal of the game came on an indirect kick from the twelve yard line. Junior Jamie Bernard (Trumbull, Ct.) took care of goaltending duties, making twelve saves while only allowing one goal.

This Saturday, the Engineers meet Trinity at MIT at 2:00pm.

Summer Session Seeks Proposals for 1978 spects for programs in new areas or to revitalize some of the less

> years. In scheduling the programs, the Summer Session Office attempts to take into consideration the convenience of the faculty, to maximize the use of air-conditioned class-

rooms, and to avoid undue strain

successful programs of recent

D.J. Sullivan, Jr.

Daniel J. Sullivan, Jr., of Watertown, supervisor in the graphic arts department at the Charles Stark Draper Laboratory, Inc., died following an accident on Friday, Sept. 17. He was 46.

Mr. Sullivan came to MIT in 1948 and transferred to the Draper Laboratory (then the Instrumentation Laboratory) in 1954. He was an Air Force veteran of the Korean con-

Survivors include his widow, Grace Casey Sullivan; seven children, Daniel, John, Robert, David, Thomas, Philip and Miriam Sullivan, all at home; his parents Daniel J. and Mary Sullivan of Belmont, and six brothers and sisters.

on the dormitory facilities. Priority for large air-conditioned classrooms must be given to those programs which are expected to at-

tract a large registration. For an informal discussion of plans or thoughts for a program in 1978, contact Maria Murphy,

James Ryner

x3-2101.

Word has been received of the death of James Ryner, 88, in Brooklyn, N.Y., on August 28.

Mr. Ryner was a porter in the residence system from 1938 until his retirement in 1954.

He is survived by a daughter, Joan Byrd of Brooklyn, several grandchildren, and a brother, John Ryner of Dorchester.

Edward J. Carrell

Edward J. Carrell, 69, of Islington, a retired employee at Lincoln Laboratory, died Sunday, Sept. 25.

Mr. Carrell was a designer at Lincoln from 1954 until his retirement in 1974.

He is survived by a daughter, Susan Milla, and a son, Richard

Carrell.

tions. Responsibility will include coordination of activities with related offices; arranging meetings and luncheons; typing correspondence and reports; contacting senior officers of corporations and the Institute and with senior alumni; reviewing cor-porate literature for information relevant to elicitation, activity, monitoring, hudget. Appliporate interactic for information relevant to solicitation activity; monitoring budget. Appli-cants must have excellent general secretarial skills, the ability to work independently, and to work ef-fectively with senior officers required. Position re-quires research overtime. Shorthand skill is prefer-red. B77-505 (9/21).

Secretary V to the Associate Dean of the School Sr. Secretary V to the Associate Dean of the School of Humanities and Social Science and one other faculty member to coordinate meetings and appointments; type correspondence; provide information on School programs to students and others. Excellent secretarial and organizational skills, ability to exercise good judgment and to work independently in a busy atmosphere required. B77-511 (9/21).

Secretary IV/V in Harvard-MIT Division of Health Science & Technology will be responsible for administrative and secretarial duties: maintain research library, compile HST Research Directory, prepare and compile research proposals; maintain student records; type technical and general material; proofread and edit; develop graphs and deats. charts; arrange travel; prepare seminar poster. Position requires excellent organization skills as well as accurate typing and flexibility to perform duties at 'various levels of responsibility. Good command of English, college degree preferred. B77-552 (9/28).

Secretary IV in the Technology Adaptation Program to perform general secretarial duties to support overseas-based research projects: arrange foreign travel; assist in making arrangements for foreign visitors to U. S.; maintain supplies; operate telex machine; type reports and other material. Excellent typing and organization skills as well as 2 years secretarial experience, preferably at MIT required. Experience with foreign based projects helpful. B77-549 (9/28).

Secretary IV in the Chairman's Office to perform a wide variety of clerical and administrative duties under the direction of a senior secretary. Responsibilities include scheduling meetings, organizing and maintaining files related to external com-munity relations and associated committee ac-tivities. Excellent general secretarial skills in-cluding the ability to relate effectively to Institute personnel and community representatives re-quired. Applicants must also have exceptional organization skill. B77-548 (9/28).

Secretary IV, part-time, in the Biology Dept. to type correspondence and manuscripts; handle ac-counts and orders for research projects; answer phones. Experience with dictating equipment helpful Excellent typing skills required. Minimum of 2-3 years secretarial experience preferred. B77-501, 6020

Secretary IV to academic and research staff members in the Center for Policy Alternatives in members in the Center for Policy Alternatives involved in projects relating to environmental/occupational health, law and policy, and on teaching in technology and law. Will handle general secretarial duties including typing; organizing proposals; monitoring accounts; arranging travel; preparing course materials. Will be trained to use word processor. Excellent typing, shorthand or speedwriting (or willingness to learn) and organizational skills required as well as ability to set priorities and work independently. Interest in subject matter preferred. 37.5 hrs./wk. Occasional overtime may be necessary. B77-523 (9/28). overtime may be necessary. B77-523 (9/28).

Secretary IV, part-time, to a faculty member in the enter for International Study to type monographs and manuscripts; make travel arrangements; perform other general secretarial duties as nece Excellent typing skill required. 20 hrs./wk. B77-532

Secretary IV to two Institute Professors in the Department of Economics to take and transcribe dictation (correspondence, reports, occasional speeches) with mathematics/technical content; answer phones; maintain files. Will also handle secretarial duties related to the activities of the American Economic Assn., of which one supervisor is president-elect. Good general secretarial skills including shorthand or speedwriting, as well as command of English grammar required. B77-544

Secretary IV to Medical Dept. Personnel Officer and Health Planner. Duties will include preparation of reports, memos related to personnel and general administration of department and to personnel and to the personnel and the pe general health services; answering phones; compil ing statistical data; preparing payroll reports and maintaining related records. Excellent typing, as well as an aptitude for working with figures required and the ability to work with confidential information with discretion. B77-539 (9/28).

Secretary IV in Nuclear Engineering to one faculty member and two academic staff members. Duties include typing technical reports, proposals, classnotes, manuscripts and correspondence from shotes, manuscripts and correspondence from handwritten drafts and dictaphone; file; answer phones; arrange travel. Good typing skills, knowledge of general office procedures and organizational ability required. Technical typing desired. B77-538 (9/28).

Secretary IV in the Material Science and Engineer ing Dept. to a senior faculty member. Duties will include typing technical reports, manuscripts, correspondence, statistical tables and charts from handwritten text and dictaphone; compile research information; file; schedule travel; monitor accounts. Excellent typing required. Familarity with MIT procedure preferred. B77-536 (9/28).

Secretary IV in the Center for Policy Alternatives

to type correspondence, proposals and reports from hand written draft and machine dictation; arrange travel, appointments, meetings; answer routine travel, appointments, meetings; answer roucorrespondence and inquiries independently. be trained to use word processing equipment. Excellent typing and organizational skills and ability to work under pressure required. College background and knowledge of French or Hebrew desirable, B77-524 (9/28).

Secretary III/IV to three faculty members in Sloan School Organizational Studies group: compose and type correspondence; maintain files; transcribe machine dictation; handle conference arrangements; type manuscripts and research reports; handle some library research duties. Secretarial experience as well as some college training required. Applicants must be able to work inquired. Applicants must be dependently. B77-529 (9/28).

Secretary III/IV in the Chemical Engineering Dept. to assist 4 faculty members and research staff in their academic and research responsibilities. Duties will include typing classroom material, proposals and reports; arranging meetings and travel; maintaining records. Excellent technical typing skill, organizational and dictating equipment skill required. B77-537 (9/28).

Secretary III/IV to 3 faculty members in the Laboratory for Computer Science to type cor-respondence and manuscripts; file; make travel ar-rangements; answer phones; maintain appoint-ment calendar. General secretarial skills required. Will be trained to use computer text editing equipment for document preparation. College training and MIT experience desirable. Non-smoking of-

Secretary III/IV in the Material Science and Secretary IIIIIV in the Material Science and research group. Duties will include typing technical reports, manuscripts, correspondence, statistical tables and charts from hand written text and dictaphone; compile research information; file; schedule travel; monitor accounts. Excellent typing required. Familiarity with MIT procedure desirable, as well as ability to work irregular desirable as well as ability to work irregular schedule. B77-535 (9/28).

Secretary: III/IV to 2 faculty members of the Electrical Engineering and Computer Science Dept. to type course materials, reports and proposals; arrange travel and meetings; handle general secretarial duties as necessary. Technical typing skill and ability to work with minimal supervision required. B77-554 (9/28).

Secretary III/IV to several faculty members in the Dept. of Architecture to type correspondence, research reports; answer phones; maintain petty cash fund; perform other general secretarial skills as necessary. Excellent typing skill, ability to set priorities among several projects required. B77-546

Secretary III/IV in Mechanical Engineering will in dependently answer routine inquiries; monitor ac-counts; arrange conferences and social meetings; prepare course materials, correspondence, reports including some technical material; maintain student records; coordinate activities of student and faculty groups. Excellent typing, organization skills required. Machine transcription skill, college and secretarial training preferred. B77-517, B77 518 (9/28)

Secretary III/IV, part-time, temporary and permanent position to two Electrical Engineering and Computer Science faculty members: arrange computer Science tactiny memors, arrange meetings and travel; reconcile accounts; type technical reports and general correspondence; answer student inquiries; perform a variety of other secretarial duties as necessary. Both positions are for 20 hrs./wk. Temporary position through 3/15/77, 9:00am-1:00pm: B77-526. Permanete secretarial time 1/00pm: 5/00pm: B77-526. nent position 1:00pm-5:00pm, B77-527 (9/28).

Secretary III/IV to two Sloan School faculty members to type various material including research proposals course materials; handle ar research proposals course inactinate, instance rangements for special summer academic programs: room reservations; ordering of materials; applicant records; type and edit manuscripts. Good general secretarial skills, ability to work with minimal supervision required. B77-528 (9/28).

Secretary III/IV in Civil Engineering to two faculty members to do technical typing; xerox; answer phones; monitor accounts. Technical typing skill is required. B77-499 (9/21).

Secretary III for a large research group at the National Magnet Lab. Under the supervision of the Group Secretary, will type technical reports, papers and correspondence; answer phones; ar-range travel. Good typing skill with experience in technical typing or willingness to learn technical typing required. B77-553 (9/28).

Secretary III, part-time, in the Medical Dept. Division of Laboratory Animal Medicine to handle general secretarial duties including the typing of medical research reports. Good typing required. Knowledge of medical terminology is helpful. 15-18 hrs./wk. B77-540 (9/28).

Secretary III, temporary, in the Career Planning and Placement Office to assist with company recruitment activities: type interview lists, some correspondence; interact with students and company representatives; share in setting-up coffee for recruitment sessions. Typing skill ability to work under occasional pressure required. Temporary through 4/1/78. B77-472 (9/28).

Section Head V in the Microform Service Area Barker Engineering Library to manage the opera tion of the service: train and direct student and other employees; compile statistics; fill users' requests for microfiche copies of various library

material. Will also index and process technical reports; create and maintain related files. Position requires library processing or cataloguing experience, as well as microform/microfiche experience and knowledge of related equipment. Supervisory ability and typing skill also necessary, 37.5 hrs./wk. B77-419 (8/31).

Sr. Library Asst. IV in Rotch Library to process in-coming library material including microforms, theses, monographs; assist in cataloguing pamphlet collection; maintain card catalogue; be responsible for card corrections; assist in special projects as required; supervise student assist in special projects as required; supervise student assistants. Previous library experience or training in processing or cataloguing required. Typing skill and ability to organize work efficiently with minimum supervision also necessary. College training preference of consciously assistant works. red. Occasional evening work on a prearranged schedule required. B77-519 (9/28).

Sr. Clerk IV in the Purchasing Dept. to type form maintain files and other records; provide procedural information to Institute personnel and outside vendors; resolve billing problems; greet sales representatives; schedule appointments. Typing skill, ability to exercise initiative, as well as secretarial/clerical experience required. Experience in a purchasing office as well as familiarity with Institute administrative procedures preferred. B77-545 (9/28).

Sr. Clerk III in the Personnel Records section to process forms related to changes in employee status; employee termination; new employees; act as liaison with other personnel sections and payroll as liaison with other personnel sections and payroli office regarding employee records; perform other related clerical duties and special projects (i.e. annual reviews) as required. High school graduation, or equivalent, plus three years clerical experience required. Good typing skill, accuracy with detail and ability to deal well with people on the phone and in person also necessary. B77-547 (9/28).

Sr. Clerk III in the Admissions Office to type address labels; assist in large volume mailings and other special projects as required. Excellent typing skill and ability to organize detailed work with speed and accuracy required. Will be trained to occasionally operate IBM Magcard machine. Nonsmoking office. B77-503 (9/21).

Sr. Clerk III in Athletics to work in equipment room and men's locker room: control admission to locker room; process sale of athletic cords; main-tain records and files; take facility reservations on phone; circulate information associated with schedule and operation of the athletic facility; supervise student employees. Applicants, must be male (due to work site), have the ability to handle detailed work and to interact favorably with members of the community and their guests. Wed.-Sun., 12N-8PM B77-502 (9/21).

Clerk III, part-time, in the Campus Patrol Dept. to assist the administrative assistant: handle gen clerical duties; type; file; answer telephor xerox; assist in administration of parking syst Good typing skill with familiarity of office procedures, and ability to work under pressure required. 15-20 hrs./wk. B77-500 (9/21).

Sr. Clerk III/Receptionist in the MIT Press receive and direct visitors; answer phones and in-quiries; sort and process all incoming mail. Typing skill necessary. High school graduate or equivalent, with secretarial school training re-quired. B77-498 (9/21).

Clerk III in the Physical Plant, Telecommunications Dept. to perform general clerical duties: type; file; answer phones and route calls to appropriate persons; relieve teletype and switchboard operators as needed (will be trained). Typing skill and previous office experience required. B77-507 (9/21)

Clerk III, part-time, in Architecture to perform various clerical tasks: type; answer phones; per-form other duties as necessary. Good typing skill, ability to organize work and occasionally der pressure required, 20 hrs./wk. B77-515 (9/21).

Jr. Clerk II, part-time, in Chemical Engineering to post grade information; maintain department bulletin boards; keep office supplies in stock; assist with typing as required. Willingness to assist in routine tasks and typing skill required. 15-20 hrs./wk. B77-525 (9/28).

Campus Patrol Officer, Hourly, requires 3-5 years experience in all phases of law enforcement (criminal law, court procedures, criminal investigation, case preparation, complaint investigation; report writing). Will be required to obtain Emergency Medical Technician certification; may Emergency Medical Technician certification; may be required to complete additional police academy training. Must qualify in use of firearms, have a valid driver's license and an honorable discharge from any earlier police service. Candidates must pass Institute physical exam. 40 hrs./wk. rotating Position includes long hours occasionally shift. H77-160 (9/28).

Hourly, Custodian, in Physical Plant to keep assigned areas in clean, secure and presentable condition, and to perform other related duties as assigned by the supervisor. 11pm-7am shift. Irregular shifts. H77-156, H77-157 (9/28).

Hourly, HVAC Designer/Draftsperson in Physical Plant. Applicants must be capable of making load calculations and designing HVAC systems, and carrying design through the drafting stage. Graduation from a technical school plus 5-7 years experience in Mechanical designer drafting field also required. H77-89.

Hourly, 2nd Class Engineer, in Physical Plant must have Mass: Second Class Engineer's license (stationary) or higher, and experience on high pres-sure boilers, oil and gas fired with automatic com-

bustion controls; turbine driven auxiliaries, AC and DC generation. Experience on turbine driven refrigeration and water treatment systems also necessary. Must be willing to do all kinds of work and work any and all shifts consistent with the self sufficiency of the Power Plant. H77-151 (9/21).

Hourly, Sheet Metal Worker in Physical Plant re quires at least five years recent experience in sheet metal trade and layout experience in parallel line development, triangulation, radical line pattern development. Experience with insulation procedures, new air handling systems and modifications to older type-systems also necessary. Applicants must be qualified in Arc welding, brazing and oxy/acetyles procedures, and have a ing and oxy/acetylene procedures, and have a working knowledge of machinery applicable to sheet metal fabrication. Position requires irregular shift and/or irregular schedule. H77-145 (9/21).

Hourly, Instrument Systems Worker, in Physical Hourly, instrument Systems worker, in Physical Plant must have knowledge of electro/mechanical instruments, and control devices including testing procedures, related equipment calibration and repair techniques. Demonstrated electro mechanical skills required, as well as knowledge of interrelationship of instruments and control devices in sophisticated control systems. An Associates degree and/or 2 years technical school is necessary plus at least 3 years applicable electro/mechanical instrumentation experience. Must be able to work any and all shifts. H77-148

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.

A77-3, Systems Programmer, Info. Processing Serv. (2/16) 7-15, Director, MIT Alumni Fund (4/13)

A77-15, Director, MIT Alumni Fund (4/15)
A77-21, Prog. Analyst, Info. Proc. Serv. (8/31)
A77-38, Appl. Prog., Admin. Comp. Serv. (6/22)
A77-43, Editor in Chief, MIT Press (7/20)
A77-52, Applications Prog., Admin. Comp. Serv.

-54, Benefits Officer, Off. of Pers. Rel. (9/7) A77-56, Systems Prog., Inf. Proc. Serv. (9/7) A77-57, Tutored Video, Instr., Center for Adv. Studies (9/7)

A77-58, Systems Analyst, Off. of Bus. Sys. Dev.

A77-59, Systems Analyst, Off. of Bus. Sys. Dev

A77-60, Acquisitions Editor, MIT Press (9/21) A77-61, Acquisitions Editor, MIT Press (9/21) A77-62, Admin. Staff, Industrial Liaison Off.

BT7-221, Reactor Oper. IV, Nuclear Reactor Lab. (6/15)

B73-219, Sec. IV, Energy Lab. (9/7)

B77-221, Reactor Oper. IV, Nuclear Reactor Lab. (6/15)

B77-220, Reactor Oper. IV, Nuclear Reactor Lab. (6/15)

B77-266, Sec. III, Ctr. for Space Res. (6/22) B77-285, Sec. IV, Physical Plant (7/20) B77-286, Sec. III-IV, Meteorology (7/20) B77-324, Sec. IV, National Magnet Lab. (8/10). B77-344, Sec./Receptionist III, Admissions

B77-353, Sec. III-IV, Chem. Eng. (8/31)

B77-393, Sec. III-IV, Chem. Eng. (8/31) B77-375, Sec. IV, Bol. Sci. (8/31) B77-395, Sec. IV, Energy Lab. (8/31) B77-409, Sec. IV, Civil Eng. (9/7) B77-414, Sec. IV, Humanities (9/7) B77-417, Clk. III-IV, Elec. Sys. Lab. (9/7)

B77-419, Sect. Head V, Barker Eng. Library B77-427, Acctg. Clk. III, Graphic Arts. (9/7)

B77-437, Sec. III-IV, Chem. Eng. (9/7) B77-440, Sec. IV, Medical Dept. (9/7) B77-446, Sr. Clk. IV, Comp. Acctg. Off. (9/7)

B77-446, Sr. Cik. IV, Comp. Accig. Off. (9/7) B77-450, Sec. IV, Mat. Sci. & Eng. (9/7) B77-461, Sr. Cik. IV, Resource Planning (9/7) B77-461, Sr. Cik. IV, Resource Planning (9/7) B77-466, Sec. III-IV, Resource Devel. (9/14)

B77-466, Sec. III.-IV, Resource Devel. (9/14) B77-469, Sr. Clk. IV, Alum. Assn. (9/14) B77-471, Sec. IV, Mech. Eng. (9/14) B77-473, Sec. IV, Res. Lab. of Elec. (9/14) B77-476, Sec. III., Sloan School (9/14) B77-477, Sec. IV, Center for Int. Studies (9/14) B77-479, Clk. II, Pres. Off. (9/14)

B77-449, CIK. II, Pres. Off. (9/14) B77-481, Sec. III, Sloan School (9/14) B77-485, Sec. III, Mat. Sci. & Eng. (9/21) B77-486, Sec. III-V, National Magnet Lab. (9/21) B77-489, Sec. III-IV, Off. of Spons. Prog. (9/21) B77-497, Admin. Asst. V, Cent. for Adv. Vis.

Studies (9/21)

C77-18, Asst. Radiation Protection Off., Medical Dept. (5/4) C77-23, Mngr. of Financial Serv., Medical Dept.

C77-29, Tech. Asst., Biology (7/20) C77-34, Nursing Supervisor, Medical Dept. C77-40, Admin. Off., Civil Eng. (9/14)

SPONS. RES. STAFF: D76-17, Biochemist, Res. Lab. of Elec. (2/25) R77-17, Systems Theory Res., Elec. Syst. Lab. R77-22, Astrophysics Res., Ctr. for Space Res.

(2716)
R77-37, High Energy Physics Res., Bates Linear Accelerator (3/9)
R77-49, Res. Eng., Energy Lab. (3/23)
R77-51, Sr. Res. Eng., Energy Lab. (3/23)
R77-53, postdoc. Res., Physics, Res. Lab. of Elec. (4/6)

R77-73, Plasma Physicist, National Magnet Lab. (4/27) R77-74, Plasma Physicist, National Magnet Lab. (4/27)

R77-79, postdoc. res., Physics, Lab. for Nuclear Sci. (5/4) R77-80, postdoc. res., Physics, Lab. for Nuclear

Sci. (5/4) Sci. (5/4)
R77-85, Comp. Specialist, Energy Lab. (5/11)
R77-91, Sr. Accelerator Physicist, Lab. for
Nuclear Sci. (5/18)
R77-93, Biophysicist or Medical Physicist, Nat'l.
Magnet Lab. (5/25)

R77-94, Design Eng., National Magnet Lab.

R77-95, Biophysicist, Biology (5/25) R77-97, Chemical Eng., Energy Lab. (6/1) R77-98, Elec. Eng., Har/MIT Div. of Hlth. Sci. & Tech. (6/1)

Tech. (6/1) R77-105, Managing Dir., Energy Lab. (6/22) R77-109, Systems Prog., Har/MIT Div. of Hlth. ci. & Tech. (6/22) R77-110, Spons. Res. Staff, Lab. for Nuc. Sci.

(6/22) R77-112, Spons. Res. Staff, Nat. Magnet Lab. R77-122, Spons. Res. Staff, Center for Space

Res. (8/10) R77-130, Asst. to the Plant Eng., National Magnet Lab. (8/10) R77-133, Technical Editor/Writer, Energy Lab.

R77-136, Programmer, Earth and Pl. Sciences

R77-137, Spons, Res. Staff, Bates Linear Accelerator (8/31)
R77-138, Tech. Asst., Earth & Pl. Sciences (8/31)

R77-139, Programmer, Res. Lab. of Elec. (8/31) R77-141, Tech. Asst., Nut. & Food Sci. (8/31) R77-150, Spons. Res. Staff, Res. Lab. of Elec. R77-151, Spons. Res. Staff, National Magnet

ab. (9/7) R77-153, Reactor Util. and Elec. Sup., Nuc. Reactor Lab. (9/7) R77-160, Spons. Res. Staff, Nut. & Food Sci.

(9/7) R77-161, Elec. Engineer, Mech. Eng. (9/7) R77-165, Spons. Res. Staff, Earth & Pl. Dvi.

R77-167, Spons. Res. Staff, Cell Culture Center R77-168, Mineral Spectroscopist, Earth & Pl.

Sci. (9/21) R77-169, Spons. Res. Staff, Haystack Obsv

EXEMPT:

E77-32, Accountant, Comp. Acctg. Off. (8/10) E77-34, Engineering Asst., Energy Lab. (8/10) E77-42, Dental Hygienist, Dental Clinic (9/14)

HOURLY: H77-58, Tech. A, Bates Linear Accelerator (6/8) H77-76, Tech. A, National Magnet Lab. (6/22) H77-121, Tech. A, National Magnet Lab. (8/31) H77-133, Tech. B, Res. Lab. of Elec. (9/7) H77-143, Tech. A, National Magnet Lab. (9/14) H77-143, Glassware Washer, Arteriosclerosis

H77-147, Busperson, Faculty Club (9/21).

The following positions have been FILLED since the last issue of *Tech Talk*: B77-413 Sec. III B77-195 Lib. Asst. III Academic Staff Lib. Asst. IV B77-199 Academic Staff Sr. Clk. IV Lib. Asst. III Lib. Asst. III B77-406 Exemp

B77-354 B77-456 Lib. Asst. III Sec./Recep. IV Clk. III Sec. III Sec. IV B77-475 Sec. IV Clk. III B77-491 Acct. Rep. V Hourly B77-513 H77-138 B77-429 H77-92 H77-150 Admin, Asst. V Exempt Sr. Clk. III

B77-264

H77-139

R77-163

The following positions are on HOLD pending final decision: B77-495 Sec. IV

Sr. Clk. IV Hourly

Exempt Admin. Staff Exempt Sec. IV B77-415 Spons. Res. Staff Clerk II R77-152 B77-508 Sec. IV Spons. Res. Staff Spons. Res. Staff Academic Staff B77-493

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Spons. Res. Staff

Guillemin to Present F.O. Schmitt Lecture

Dr. Roger Guillemin, a research fellow at the Salk Institute for Biological Studies and a distinguished leader in physiology and neuroendocrinology, will receive the 1977 F.O. Schmitt Lectureship Medal and Award of the MIT Neurosciences Research Program.

Dr. Guillemin will present his lecture, "The Hypophysiotropic Peptides of the Hypothalamus," at 4:30pm, October 20 in MIT's Huntington Hall, Rm 10-250. Dr. Walter A. Rosenblith, MIT provost, will offer welcoming remarks and Dr. Richard J. Wurtman, professor of endocrinology and metabolism in the MIT Department of Nutrition and Food Science, will introduce Dr. Guillemin. The lecture is open to the public.



Dr. Guillemin

The F.O. Schmitt Lectureship and Award, which this year is a prize of \$2,500, was established in 1973 in honor of F.O. Schmitt, who helped establish the field of biophysics in the 1950s and who founded the Neurosciences Research Program in 1962. Dr. Schmitt is Institute Professor Emeritus and professor of biology emeritus at MIT

Dr. Guillemin is the sixth neuroscientist to receive the F.O. Schmitt Award, which will be presented to him at the Stated Meeting of the N R P Associates on Sunday, Oct. 2, at the Neurosciences Research Program center at the house of the American Academy of Arts and Sciences.

The citation accompanying the award to Dr. Guillemin said, in part: "For his synthesis of biochemistry and neuroendocrinology which led to the demonstration that three hypothalamic factors which control secretion from the pituitary gland are, in fact, low molecular weight peptides with unusual chemical properties.

"For his invention of methods for isolating the tiny quantities of such peptides present in individual brains; for his proposal, and later demonstration, that synthetic structural analogues of these peptides can mimic or block the actions of the endogenous compounds; for his major contributions to the growing body of evidence that these brain peptides . . and others, including the endogenous or natural agonists for opiate receptors—may function as neurotransmitters as well as hypo-

Dr. Guillemin was born in France and studied at the University of Dijon, where he received the MD degree in 1949. He was a

thalamic hormones. . .

French government fellow in 1950-51 at the University of Montreal from which he received the PhD degree in 1952 and where he was a faculty member of the university's Institute of Experimental Medicine and Surgery.

He joined the faculty of the Baylor University college of medicine in 1953. From 1960 to 1963 he was director of the department of experimental endocrinology at the College de France in Paris, and has taught and served as consultant at other universities and institutions. He joined the Salk Institute in 1970.

Dr. Guillemin's many honors and awards include the Louis Bonneau Award of the French Academy of Sciences in 1957 and International Congress of Pharmacology gold medal in 1961. His memberships include the American Physiological Society, The Endocrine Society, the Society for Experimental Biology and Medicine, and the International Brain Research Organization.

The Neurosciences Research Program, a research center at MIT, serves as a worldwide communications center for research on the nervous system. The NRP's 34 associates represent many fields, including medicine, psychiatry, physics, biochemistry, biology, neurology and psychology. The present associates include three Nobel laureates.



PAST AND PRESENT—Peter Barton Hutt (right), recipient of the 1977 Underwood-Prescott award at MIT, chats with George C. Seybolt, president of the Wm. Underwood Co., at a reception Tuesday, Sept. 27, for Mr. Hutt. Between them is a turn-of-thecentury photograph of Dr. Samuel C. Prescott, left, first dean of science at MIT and William Lyman Underwood, grandson of the founder of the Underwood

company, who worked together, beginning in the 1890s, to establish the scientific basis of the canning industry. The Underwood-Prescott Lectureships and Awards have been held for the last 15 years in memory of the two pioneering scientists. Mr. Hutt, former chief counsel of the federal Food and Drug Administration, later spoke at a symposium on "Government Regulation: How Much is Enough?"

How Much is Enough?"

Photo by Calvin Campbell

Change Urged in Food Policies

(Continued from page 1)

Preventing hazards to human health is the basis of government regulation of the food supply—"... regulation that one would expect to be least subject to challenge, particularly in an era of increasing concern about the proliferation of chemicals in our daily lives and the role they may play in human injury and disease," Dr. Hutt said in his

ments and assure the settlement of

estates and trusts in which the Insti-

tute has present or future interests.

Mr. Henneberry will assist in mon-

itoring changes in the area of tax law

or tax policy especially as these might impact on Resource Develop-

ment. Mr. Henneberry will have spe-

cial responsibilities in support of the

work of Class Estate Secretaries. He

will work in close cooperation with

members of the Alumni Association

staff and key volunteers in classes

engaged in 25th, 40th and 50th re-

union gift efforts. He will also

provide staff support to the district

organization in the Volunteer Lead-

ership Appeal of the MIT Leadership

A graduate of the United States

Military Academy in 1965, Mr.

Henneberry has done graduate work

in business administration at North-

eastern University and recently

completed the JD degree at the New

After serving five year's active

duty in the Army, Mr. Henneberry

joined the Polaroid Corporation in

1970 where he served in a variety of

engineering positions. In 1974 he

came to MIT as assistant director of

the Associates Program and later

Mr. Henneberry and his wife,

Karen, have three children and live

England School of Law.

was appointed director.

Campaign.

Yet there is "major public discontent" against government control, based on several factors," he said.

"Individuals are demanding an opportunity to participate in these decisions, and indeed to make their own free choice whether to accept whatever risks of harm may exist."

The public also finds some risks, such as threats of mutagenicity and carcinogenicity, "emphemeral and distant" and also fails to take seriously the warnings that hazards—including mycotoxins, asbestos, nitrosamines, lead, pesticides and animal drugs—pervade the entire food supply, he said.

Such warnings "do not fit with the public perception of our modern life," Mr. Hutt noted. "It is simply inexplicable to the average citizen that our longevity is increasing and that the latest government public health statistics demonstrate a significant decline in the national age-adjusted death rate, when at the same time the government is also contending that these hazards are mounting at a rapid rate."

Furthermore, the concepts of testing with laboratory animals to predict toxicity in humans are not understood by the public, which also is not prepared to accept the idea that "government regulation is merely an exercise in managing uncertainty, and that finite answers to these questions may never be found."

Foods Under Suspicion

"Perhaps most unacceptable" to the public, Mr. Hutt said, "some of the foods that are now falling under suspicion are those that give us economic benefit, or simply pleasure, or just plain hope."

"Even the most unsophisticated citizen can readily determine that the risks from some of the dangers charged to the food supply are far smaller than the risks that we willingly accept without question as we go about our daily business," he said. "One need not be either a biostatistician or an epidemiologist to figure out that the chances of being hit by an automobile are far greater than the chances of being harmed by mercury in fish or saccharin in diet foods."

In addition, "There is no apparent consistency or rationale in the government's present approach to food safety decisions," Mr. Hutt

"Restaurants may serve charcoalbroiled steak and peanuts may contain aflatoxin, but cyclamate and saccharin are banned from diet

foods. But," he added, "scientists contend that the former substantially exceeds the level of risk represented by the latter."

Such inconsistencies, which evolved over time and are not entirely the fault of government officials, require that "we must all begin to rethink basic food safety policy in this country and to reeducate the public about the goals that realistically can be set and achieved," Mr. Hutt said.

Safety Problem

A valid public policy for food safety, he said, must include "the true dimensions of the food safety problem apart from other environmental safety issues," and would establish, for example, the incidence of cancer attributable to toxic foods, as opposed to other sources.

"Priorities, emphasis, and indeed the very nature of future regulatory control mechanisms should to a large extent depend on the outcome of this initial determination," he

said.

Rational planning will establish public priorities on the broad basis, he said, and eliminate the present

piecemeal approach.

The next step, he said, is to rank the sources of danger in the food supply in order of importance, and establish a priority list for toxicity testing.

"It has been estimated," he said, "that there are now at least 13,000 components of the food supply—about 1,000 agricultural products, about 2,000 natural and synthetic chemicals added directly to the food supply, and more than 10,000 substances added indirectly in the production, processing, and packaging of food."

Levels of Risks

Different components pose varying levels of risks, some of which can be eliminated only by removing entire food categories from the diet, Mr. Hutt said.

Mr. Hutt suggested some other general rules and exceptions for a new food policy:

For food components that present special safety problems and for which there are no alternatives, Mr. Hutt suggested a benefit-risk analysis "involving a much broader sensitivity to the wishes of the general public..."

Among exceptions to such special analysis might be the use of nitrites (to prevent botulism) and preservatives that "permit our extraordinary food distribution system." Mr. Hutt said.

Henneberry Appointed To Planned Giving Staff

The appointment of Thomas R. Henneberry as assistant director of the Office of Planned Giving and Legal Affairs/Resource Development has been announced by D. Hugh Darden, director.

Mr. Henneberry formerly was director of the MIT Associates Program.

In his new position, Mr. Henneberry will assist Mr. Darden in matters between

MIT and potential individual donors, including outright gifts, gifts to life income plans and bequests. He will prepare and review documents relating to gift arrangements and as-



ments and as- Mr. Henneberry

Ringers Seek New Members

The MIT Guild of Bell Ringers is extending an invitation to ring to the MIT community.

An introductory lecture on change ringing, an art form that evolved in England during the Renaissance, will be given at 6:30pm on Wednesday, Oct. 5, in Rm. 9-150, and all are invited to attend. The lecture will incude a handbell demonstration, recording of tower bells, filmstrip, and introduction to the principles of change ringing. Those interested may arrange at the lecture for tower and handbell lessons.

The MIT Guild of Bell Ringers rings at Old North Church in Boston on the oldest set of change ringing bells in North America; cast in 1744, they were once rung by Paul Revere. The Guild rings at the church two Sundays a month and on special occasions and feast days.

Toys Needed

The MIT Women's League is urgently seeking outgrown tricycles, books, blocks, dolls, trucks, tinker toys and other children's toys for use in the child care room during English lessons for foreign wives.

English classes have been offered every term for more than a dozen years, providing major support for the wives of foreign visiting faculty, students and guests. Child care has become an increasingly important facet of the program.

The toys needed are for toddlers to school-age children. Donations will be picked up. Persons with toys to donate may call Betty Dyer at 527-7059, or Mary Pinson in the Women's League office, x3-3656.

Flat Tires, Worn Shoes Plague Visiting Cyclist

(Continued from page 1) see the world and store up some memories for old age," Sammy says.

Sammy can use only one bicycle for the entire tour. His tires are supplied by Panasonic and the bike's derailer, gears and chains by the Shimana Company. The supplies are a must. He can replace all the parts ne-

cessary but must keep the same bike for the trip if the venture is to be a success.

From here, Sammy plans to visit New York and Washington, D.C. He will then head for the West Coast via the Arizona Desert. His five-year, 35,000 mile trip will take him through 70 countries. He expects to return to Japan in 1982.

Luce Scholars Candidates Sought

Candidates are being sought among MIT students and young faculty members for the 1978-79 Luce Scholars Program. The program provides funds for 15 men and women to spend 10 months in Asia as a way of developing better understanding of Asia among future American leaders.

MIT is one of 60 universities invited to submit three nominations each to the Henry Luce Foundation. The Institute has had successful candidates in each of the first three years of the program.

Those wishing to be considered should inquire at the office of Dr. Eugene B. Skolnikoff, director of the Center for International Studies (Rm. E53-470, x3-3140) by October 1. The deadline for applications is October 10.