February 26, 1986 Volume 30, Number 22

TECH TALK TECH TALK TECH TALK TECH TALK

QCC calling

The annual meeting of the MIT Quarter Century Club, at which new members will be installed, will be held Wednesday, March 26 in the Sala de Puerto Rico. All members of the community who will have completed 25 years of service by June 30 are eligible for membership. Those who are eligible who have not received an invitation are asked to call the Quarter Century Club office, x3-7914, to have their employment records reviewed.

Volunteers Needed

The Secondary Technical Education Project (S.T.E.P.) seeks members from the MIT community to discuss various topics with students at Mario Umana High School of Science and Technology (Boston) April through June.

Speakers are needed to talk about the following topics: United States policy with respect to Central America, Middle East, South Africa and immigration; peace movements; women's work; youth and law (who goes to jail). The total time spent at the school will be one and a half

Students will read and view material before each talk.

Transportation will be provided. For further information call Alan Dyson, director of S.T.E.P., at x3-7063.

US Savings Bonds

MIT employees will receive a pamphlet describing the US Savings Bond payroll deduction plan and an authorization card in their February 28 paychecks.

MIT has a range of bond allotments allowing employees to select whatever option is most suitable for them.

. Series EE bonds can be purchased at 50 percent of face value and are available in denominations of \$50, \$75, \$100 and \$200. They have a new market-based interest rate with a guaranteed minimum.

The payroll office can accept authorizations at any time.

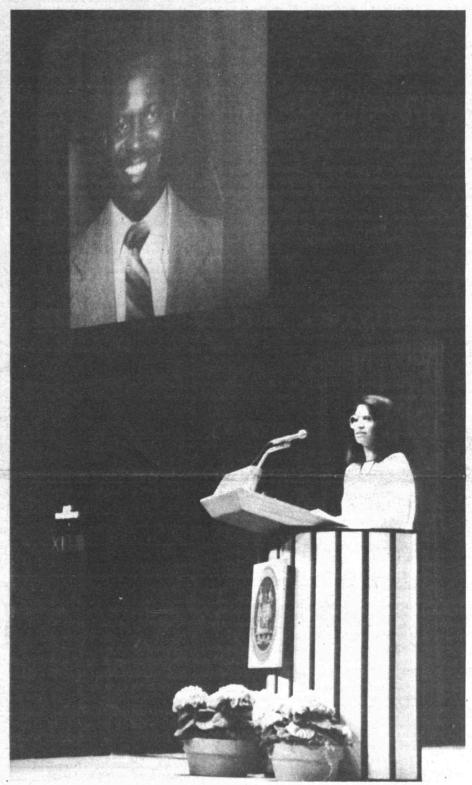
Further information may be obtained from Ellen Sico (E19-510), x3-2799 or Peggy Fahey, (LIN-A-128), 181-2343.

Crafty?

MIT craftspeople may request table space in Lobby 10 at the Spring Crafts Fair March 18-19. Call Mary Helen Miller at x3-5225 or 494-5217, evenings for more information.

Children's Center

The Technology Children's Center is accepting applications for full and half day programs for children ages two years and nine months to five years for summer and fall. For more information, call



Cheryl McNair addresses an audience of more than 400 at the February 12 memorial service for her husband, Dr. Ronald E. McNair, one of the seven people killed whan the space shuttle Challenger exploded January 28. A portrait of Dr. McNair, who received the PhD in physics from MIT in 1976, was projected on a large screen during the service in Kresge Auditorium. See remarks by Dr. Paul E. Gray, one of several speakers at the memorial, on Page 8.

—Photo by Calvin Campbell

Computer music featured:

IRCAM to present first full concert at MIT

By CHINA ALTMAN

Staff Writer
In the world of computer music several events are converging to make this week historic for both Boston and MIT.

The week marks the first time computer music will ever have been heard in Boston Symphony Hall, and the first full concert appearance at MIT by IRCAM (pronounced EAR-cahm) of Paris. Founded by the legendary Pierre Boulez, this French computer music center has a collaborative relationship with MIT's Experimental Music Studio.

Whether you've always been curious about computer music—or if you're already a fan—there are five events to be considered, begin-

Dr. Sheila Widnall appointed Abby R. Mauzé Professor

Dr. Sheila E. Widnall, known and respected internationally for her work in fluid dynamics and for her contributions to engineering education, has been named Abby Rockefeller Mauzé Professor of Aeronautics and Astronautics

Her appointment was announced by Professor John M. Deutch, MIT provost.

"The Mauze Professorship was established in 1963 to honor distinguished women scholars who would inspire women students as well as

enrich their professional education," Professor Deutch said. "That is clearly a description of Professor Widnall, who is held in high regard by her colleagues for her scholarship and for her untiring work in engineering education. She has made significant contributions as a researcher, a teacher and an administrator."

Dr. Widnall succeeds Dr. Mildred S. Dresselhaus in the Mauze Professorship. Dr.

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Strehle named vice president; to direct effort in development

By ROBERT C. DI IORIO Staff Writer

Glenn P. Strehle, treasurer of the MIT Corporation since July 1975, will succeed Professor Samuel A. Goldblith as vice president for resource development effective March 1, President Paul E. Gray has announced. Mr. Strehle will continue to be treasurer of the Corporation. His new title will be vice president and treasurer.

Professor Goldblith, who has been in the resource post for seven years, announced last October his intention to return to teaching and research as professor of food science in the Department of Applied Biological Sciences. He will remain part-time as senior adviser to the president for resource development, with a special focus on Japan and Europe.

"I am pleased to announce that Glenn Strehle will take on the vital task of overseeing the resource development activities of the Institute," Dr. Gray said. 'As treasurer, he has provided wise and prudent stewardship of our financial investments and fiscal affairs while playing a key role in fund raising and in maintaining close relations with alumni, cor-

porate, and other donors. The Institute is indeed fortunate to be able to transfer this important responsibility, so well discharged over the last seven years by Professor Goldblith, to the capable hands of Mr. Strehle."

Mr. Strehle, an alumnus of MIT with the SB

and SM degrees from the School of Management, will have a leading role, with the chairman of the MIT Corporation, Dr. David S. Saxon, and with President Gray in providing leadership for the coming major capital gifts campaign.

As vice president and treasurer, Mr. Strehle will continue to be responsible for MIT's invested funds and endowments—which is currently over one billion dollars at market value. His new responsibilities will include direction of the Institute's development program, including the Industrial Liaison Program and the offices associated with Institute-wide resource development. A key task will be to provide direction to the professional staff and to the volunteers involved in fund raising to assure effective and efficient support of all development activities. He will coordinate fund-raising activities with the Corporation and its committees, the president,

(continued on page 5)

ning today

Foremost among them for the MIT community will be the IRCAM concert this Friday night (Feb. 28) at 8pm in Kresge Auditorium, presented by the Experimental Music Studio. (Tickets: \$6; \$3 students/seniors/MIT ID. Information: 3-7418.)

Centerpiece of the MIT concert is Soft Morning, City, created in 1980 by Tod Machover, formerly director of musical research at IRCAM and now assistant professor in MIT's Media Laboratory.

A free lecture/demonstration tonight (Feb. 26) at 8pm will be sponsored by the Studio in the Bartos Theatre of the Wiesner Building, presenting David Wessel on "Musical Research, Composition and Performance at IRCAM." Mr. Wessel is IRCAM's director of

personal music system development.

MIT's events occur as a complement to concerts this week in Boston Symphony Hall, part of a five-city tour by Mr. Boulez, returning to America as the head of the two institutions he founded in Paris: IRCAM (l'Institut de Recherche et Coordination Acoustique/

(continued on page 8)

INSTITUTE **NOTICES**

- Open to public
 Open to MIT Community only
 Open to members only

Announcements

Add Date - Fri, March 7 is the last day to add subjects to

Pass-Fail Grading - Fri, March 7 is the last day for juniors and seniors to change an elective to or from Pass-Fail grading.

Career Planning and Placement Company Recruitment - Schlumberger Offshore Services, Feb 26, 7-9pm, Rm 4-153. Rolm Corporation, Feb 26, 7-9pm, Rm 4-149. Hughes Aircraft, Feb 27, 7:30am-5:30pm, Ashdown House Dining Room. Intel Corporation, Feb 27, 8am-5pm, Lobby 13. Bell Communications Research, Feb 27, 4-6pm.

Software Publishing, March 3, 5-7pm, Rm 1-132. The Boeing
Company, March 5, 5-7pm. Schlumberger Well Services,
March 5, 5:30-7:30pm, Ashdown Dining Room. Megatest Corp,
March 6, 7-9pm, Rm 4-153. Acuson, March 6, 7-9pm, Rm 4-149.

Talbot House Available - March weekend visits to MIT's Talbot House in Vermont have been assigned; however weekdays for March are still available on a first come, first erve basis. Contact Sharon Shea, x3-4158 for more information. The deadline for April applications is Feb 28

TCA/American Red Cross Blood Drive - March 5-8, March 10-14, Student Ctr Sala de Puerto Rico. Info: x3-7911.

Children's Dental Health Month Bulletin Board - MIT Dental Service/Pediatric Clinic board in reception area of Pediatric Clinic, Medical Bldg first floor. The bulletin board expresses the role that diet, home care, fluoride, sealants and regular checkups have in prevention.

MIT Craftspeople - Students, staff, etc invited to request table space for Tech Community Women Spring Crafts Fair, March 18-19. Info: Mary Helen Miller, x3-225 or 494-5217 eves.

International Careers Forum – UN Association of Greater Boston/Office of International Student Affairs/Office of Career Services Forum, April 5, 8:30am-5pm, Rm 26-100. Explore careers in the international finance, business, law, health, etc. Register now by picking up registration form at Office of Career Services, Rm 12-170.

Free Museum of Science Admission for MIT Students — With MIT student ID, provided by MIT chapter of Tau Beta Pi, the Engineering National Honor Fraternity. Also, reduced admission to special exhibits.

MIT Hunger Drive Food Drive - We need non-perishable, unopened foods for Boston's less fortunate. Ongoing collection all day and night at drop-off boxes in Lobby 7, Walker,

Arts Hotline – Recorded information on all arts events at MIT may be obtained by dialing x3-ARTS. Material is updated every Monday morning.

Nightline** - a student-run hotline open every evening of you just want to chat, give us a call. We're here to listen x3-7840. the term, 7pm-7am. If you need information about anything or

Faculty Members - Technology Review would like to hear about books being published by MIT faculty members. Please notify us, as far in advance as possible, of your upcoming book. Technology Review, Rm 10-140, x3-8250.

Club Notes

WMBR** - is looking for students interested in radio and technical work. Contact Eli Polonsky, x3-4000. Leave name and phone number.

MIT Student Cable Programming Group** - Looking for students interested in programming the MIT Cable Television channels. Contact Randy Winchester, x3-7431.

Tool & Die - MIT's humor magazine** - meets every Weds, 7pm, Rm 50-309 (Walker). Everyone welcome

Student Center Committee (SCC)** - Has fun every Sunday, 7pm, Student Ctr Center Lounge. Do you? Call x3-3916 anytime for more info.

Animal Rights Forum** - Meets 2nd & 4th Weds each

MIT Student Duplicate Bridge Club* - Bridge games every Sat, 7pm, every Thur, Sun & Mon, 6:30pm, \$.75 entry fee, Rm 407, Student Center. Lessons free w/entry at 6:15pm from No partners necess

MIT/DL Bridge Club* - Duplicate bridge, Tues, 6:30pm, Student Center Rm 349. ACBL masterpoints awarded; come with or without partner, newcomers always welcome. Special tournaments monthly. Handicap game, 3rd Tues every month, Info call Gary Schwartz, x8-2459 Draper, or Mark Dulcey, 272-8428. Admission: \$1/students, \$2/non-students.

MIT Table Tennis Club** - Meets Fri, 8-10pm; Sat, 6pm, T-Club Lounge. Info: Hoang Do, x3-2843.

MIT Go Club** - Meets M/Th, 5-7pm, Rm NE43 3rd flr Playroom. Play the ancient oriental game of skill. Knock to get in if the door is locked.

MIT Hobby Shop** - Complete supervised facilities for woodworking and metalworking, Rm W31-031, M-F, 10am-6pm; Wed, 10am-9pm. Fees: \$15/term students; \$25/term community. Info, x3-4343.

MIT Yoga Club* - Rejuvenate your mind and body with Kundalini Yoga, the science of awareness, M-T-W, 5:15pm, Burton Dining Hall. Beginners welcome. Th Seminar Class with Dr. Gurucharan Singh Khalsa, 5pm, Rm 24-624. Info: Fred Martin or Jeff Tollaksen, 247-0506 or x3-3157.

MIT Aikido Club** - meets Mon-Fri, 5:30pm, DuPont exercise room. Aikido is a non-competitive Japanese martial discipline. Beginners welcome.

MIT Outing Club* - Camping, cycling, climbing, canoeing, cabins: meets M/Th, 5-6pm, Student Center Rm 461. Also, see our bulletin board in "Infinite Corridor" next to Athena.

MIT Wu Tang Club* - teaches northern Chinese kung fu, Tues & Thurs, 8pm, Burton Dining Hall; Sat, 10am, Athletic Center. Beginners welcome. For info call Meilin Wong, x5-8713

MIT Tae Kwon Do Club** - Tae Kwon Do is a Korean martial art. Meetings Sundays, 4pm, T-Club Lounge; Mon-Wed, 6pm, Burton Dining Hall; Fri, 6pm, T-Club Lounge. For info call In Ho Kim, 266-2827.

MIT Masters Swim Club** - Structured, coached workouts for graduate students and other members of the community who are not eligible for varsity swimming. Practices W/F, 8:30-10pm; Sun, 4-5:30pm. \$100/9 weeks starting Jan 22.

Scuba Club** – The club sponsors dives throughout the term. Call scuba locker (x3-1551) for info and equipment rentals. For more info contact Dave Summa, x3-6464 or Mike Fox 492-4407.

MIT Guild of Bell Ringers* - meets Mondays, 6:30-9pm, 2nd floor Lobby 7, for change ringing on handbells. We also ring the tower bells at Old North Church. Beginners are welcome. Contact Steve Costenoble, x3-3664 for more information.

Religious Activities

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

Christian Science Organization at MIT* - Weekly Testimony Meeting, Thurs, 5:45pm, Rm 4-145.

Tech Catholic Community* - Roman Catholic Masses: Sun, 9am, 12noon, 5pm (& 10pm, through 3/16); Weekdays: T/Th: 5:05pm & Fri 12:05pm. Penitential Service: March 11, 7pm. All Services in MIT Chapel. Morning Prayer: M-F, 8:15am, Chapel Basement. Bible Study: Sun, 10:35am, Ashdown Hulsizer Rm & Tues, 8pm, Chaplaincy Library. Chaplaincy Office: x3-2981.

MIT Hillel Shabbat Services* - Special MIT Shabbat, Feb 28: with visiting schools: Bowdoin College, Simmons College, Wellesley College and Brown University. \$16 tuition.

Lutheran Ministry and Episcopal Ministry** - Weekly service of Holy Communion: Wed, 5:10pm, MIT Chapel. Supper following at 312 Memorial Drive. For further info, call x3-2325/2983.

Baptist Chapel* - Baptist Student Fellowship Services, Suns, 7pm, MIT Chapel.

MIT Islamic Society* - Daily prayers, Ashdown House (basement), 5 times a day. Call x5-9749 dorm, for schedule. Friday-prayer, Ashdown House 12:30-1pm, Khutba starts at 12:30pm, congregation at 12:55pm.

Meditation and Discourse on the Bhagayad Gita* – Swami Sarvagatananda, MIT Vedanta Society/Rama-krishna Vedanta Society of Boston, meets Fridays through May 23, 5:15pm, MIT Chapel.

United Christian Fellowship. – MIT Chapter of Inter-Varsity Christian Fellowship, weekly meetings: large group for worship and sharing from God's word, Fri, 7pm, Student Ctr Rm 491; small group meetings for Bible Study and support, week-ly at different times. For more info, call Chiu-Oan, x5-6123

MIT Graduate Christian Fellowship* - Come meet other Christian faculty, staff and grad students: weekly lunch gatherings, Weds, 11:55-12:55, Student Ctr Twenty Chimneys; info: John Ivan, x3-3880. A fellowship group also meets for a time of prayer and sharing for faculty, staff and graduate students in Sloan School, Thurs, 12noon, Rm E51-024. Contact Andy Hamlin, 926-8472.

MIT Seekers Christian Fellowship* – Park Street Church Seekers Teaching and Worship Time, Sundays, 9:15am, enjoy our biblical teaching, worship and sharing at Park Street Church, right in front of the Park Street T stop. MIT Seekers leave from McCormick at 8:30am. Come join us

as Crusade for Christ** - Family time, 7:15pm, Fri, eves, Rm 37-252. Fellowship, scripture teaching, prayer, singing, refreshments & fun. Tues, prayer time, 7:30-9am, W20-441, Student Center. Call x5-9153 dorm.

Lincoln Laboratory Noon Bible Studies* – Tues & Thurs, Kiln Brook III, Rm 239. Annie Lescard, x2899 Linc.

Morning Bible Studies - Fri, 7:30-8:30am, L-217. Ed Bayliss,

Noon Bible Study* – Every Wed, Rm E17-109, bring lunch. Ralph Burgess, x3-2422. (Since 1965).

Edgar Cayce Study Group* - Tuesdays, 6:30-9pm, Edgar Cayce's Search for God material will be used as the basis for group discussion & meditation. For info: Douglâs McCarroll, 497-0819 12-9pm or Scott Greenwald, x3-7423

Internships

The following is the list of internships received this week. For more information please see the Internship Information notebook in the Office of Career Services, Rm 12-170. NOTE: The Office of Career Services has added a new directory

to their Career Library: Getting Work Experience, the College Students' Directory of Summer Internship Programs that Lead to Careers. It can be found in the Reference section of the Career Services Office.

Internships Offering a Stipend:

Digital Equipment Corporation in Hudson, Mass announces openings for about 40 summer research interns at the graduate

Honeywell in Minneapolis, Minn. offers summer internships for graduate students in electrical engineering, computer scie physics and chemistry to conduct research in one of a variet technical areas. Deadline for applications: March 15.

The Massachusetts Bay Transportation Authority (MBTA) has a 3-4 month internship for 30-40 hours/wk to assist the publica tions editor in writing and producing bimonthly newsletter and monthly newspaper. Salary: \$6-9.50/hr.

Motorola Inc, Communications Sector, is taking applications for the Excellence in Engineering Summer Internship Program which offers locations in Illinois, Florida and Texas. The program is geared towards electrical engineering and/or computer science students who have completed their sophomore year and have outstanding academic qualifications.

National Economic Research Associates, Inc (NERA) in White Plains, NY is recruiting for summer interns for a salaried 10-12 week program. They seek economics majors with strong quantitative skills and some computer experience, preferably juniors.

Physics International Company in California has a summer internship program restricted to students finishing their junior year, undergraduate or graduate level. A letter of interest and a resume should be on file before April.

The Fund for Public Interest Research Group (PIRG) has summer job openings in many states. The work involves education and outreach concerning environmental issues

UROP

MIT and Wellesley undergraduates are invited to join with faculty members in pursuit of research projects of mutual fascination. Undergraduates are also urged to check the Undergraduate Research Opportunities Program's bulletin boards located in the main corridor of the Institute and in the UROP Office. Faculty supervisors wishing to have projects listed should send project descriptions to the UROP Office. Questions? Contact us, x3-5049, Rm 20B-141. Eloranta Summer Fellowship Program. Several \$4,000

research fellowships for MIT undergraduates will be awarded this spring for work to be done during the summer. Areas of study may be in any field: science, engineering, humanities. Travel is encouraged. Originality is rewarded. Deadline is March 31, 1986. Contact the UROP Office for more details. Carroll L. Wilson Awards. \$5,000 will be awarded to one or

arrow L. Washi Awards. So, ook at the dual-teet to one of the wind and the students in any department at MIT. The aim of the Wilson awards is to provide opportunities for students to pursue a challenging activity which would have excited the interest and enthusiasm of Carroll L. Wilson, whose broad ranging interests are described in the Feb March 1985 article from Technology Review. Deadline for proposals is March 31, 1986. Information and applications available at the UROP

Nuclear Engineering UROP Awards. Several awards are given to encourage research with faculty in the Nuclear Engineer ing Dept. Freshmen are encouraged to apply. Contact: Prof Ronald Ballinger, x3-5110, Rm 24-215 for more details.

Edge Bead Elimination in Polymer Cast Films. 2 Mechanical engineering students needed for experiments involv-ing production of film and measurement of parameters of the film. Cast films are made by melt extruding a polymer through a die onto a pair of chilled rolls. Experiments conducted in the Laboratory for Manufacturing and Productivity (ME). Contact: Remi Agrawal, x3-7097, Rm 8-238.

Develop Algorithms. Student needed to develop algorithms for processing and display of speech signals on IBM PC. Experience with C and with computer graphics desirable. PAY available. Contact: Dr. Thomas Carrell, x3-3593, Rm 36-525 or Prof Ken Stevens, x3-3209, Rm 36-517.

Animation Programming. Student to help construct and test a small pre-production laboratory for makers of short movies and cartoons. Project requires extensive understanding of the MacIntosh tool box and its video. Time critical code will be written in 68000 assembler. Student should be a sketch artist or car ten in books assembler. Statelin sould be a seek in also to car-toonist, ideally fluent with MAC painting tools, and itching to extend them into cinema. Contact David Levitt, MIT Media Lab, E15-414, x3-0608.

Music Programming. Student needed who has experience in programming with the MacIntosh tool box, and with real-time programming. Experience writing 68000 assembler or device drivers is also important. Keyboard or voice improvisation ability and transcription experience are a plus. Student will imple ment a system for real-time interaction in several media, with emphasis on music. Completed system will support improvisation with piano-type keyboards and microphone (e.g. voice) input, and output to various synthesizers. Contact David Levitt, MIT Media Lab, E15-414, x3-0608.

Ash & Coal Combustion. Student wanted interested in participating in coal and ash sample analysis for the Combustion Research Facility (CRF) group. Student will be involved in operating a low temperature coal asher as well as an x-ray diffractometer and qualitatively analysing the data. Lack of experience not a major drawback. Hours flexible, about 10/wk. Contact: Vic Gobbell, x3-4455/6550, Rm 66-266.

Biological Systems as Molecular Factories. Student needed with background in molecular biology to investigate the encoding, transmission, and use of information in biological systems and to explore their implications for manufacturing systems. Biological systems may be viewed as factories which fabricate, assemble and replicate components at the molecular level. Contact Steven Kim, x3-2249, Rm 35-008.

Interactive Video/Interface Design. UROPer interested in in terface design and graphics needed for a Project Athena devel-opment effort. We are developing a course in neuroanatomy us-ing video disk images. Student will help plan and implement a sophisticated learning environment incorporating color, windows, video and graphics. C programming experience required. Programming done under DEC's RSX operating system as well as UNIX. Contact Steve Wertheim, Rm E25-618, x3-5771.

Hablo Espanol? Athena Language Learning Project. Student needed to work with interactive video system to produce Spanish language learning aids. Knowledge of Spanish and some programming experience necessary. Possible continuation through summer. PAY or credit. Contact Janet Murray, x3-2094

Arthur D. Little Product Engineering Unit. UROPer needed who is interested in ongoing projects in consumer appliances, space robotics, computer modeling of thermal, mechanical and other systems and medical equipment. The work focuses on design and development of innovative systems and technologies. Students applying for this position should be studying either mechanical engineering, electrical engineering or computer sciences. Position begins with part time work during the academic term and could provide summer employment as well. Contact Margaret Mubiru-Musoke, UROP, Rm 20B-141. Project site located on Red Line.

Hardware Maintenance and Interface Design. Project involves getting familiar with and overseeing upkeep/mainte nance for the 20-odd processors (micro and mini) in the lab, in cluding IBM XT's, DEC Pros, MacIntoshes, Wang-PCs, SUN 160, Hewlett-Packard Bobcats, and a Perkin-Elmer 3220. Coordinate activity with the "software/system" maintenance person as needed. Also design and build (or design and oversee the fabrication of) an occasional small hardware interface or device controller. Previous experience with hardware required. knowl edge of C and/or LISP desirable. PAY or credit. Faculty super visors: Ron MacNeil, Muriel Cooper. Project advi Jonathan Linowes, x3-0315/4406, Rm E15-443.

Package Design Workstation. Positions available for UROPers interested in the development of an interactive en vironment for commercial package design. The integration of a rule based system with 2D and 3D image manipulation will be performed in real time on Sun 160 and/or HP Bobcat workstations. Experience in C and/or LISP programming required, and knowledge of 3D graphic programming preferred. PAY or credit. Faculty supervisors: Ron MacNeil, Muriel Cooper. Grad advisor and contact: Thomas Amari, x3-4406, Rm E15-443.

Graphic Design User Interface. Positions available for selfstarters to work on modular projects that contribute to the development of an advanced graphic designer's workstation user interface stimulation. This system will be a testbed for experimental interaction techniques. Software will be developed for 2D and 3D object management, interaction control, database management, graphic and typographic tools, page layout and color image manipulations. Prerequisites: working knowledge of C and familiarity with UNIX; experience with computer vledge of how to design it. Contact: Jonathan Linowes, x3-0315/4406, Rm E15-443.

Advanced Typography Research: Digital Typeface Design. Assist with the development of a rule-based system which allows a typeface designer to generate alphabets automatical ly given a small number of sample letterforms. UROPers needed for design and implementation of user interaction techniques: font design tools; graphic manipulation processes; and database management procedures. Experience in C programming, rulebased systems, and object-oriented techniques preferred. PAY or credit. Faculty supervisors: Ron MacNeil, Muriel Cooper. C advisor and contact: Debra Adams, x3-4406, Rm E15-443.

Advanced Typography Research: Rule Based Page Layout. Computer graphics – specifically electronic, interactive page layout. Work encompasses manipulating and display of high-quality graphics, human-computer interface, and the development of a specialized, object-oriented, graphic programming language. Experience with C, object-oriented programming and completion of 6.001 preferred. PAY or credit. Faculty supervisors: Ron MacNeil, Muriel Cooper. Grad advisor and contact: Tim Shea, x3-4406, Rm E15-443.

Photograph Retrieval. Assist in developing a system for the on-line retrieval of photographs. The interface will involve graphics and direct manipulation. Experience with at least one of the following desirable: C, graphics programming, database programming, object-oriented programming, writing interpreters. Credit only. Faculty supervisors: Ron MacNeil, Muriel Cooper. Grad advisor and contact: Nancy Zissman, x3-4406, Rm E15-443.

Sloan Athena - Compiler Theory for Protocol Analysis. UROPer to study patterns of human decision-making by having subjects solve problems using such tools as spreadsheets and database managers and parsing the dialogue. Skill in writing BNF and in using LEX and YACC highly desirable. Networked Questionnaire Administration and Analysis. Sloan

Edgerton Award

Nominations are invited from all members of the MIT community for the Harold E. Edgerton Award for 1986, to be presented to a junior faculty member for distinction in teaching, research and scholarship. The award carries an honorarium of \$5,000.

The annual award, created in 1982, is named in honor of Institute Professor Emeritus Harold E. Edgerton in recognition of the support he has given to younger faculty members over the years.

Preliminary nominations, with a brief description of the candidate's achievements, should be sent to Professor Thomas A. Kochan of the Sloan School of Management, chairman of the selection committee, Room E52-586 by Friday, March 7. After choosing a short list of candidates, the committee will return to the respective nominators for fuller documenta-

regularly administers questionnaires to users of its personal computer lab. Now that the system is networked, we'd like to move towards electronic administration, collection and tabula-tion and would like a UROPer interested in these areas. Primary problem will be moving and merging files over the network. Familiarity with Ethernet, PC-DOS and spreadsheets helpful. Supervisor: Prof Glen Urban. Contact Lloyd Brodsky, x3-8016, Rm E25-143.

Cable Television Schedule

MIT Cable Television serves the MIT campus. For connection and programming information, call x3-7431.

Wednesday, February 26 Channel 8:

8.02 Help Session #3. Program will repeat until 6pm, 2/27.

Channel 9: 9am-10:30am - Theoretical Seismology. 2pm-3:30pm - 13.862 Ocean and Seabed Acoustics II

10:30am-4pm - IEEE Teleconference: Applications of AI. Thursday, February 27

Channel 8: 8.02 Help Session #3. Program will repeat until 6pm. 6pm - 8.02 Help Session #4. Program will repeat until 4pm,

9am-10:30am - Theoretical Seismology.

10:30am-12noon - 12.762 Experimental P.O. Live from WHOI. Friday, February 28

8.02 Help Session #4. Program will repeat until 4pm, 3/4.

10:30am-12noon - 12.806 Instability and Turbulence in Geophysical Systems. Saturday, March 1

Channel 8: 8.02 Help Session #4. Program will repeat until 4pm, 3/4.

Sunday, March 2 8.02 Help Session #4. Program will repeat until 4pm, 3/4.

Monday, March 3

8.02 Help Session #4. Program will repeat until 4pm, 3/4.

Channel 11: 2pm-3:30pm - 13.862 Ocean and Seabed Acoustics. Live from WHOI.

Tuesday, March 4

8.02 Help Session #4. Program will repeat until 4pm. 4:30pm-6pm - Live Coverage of the MIT Biology Colloquium.

10:30am-12noon - 12.806 Instability and Turbulence in

4pm-5:30pm - Live coverage of the MIT VLSI Seminar.

Channel 11:

Geophysical Systems. Live from WHOI. Wednesday, March 5

Channel 9:

9am-10:30am - Theoretical Seismology. 2pm-3:30pm - 13.862 Ocean and Seabed Acoustics II.

Channel 8

Plam-12noon - Live coverage of the MIT Optics and Quantum Electronics Seminar. Thursday, March 6

6pm - 8.02 Help Session #5. Program will repeat until 4pm,

9am-10:30am - Theoretical Seismology.

10:30am-12noon - 12.762 Experimental P.O. Live from WHOI. Friday, March 7

8.02 Help Session #5. Program will repeat until 4pm, 3/11.

10:30am-12noon - 12.806 Instability and Turbulence in Geophysical Systems.

8.02 Help Session #5. Program will repeat until 4pm, 3/11.

Sunday, March 9

Channel 8: 8.02 Help Session #5. Program will repeat until 4pm, 3/11.

TECH TALK

February 26, 1986 Volume 30 Number 22

Tech Talk is published 35 times a year by the News Office Massachusetts Institute of Technology, Associate Director: Robert C. Di Iorio; Assistant Directors: China Altman, Charles H. Ball, Joanne Miller, Tech Talk editor, and Calvin D. Campbell, photo-journalist; Editorial Assistant: Sharon Davis; Reporter: Lynn Heinemann (Institute Calendar, Classi fied Ads, Institute Notices).

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

Telephone (617) 253-2701.

Mail subscriptions are \$18 per year by first class mail. Checks should be made payable to MIT and mailed to Business Manager, Room 5-113, MIT, Cambridge, MA 02139.



"Images of Infinity: Photomontages by Yulla Lipchitz", is on view through March 8 at the Compton Gallery. Today (Feb. 26), Ms. Lipchitz will meet with students, staff and faculty from noon-3pm in the gallery.

Health education programs offered

Weight control and nutrition classes will be offered by the Health Education Service of the MIT Medical Department beginning Tuesday, March 4 and Wednesday, March 5, respectively.

The first session of the 10-week weight control program will be held at noon in Rm E23-364. A free orientation meeting will take place today (Wednesday, Feb. 26) at noon to acquaint prospective participants with the program's philosophy and content.

The program is based on the principles of behavior modification, and participants will set their own goals with guidance from group leader Connie Roberts, R.D., of Brigham and Women's Hospital.

Evaluation of eating habits, pacing, cue elimination, preplanning and problem solving are some of the topics that will be covered. Impulse eating, splurges and guilt, surviving holidays, vacations, parties and eating in restaurants will also be addressed. Mild stretching and relaxation exercises will be practiced at each session. No special clothing is required.

The fee is \$60 for students and MIT Health Plan members; \$75 for all others. Advanced registration is required.

The three-session nutrition program, to be held 11:30am to 1pm in Rm E23-297 (second floor conference room), will continue March 11 and 18.

Classes will cover 10 steps to a healthy nutrition plan. Current information on food and its relationship to the prevention of cardiovascular disease and cancer, and proper nutrition for sports will also be addressed.

Connie Peterson, health educator, will lead the program. She holds a master's degree in public health and is a consultant for business and industry, including three health maintenance organizations in western Massachusetts.

The fee for the series is \$20; free for students. Preregistration is required.

Further information may be obtained by

calling the service at x3-1316.

Jobs Fair '86 is scheduled

A panel discussion, "Engineering Your Own Career: Personally Challenging and Socially Relevant Careers in Science and Technology will kick off the MIT Alternative Job Fair '86 Thursday, Feb. 27, at 8pm in Rm 10-250.

Featured speakers will be Dr. Anne Cahn, director of the Committee for National Security; Nicholas Miller, vice president and co-founder of Harris, Miller, Miller and Hanson, an environmental noise polution and vibration control consulting firm in Lexington; Dr. Bambi Young, Center for Science in the Public Interest; and Clint Andrews, Meridian Corporation, a renewable

A jobs fair workshop led by Nicholas Miller entitled, "What is Consulting?", will be held Friday, Feb. 28, at noon in West Lounge (Student Center).

The jobs fair, with 35 small high tech and nondefense companies, consulting firms, public service and government agencies and public interest groups participating, will be held from 10am to 3pm on Friday, Feb. 28, at the Sala de Puerto Rico.

Companies scheduled to participate include:

Karch and Associates, McKinsey and Company, League of Conservation Voters, Boston Museum of Science, Massachusetts Coalition for Occupational Safety and Health, Mosaic Technologies Inc., Williamson Group, Opus Telecom Inc., Greenpeace, National Weather Service, SANE, Innovative System Techniques, Geneva Group Inc., General Corporation, FJS Associates, Peace Corps, America Alarm and Communications Inc., Charged Droplet Systems, Andover Controls Corporation, Symbolics, Science for the People, High Technology Magazine, Department of Environmental Management, Kenergy New England Technology Group Educators for Social Responsibility, High Tech Professionals for Peace, Kenton Systems Corporation and Cambridge Research Lab.

Sponsors of the event are the MIT Student Pugwash, MIT Alumni Association, Undergraduate Association, Graduate Student Council, High Tech Professors for Peace, Computer Professors for Social Responsibility and the Career Planning Office.

For further information, call 494-8822.

MIT Chamber Players

A program of music for strings and winds, directed by Dr. Marcus Thompson, professor of music, will be presented by the MIT Chamber Players on Saturday, March 1 at 8:30pm in Kresge Auditorium.

The program will be Mozart's Serenade, K. 287, and Schubert's Octet in F, Op. 166. Students, all members of the MIT community and the public are invited without charge.

This concert has been selected to be recorded by WGBH-FM for future broadcast on "Chamber Works." The MIT Chamber Players are made up of MIT faculty, staff, students and professional guest artists from the Boston area who perform an annual series of chamber

Perform on March 1

music programs in Kresge Auditorium, under the direction of Professor Thompson

From MIT, musicians for the concert will be Thomas Stephenson '70, bassoon; Professor Thompson, viola; Affiliated Artist Jean M. Rife, horn; Stephen D. Umans '70, principal research engineer in the Department of Electrical Engineering and Computer Science, clarinet. From Boston: Ben Sayevitch, violin; David Sinclair, bass, and Martha McQuaid,

MIT students performing will be Chung-Pei Ma'88, violin; Joyce Y. Wong'88, cello; Philip S. Hsu '87, violin, and graduate student Stephanie Wingfield, cello.

←Here & There→

It seems that the Houston Post may have been indulging in some Texas pride when it reported that three of that state's universities—the University of Texas, Rice and Texas A&M-were among the top four schools in the nation this year, after Harvard, in enrolling freshmen who were Merit Scholars. In the newspaper's ranking, MIT was eighth, as reported in Here & There February 12. While the Post may have been technically correct, the figures are somewhat misleading, according to MIT admissions director Michael C.

Behnke.
"The Texas paper was counting not only high school graduates who get National Merit Scholarships," he explained, "but also finalists who were not chosen for one of the 1,800 National Merit Scholarships but were given a Merit Scholarship by their college. We are number eight if you count this way. But if you count only those graduates given National Merit Scholarships, MIT is fifth, behind Harvard, Yale, Princeton and Stanford."

Behnke is on the committee that selects the winners from among 12,500 finalists. After a week in Chicago reading applica-tions from students all over the United States, he returned to MIT impressed by the fact that most of the students are interested in math and science. He also noted that music is the most common extracurricular activity. It was the first time he'd had the chance to look at a nationwide applicant pool, rather than a self-selected group applying to one school.

Recent awards and honors:

-The School of Public Health Sciences, a new school sponsored by the State University of New York at Albany and the New York State Health Department, has honored MIT biochemist John M. Buchanan for his discovery of the role of thrombin, a clotting enzyme involved in wound healing. The award was presented to Dr. Buchanan, the John and Dorothy Wilson Professor of Biochemistry, at a meeting of the New York Academy of Sciences. It was the first of a series of honors to be given by the new school, the first in the nation to be located within a major public health agency.

Dr. John Fenton of the New York Health Department's Wadsworth Laboratories said Dr. Buchanan was instrumental in identifying thrombin as a substance in the blood that can initiate cell proliferation, a vital part of the clotting and wound healing process. He termed Dr. Buchanan's observation a "major breakthrough" that has farranging implications for tissue culture work. The first research paper on Dr. Buchanan's discovery was published in

Professor John. F. Elliott of the Department of Materials Science and Engineering was honor lecturer at the fall international meeting of the Institution of Mining and Metallurgy in London. He delivered the inaugural address, the twentieth Sir Julius Wernher Memorial Lecture, entitled "The Role of Interfaces in Pyrometallurgical Processes." Professor Elliott also delivered the opening address at the plenary session of the first bilateral Indian-U.S. Seminar on Steel Research in Ranchi, India, in January. Dr. Elliott is professor of metallurgy, director of the Mining and Mineral Resources Research Institute, and American Iron and Steel Institute Distinguished Professor.

At the Department of Athletics:

-Athletic Director Royce N. Flippin Jr., has been named to a five-year term on the National Collegiate Athletic Association (NCAA) Executive Committee by the NCAA Council. The 14-member executive committee is responsible for the financial affairs and championships of the NCAA.

-Sports medicine coordinator Paul Grace has been selected 1985 Athletic Trainer-of-the-Year by Cramer Products, Inc., of Kansas. The award goes to the athletic trainer who has exhibited leadership and excellence while contributing to the advancement of the athletic training profession.

-Jonathan Richmond, a doctoral candidate in the Transportation Systems Division of the Department of Civil Engineering and a former transportation analyst and consultant in southern California, remains involved with that state's transportation policy from 3000 miles away.

In an article in the Long Beach Press-Telegram, Richmond suggests that support for light-rail in southern California rests on illusory-not real-benefits. The article develops a theme of an earlier essay he wrote for the Los Angeles Times

Richmond, a Briton, came to the U.S. in 1979 as a Fulbright Scholar at MIT's Center for Transportation Studies. After receiving the SM in transportation in 1981, he worked in California, where he became the focus of controversy as a critic of computer-demand modeling for the proposed Los Angeles-San Diego high-speed rail service.

-In response to our musings about other publications that use our name, Robert Hart of Lincoln Laboratory has sent along a copy of the magazine, Digital Review, which has a question-and-answer column called Tech Talk.

Dr. Sheila Widnall appointed

(continued from page 1) Dresselhaus was named Institute Professor in December.

A member of the MIT faculty for 21 years, Dr. Widnall was the first woman graduate of the Institute to be appointed to the faculty in the School of Engineering. She was the first woman chairman of the MIT faculty, a post she held from 1979-81. She served as chairman of the Faculty Committee on Undergraduate Admissions and Financial Aid from 1982-84.

On May 31, following the annual meeting of the American Association for the Advancement of Science (AAAS), she will become president-elect of the AAAS. She will be only the fourth engineer elected to head the 137year-old association. She is a fellow of AAAS and has been a member of its board of directors

since 1982. She is a member of the National Academy

Physical Society. Professor Widnall's research interests have focused on flow and turbulence involving aircraft, hydrofoils and ground vehicles. Her teaching activities have included undergraduate dynamics and aerodynamics, graduate level aerodynamics of wings and bodies, aeroelasticity, acoustics and aerodynamic noise, and aerospace vehicle vibration. As a consultant, her major research activities have included experiments on jet noise, compressor noise and prediction of unsteady air loads on launch vehicles due to turbulence.

As the first director of the Office of University Research of the U.S. Department of Transportation (1974) she was responsible for the administration of the Program of University Research, including program direction, proposal evaluation, award decisions, contract monitoring, results utilization and budget justification.

Professor Widnall is a fellow of the American Institute of Aeronautics and Astronautics and has served as a member of its board, as associate editor of the AIAA Journal of Aircraft and as a member of the AIAA Aeroacoustics Panel. She has been a member of the Space and Aeronautics Board of the National Academy of Engineering and an advisor to the U.S. Air Force. She held two consecutive presidential appointments to the



board of Visitors at the U.S. Air Force Academy

and chaired that group.
She is a trustee of the Carnegie Corporation; a member of the Advisory Committee, Engineering Directorate, National Science Foundation (vice chairman), and the U.S. National Committee on Theoretical and Applied Mechanics.

Professor Widnall and her husband William S. Widnall, also an aeronautical engineer, have two children and live in Lexington.

Ebony Affair

The 11th annual Ebony Affair, presented by the Black Graduate Student's Association, will take place Saturday, March 1, from 9pm to 2am in the Sala de Puerto Rico. Dress is semiformal. Tickets are \$7. Student tickets

Entertainment will be by Peaceful Flight with Wynetta Jackson. Call x3-4990 or x3-4846 for information.

Tech Talk, February 26, 1986, Page 3



February 26-March 9

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

MISS THE TECH TALK DEADLINE?

Put your announcement on the MIT Cable System. "Today at the Institute" runs 24 hours a day and can be viewed in Lobby 7, Lobby 10 and anywhere the cable is connected.

Simply submit announcement in writing to Rm 9-030. We prefer a day's warning, but faster action may be possible. Useful also for correcting errors, notifying about cancellations, and dealing with emergencies.

Note: If you have met the Tech Talk deadline, your an-

Note: If you have met the Tech Talk deadline, your announcement is automatically put on cable (except for exhibits and some multimeetings programs).

Special Interest Events

MIT Alternative Jobs Fair '86** - MIT Student Pugwash/MIT Alumni Assn/Undergraduate Assn/GSC/ Computer Professional for Social Responsibility/High Technology for Peace/Office of Career Planning and Preprofessional Services Professional exploration of challenging and creative jobs with 35 small high-tech non-defense companies, consulting firms, government agencies and public interest groups. Engineering Your Career: Personally Challenging and Socially Relevant Careers in Science and Technology - Keynote Panel Discussion, Dr. Anne Cahn, director, Committee for Natl Security; Dr Bambi Young, Ctr for Science in the Public Interest; Nicholas Miller, vice-president & co-founder, Harris, Miller, Miller & Hanson; Clint Andrews, Meridian Corp - Feb 27, 8pm, Rm 10-250. Jobs Fair - Feb 28, 10am-3pm, Student Ctr Sala de Puerto Rico. What is Consulting? - Workshop, Nicholas Miller, Feb 28, 12noon, Student Ctr West Lounge.

Seminars and Lectures Wednesday, February 26

Real Property Portfolio Management: Some Experiences and Future Prospects** – Ranko Bon, Assistant Professor of Economics in Architecture, Dept of Architecture, MIT Joint Program for Energy Efficient Buildings & Systems/Laboratory of Architecture & Planning Seminar on Building Performance, 12-1pm, Rm 1-134. Bag lunches welcome,

Ultrasensitive P32 Labeling Techniques for DNA Adduct Analysis* - Dr. Ramesh C. Gupta, Dept of Pharmacology, Baylor College of Medicine, Houston, Texas, Dept of Applied Biological Sciences Seminar, 12noon, Rm 16-318.

Quasi 2-D Confined Electronic System in Study of Conductivity of Graphite Fibers** – Mohammad Moghimi, PhD candidate, Nuclear Engineering Dept RST Seminar, 4pm, Rm 24-121. Refreshments served, 3:45pm.

Working Overseas** - Office of Career Services Information Session on the possibilities of working abroad for a summer or longer, 4pm, Rm 4-153.

Cenozoic Stratigraphic Architecture of the Oregon-Washington Cascade Range: A Sedimentologist's Perspective** – Gary Smith, Dept of Geological Sciences, University of Washington, Dept of Earth, Atmospheric, and Planetary Sciences Colloquium, 4-5pm, Rm 54-918.

Musical Research, Composition & Performance at IRCAM* - David Wessel, director, Personal Music System Development, Institut de Recherche et Coordination Acoustique/Musique, Paris, Experimental Music Studio Music and Technology Forum, 8pm, Wiesner Bldg Bartos Theatre.

Thursday, February 27

The Cosmological Constant** - Prof Laurence Abbott, Brandeis University, Physics Colloquium, 4pm, Rm 10-250. Refreshments served, 3:30pm, Rm 10-250 Lobby.

What is an Intelligent Building?* - Norman Kurtz, principal, Flack & Kurtz, consulting engineers, Construction Engineering and Management Seminar, 4pm, Rm 1-190.

NMR Studies of Intracellular Ions in the Perfused Frog Heart* - Deborah Burstein, doctoral candidate, medical engineering/medical physics, Health Sciences and Technology Seminar, 4pm, Rm E25-117.

The Structural Basis of Photosynthetic Light Reactions in Bacteria** - Prof Dr Robert Huber, Max Planck Institut fur Biochemie, Dept of Chemistry Seminar in Biological Chemistry, 4pm, Rm 4-270.

The American Workplace in the Information Age* – Vary Coates, Office of Technology Assessment; Harley Shaiken, University of California-San Diego, MIT Communications Forum Seminar, 4-6pm, Bartos Theatre, Rm E15-070.

Labor Migration and Overlapping Generations* - Oded Galor, Brown University, MIT-Harvard Research Seminar on Migration and Development, 4-6pm, Harvard Ctr for Population Studies, 9 Bow St, Harvard Sq.

Organizing and Linking Your Ideas** - Writing and Communication Center ESL Writing American English Workshop, 4:15pm, Rm 14N-317.

Women and Contemporary Islam: Some Recent Perspectives* - Prof Afaf Lufti al-Sayyid-Marsot, Modern Near Eastern History, UCLA, Bustani Middle East Seminar, 4:30pm, Rm E38-615. Prof Philip Khoury, history faculty, will chair.

Friday, February 28

Statistical Aspects of Quantum Transport in Small Systems** - Y. Imry, Tel-Aviv University and Yale University, Center for Materials Science and Engineering Colloquium, 12:15pm, Rm 12-132. Lunch provided, 12noon.

High Density Suspension Culture of Mammalian Cells Using Gravity Sedimentation Cell Recycle** - John G. Aunins, Chemical Engineering Seminar, 2pm, Rm 66-110.

Theory of Thermodynamic Properties and Phase Separation of Micellar Solutions** - Dr. Daniel Blankschtein, MIT Dept of Physics and Ctr for Materials Science and Engineering, Chemical Engineering Seminar, 3pm, Rm 66-110.

Trapping and Acceleration of an Electron Beam by Two Counterpropagating Laser Veams* - Prof A. Gover, National Synchrotron Light Source, Brookhaven National Lab, and Tel Aviv University, Plasma Fusion Center Seminar, 4pm, Rm NW17-218.

Earth, Wind, and Occultations** - Dr. Richard Rosen, Atmospheric and Environmental Research Inc and MIT Ctr for Meteorology and Physical Oceanography, Center for Meteorology and Physical Oceanography Seminar, 4pm, Rm

Monday, March 3

The Adjustment Process in the Polish Economy* - Dr. Adam Budnikowski, Fulbright Visiting Scholar, MIT; associate professor of economics, Central School of Planning and Statistics, Institute of International Economic Relations, Warsaw, Center for International Studies Seminar, 12:15-2pm, Rm E38-615.

Ecology: Reductionism and Holism in Research and Education** - Prof Sallie W. Chisholm, Dept of Civil Engineering, School of Engineering Center for Technology, Policy and Industrial Development/Whitaker College Program in Health Policy Seminar, 4-5pm, Rm E25-401. Refreshments served, 3:30pm.

Semicrystalline Polymers: Molecular Structure, Morphology and Properties (First of three lectures)* - Prof Leo Mandelkern, Florida State University, Institute of Molecular Biophysics, Program in Polymer Science and Technology Polymer Seminar, 4-5pm, Rm E25-202. Refreshments served, 3:30pm.

Centrifugal Separation of Mixtures** – Prof Harvey P. Greenspan, MIT Dept of Mathematics, Applied Mathematics Colloquium, 4pm, Rm 2-338. Refreshments served, 3:30pm, Rm 2-349.

Electrodynamics of Heavy Fermions* - Prof A.J. Sievers, Cornell University, Francis Bitter National Magnet Laboratory, 4pm, Rm NW14-2209. Refreshments served, 3:30pm.

Centrifugal Separation of Mixtures** - Prof Harvey P. Greenspan, MIT, Applied Mathematics Colloquium, 4pm, Rm 2-338. Refreshments served, 3:30pm, Rm 2-349.

Leo Mandelkern, Florida State University, Institute of Molecular Biophysics, Program in Polymer Science and Technology, Polymer Seminar, 4-5pm, Rm E25-202. Refreshments served. 3:30pm.

A Thermodynamic Theory for Micellar Growth** - Tsang Lin, PhD candidate, Nuclear Engineering Dept RST Seminar, 4pm, Rm 24-121. Refreshments served, 3:45pm.

Toxicological Facilities at MIT** - Andrew Braun, MIT Dept of Applied Biological Sciences, Ralph M. Parsons Laboratory Aquatic Sciences Seminar, 4pm, Rm 48-316.

Some Aspects of Bio-Technology in Japan** - Prof Anthony Sinsky, MIT Dept of Applied Biological Sciences, MIT Japan Science and Technology Forum talk, 5:30pm, Student Ctr Mezzanine Lounge.

Thursday, March 6

The Rise and Fall of American Microelectronics** - Charles H. Ferguson, MIT, VLSI Seminar, 4pm, Rm 34-101. Refreshments served, 3:30pm.

Semicrystalline Polymers: Molecular Structure, Morphology and Properties (last of three lectures)* - Prof Leo Mandelkern, Florida State University, Institute of Molecular Biophysics, Program in Polymer Science and Technology Polymer Seminar, 4-5pm, Rm E25-202. Refreshments served, 3:30pm.

What Crystals do for Neutrons** - Prof C.G. Shull, MIT, Physics Colloquium, 4pm, Rm 10-250. Refreshments served, 3:30pm, Rm 10-250 Lobby.

An Immobilized Enzyme System for Heparin Removal* – A. Reese, Dept of Applied Biological Sciences Seminar, 4pm, Rm E25-202.

Construction in Space* – Wendel R. Wendel, president, Space Structures International Corporation, Construction Engineering and Management Richard L. Mullin Memorial Lecture, 4pm, Rm 1-190.

Patterns of Integration of Turkish Migrants in Europe* – Prof Riva Kastoryano, Harvard University, MIT-Harvard Research Seminar on Migration and Development, 4-6pm, Harvard Ctr for Population Studies, 9 Bow St, Harvard Sq.

Writing More Effective Sentences** - Writing and Communication Center ESL Writing American English Workshop, 4:15pm, Rm 14N-317.



Members of the MIT Gospel Choir have been performing in Lobby 7 on Thursdays at noon during February in observence of Black History Month at MIT. Their final performance will be tomorrow, February 27. The choir has more than 30 members and a repertoire of more than 40 songs, some written by choir members.

-Photo by Cálvin Campbell

Error Structure of Radar Measurement of Rainfall** – Prof Isztor Zawadzki, Universite du Quebec a Montreal, Dept of Civil Engineering Division of Water Resources and Environmental Engineering Seminar, 4pm, Rm 48-316.

Measuring the Complex Permittivity of Subsurface Formations at 1.1 GHz** – K.A. Safinya, Schlumberger-Doll Research, Ridgefield, Conn, Electromagnetic Wave Theory and Applications Group Seminar, 4pm, Rm 34-302.

Two-Stage Laramide Orogeny in the Southwestern United States: Tectronics and Sedimentation** – Dr. Charles Chapin, New Mexico Bureau of Mines and Mineral Resources, Dept of Earth, Atmospheric, and Planetary Sciences Colloquium, 4-5pm, Rm 54-918.

Shipping Strategies of the Eighties: Survival or Success?*

- Robert Pouch, president, Barber Steamship Lines, MIT
International Shipping Club Seminar, 4:15pm, Rm E51-302.
Refreshments served.

Models and Mirrors* - Prof Spiro Kostof, architectural history, University of California-Berkeley; author of A History of Architecture: Settings and Rituals; writer and host America By Design, upcoming Public Television series on American architecture and urbanism, School of Architecture and Planning Lecture on Design Communication, 6pm, Rm 9-150.

Tuesday, March 4

New Links Between X-rays and Visible Light** - Richard D. Deslattes, National Bureau of Standards, Gaithersburg, Laser Research Ctr/George R. Harrison Spectroscopy Laboratory/Research Laboratory of Electronics/School of Engineering Seminar on Modern Optics and Spectroscopy, 11-12noon, Rm 37-252. Refreshments served following seminar.

Genetic Analysis of Protein Export** – Dr. Thomas Silhavy, Dept of Molecular Biology, Princeton University, Biology Colloquium, 4:30pm, Rm 10:250. Coffee served, 4pm, Bldg 56 fifth fir vestibule.

Egypt and Turkey in the 1980s: The Organization and Management of a Multi-Party Political System* – Prof Roger Owen, lecturer, Economic History of the Middle East and fellow, St Anthony's College, Oxford University, Bustani Middle East Seminar, 4:30pm, Rm E38-615. Philip Khoury, history faculty, will chair.

An Overview of Inverse Methods in Wave Propagation**
- T. Habashy, A. Sezginer, and E. Chow, Schlumberger-Doll Research, Ridgefield, Conn, Electromagnetic Wave Theory and Applications Group Seminar, 5pm, Rm 34-302.

Wednesday, March 5

Building Portfolio Monitoring Using Lotus 1-2-3** – Rodrigo Brana, recent SM.ArchS grad and SM (CRED) degree candidate, MIT Joint Program for Energy Efficient Buildings & Systems/Laboratory of Architecture & Planning Seminar on Building Performance, 12-1pm, Rm 1-134. Bag lunches welcome.

Semicrystalline Polymers: Molecular Structure, Morphology and Properties (second of three lectures)* - Prof

Let's Get Corporate America Going** - T. Boone Pickens, Jr, chairman and president, Mesa Petroleum Company, Sloan School of Management's Distinguished Speakers Series, 4:30pm, Rm E51-329.

Friday, March 7

Statistical Dynamics of Polymer Solutions** - Y. Oono, University of Illinois, Ctr for Materials Science & Engineering Colloquium, 12:15pm, Rm 9-150. Lunch provided, 12noon.

Adsorption, Diffusion and Reaction on Catalytic Metal Surfaces: Laser-Induced Desorption Studies** – Edmund G. Seebauer, University of Minnesota, Chemical Engineering Seminar, 2pm, Rm 66-110.

Viscous Flow in Microscopic Regions** - Prof John Higdon, Dept of Chemical Engineering, University of Illinois, Chemical Engineering Seminar, 3pm, Rm 66-110.

Kant's Philosophy of Mathematics* - Prof Michael Hallett, McGill University, Dept of Philosophy Seminar, 4pm, Rm 37-212.

Transport in TEXT* - Dr. Alan J. Wooton, Institute for Fusion Studies, University of Texas-Austin, Plasma Fusion Seminar, 4pm, Rm NW17-218.

An Experiment on Boundary Mixing in Stratified Fluids**
- Dr. Owen Phillips, Dept of Earth and Planetary
Sciences, The Johns Hopkins University, Center for
Meteorology and Physical Oceanography Seminar, 4pm, Rm
54-915.

Readings

Writers' Series* - David Bradley, author of two novels: The Chaneysville Incident, and South Street, 1and magazine/journal essays, MIT Writing Program Seminar, March 4, 4-6pm, Rm E51-144.

Poetry Reading* - Michael Palmer, winner of a National Endowment for the Arts Award; teacher, New College and San Francisco State College, author of First Figure and Notes from Echo Lake, MIT Writing Program Reading, March 4, 8-10pm, Student Ctr Mezzanine Lounge.

Films

Best of Years* - Australia's Snowy Mountain Hydroelectric Project, MIT Museum Macroengineering Film Collection Movie, Thurs, Feb 27, 8pm, MIT Museum Bldg N52 Klimann Gallery. Free.

Community Meetings

Alcoholics Anonymous (AA)** - Meetings every Tues, 12-1pm, Rm E23-364. For info call Ann, x3-4911.

Al-Anon** - Meetings every Fri, noon-1pm, Health Education Conference Rm E23-297: The only requirement for membership is that there be a problem of alcoholism in a relative or friend. Call Ann, x3-4911.

Alcohol Support Group** - Meetings every Wednesday, 7:30-9am, sponsored by MIT Social Work Service. For info call Ann, x3-4911.

Narcotics Anonymous* - Meetings at MIT, every Mon, 1-2pm, Rm E23-364 (MIT Medical Dept). Call 569-8792.

Overeaters Anonymous* - Meetings every Mon, 12-1pm, Rm E23-297. This is not a lunch time meeting, so please do not bring any food. For info call Judy, x3-2481.

MIT Faculty Club** - The Club is open Mon-Fri. Luncheon hours: noon-2pm; dinner hours: 5:30-8pm. For dinner and private party reservations, call x3-4896 9am-5pm daily.

Commodore Users Group** - meets monthly at noon time For more info, call Gil, x8-3186 Draper.

Wives' Group** - Morning Group: Feb 26, Boston Children's Museum - info: Rhonda Thompson, 724-3848. Meet at 9:15am, Eastgate. Children welcome. Afternoon Group: Feb 26, Japanese Culture: Crafts and Cooking - Japanese members of Wives' Group: March 5, Economy & Society in the USSR & China: Some Current Issues - Prof Joseph Berliner, Economics Dept, Brandeis. All meetings 3-5pm, Student Ctr Rm 491. Babysitting provided in Student Ctr Rm 407.

Craft Group** - sponsored by Wives' Group, meets every Thurs, 2-4pm, Student Ctr Center Lounge or Student Ctr Rm 407. Please call x3-1614 to check on location of meetings.

The Language Conversation Exchange** – sponsored by the Wives' Group, seeks persons interested in practicing languages with a partner. Many international students and spouses wish to practice English with a native speaker. If you are willing to help an international visitor practice English and/or interested in practicing or learning a foreign language with a native speaker, call the secretary to the Wives' Group, x3-1614.

MIT Women's League Informal Needlework Group** — Wednesday lunchtime gatherings, 9:30am-1:30pm, Rm 10-340. Bring sack lunch, projects, swap ideas. Coffee & tea served. Meeting dates: Feb 26, March 12, 26, April 9, 23, May 14, 28. For more info, call Lillian Alberty (491-3689), Nancy Whitman (x3-6040) or Beth Harling (749-4055).

Alumni Activities

Will Mechanical Computer-Aided Engineering Revolutionize Product Design?** - Philippe Villers, president, Cognition Inc, MIT Club of Boston Luncheon and Talk, Feb 26, 11:45am, Hillcrest Restaurant, Waltham. Cost: \$10/club members & guests; \$12/non-members. Reservations: call x3-2000 up to 10am, Feb 26.

MIT Activities Committee

MITAC, the MIT Activities Committee offers discount movie tickets for General Cinema, Showcase and Sack (USA Cinemas) Theaters (\$3 ea). Tickets are good 7 days a week, any performance.

Tickets may be purchased at MITAC Office, Rm 20A-023

(x3-7990), 10am-3pm. Mon through Fri and Lobbies 10 and E18 on Fri, 12-1pm. Lincoln Lab employees may purchase tickets in Rm A-270 from 1-2pm, Tuesday through Friday only. Check out our table of discounts for camping, dining, musical and cultural events available to you through MITAC and MARES (Mass Assoc of Recreation and Employee Services).

Rap Master Ronnie. Thurs, Feb 27, 8pm, Next Move Theatre. The master satirist, Garry Trudeau, immerses us into playfulbut-thought-provoking-satire with this musical revue. Tickets: \$18 (reg \$19.50) available in Rm 20A-023.

Flower Show, Sat-Sun, March 8-16. Bayside Expo Center.

More than 3½ acres of beautifully landscaped gardens to brighten up these icy days. Tickets: \$5/adults (reg \$6), and \$1/children ages 6-12 (reg \$2), available in Rm 20A-023. Preservation Hall Jazz Band. Sun, March 16, 3pm, Sym-

phony Hall. Don't miss an afternoon of good old-fashioned foot

stompin', hand-clappin' jazz. Tickets: \$17 (reg \$18.50), available

in Rm 20A-023.

Council for the Arts Museum Passes. On campus, there are 10 passes employees may borrow for free admission to the Museum of Fine Arts. To check on availability, call x3-5651. At

Lincoln Lab, passes are available in the Lincoln Lab Library, Rm A-150.

Museum of Science Tickets. Available for only \$1. Pay

Museum of Science Tickets. Available for only \$1. Pay another \$1 at the door, for a total savings of \$3/pp/adult; \$1/pp/child (reg \$5/pp/adult; \$3/pp/child).

City Books are here! Only \$.75 (reg \$7.50).

Ski-Key Books. Containing valuable discount lift ticket coupons for the greater New England area are here! Only \$9 ea (reg \$25).

New! The Greater Boston '86 Books are here! 2-volume, 820-page discount coupon book offer discounts on fine and casual dining, theatre, comedy shows, opera, ballet, museums, hotels, car washes, cleaners, and more...for the greater Boston area and beyond (inc areas in the Metro West, South Shore, North Shore & north of Boston). A limited supply now available for only \$20 ea (reg \$30 ea).

Important! To avoid disappointment, purchase tickets and make reservations early as we are limited by ticket availability and transportation. All MITAC events and ticket purchases are non-refundable due to the non-profit nature of our organization.

Social Activities

Live Music Coffeehouse** - MIT Hillel Graduate Students coffeehouse, Sat, March 1, 8-11pm, Student Ctr Mezzanine Lounge. Classical, jazz, pop and folk music, \$1 cover; free refreshments.

Gays at MIT Spring Dance* - Fri, March 7, 9pm·lam, MIT Student Ctr 2nd floor. Admission: \$3; \$2/student ID. Info: x3-5440.

GAMIT Sunday Discussion Meeting* - Gays at MIT, Suns, 5pm, GAMIT Lounge, Walker Memorial Rm 50-306. Dinner served at 6:30pm.

GAMIT Study Break* - Gays at MIT, Thurs, 9pm, GAMIT Lounge, Walker Memorial Rm 50-306.

Movies

M** - LSC Classic Movie, Feb 28, 7:30pm, Rm 10-250. \$1/MIT-Wellesley ID.

A Soldier's Story** - LSC Movie, Feb 28, 7&10, Rm 26-100. \$1/MIT-Wellesley ID.

Moving in Boston: The Black Experience* - Black History Month at MIT/Museum of Afro-American History African Meeting House movie and discussion with the museum curator, Feb 27, 3:30-5:30pm, Student Ctr Mezzanine Lounge. Refreshments served.

The Breakfast Club** - LSC Movie, March 1, 7&9:30, Rm 26-100. \$1/MIT-Wellesley ID.

The Deer Hunter** - LSC Movie, March 2, 7pm, Kresge Auditorium. \$1/MIT-Wellesley ID.

Stairway to Heaven** - LSC Classic Movie, March 7, 7:30pm, Rm 54-100. \$1/MIT-Wellesley ID.

News about information systems throughout MIT

WORKING WITH ATHENA

nformation Systems and Project Athena, MIT's educational computing experiment, work together formally and informally.

A few facts: Prof. James D. Bruce, director of IS, serves on the Athena executive committee and takes part in Athena directors' meetings; other IS staff participate in Athena managers' meetings. Athena's E40 enclave is home to five IS staff members who work with Project Athena staff. Athena buys telecommunications and some systems support services from IS groups. Connecting all the Athena clusters is the campus network, managed and supported by IS. If you use Athena, you may take advantage of the IS magnetic tape service and high-speed laser printers.

These formal ties rest on more intangible ones. "Athena and IS's working relationship is much closer than just buying services," Prof. Steven R. Lerman, Athena's director, notes. "The staff of both work very closely. Further, the goals of Athena are compatible with what IS is trying to do."

IS is providing the range of services necessary to operate mainframe and workstation computing at MIT. Maintaining state-of-the-art consulting and training expertise is one facet of that service package; developing and implementing the workstation model of computing is another.

"Computing at MIT is like a three-legged stool," Bruce illustrates. "The computing done at Information Systems for educational, research and admini-

February 1986 VOL.1/NO.1

IN THIS ISSUE:

- IS & Project Athena
- Overview of IS
- · Word Processing at IS
- Site Licensing
- Microcomputer Corner

i/s is published by MIT Information Systems, Room 11-315, 77 Massachusetts Avenue, Cambridge MA 02139; (617) 253-6338. Inquiries and comments are welcome, and may be sent to this address, or via electronic mail to CMS userid MEDIA or Multics userid



strative purposes is one leg of that stool. The computing done by research laboratories, by academic and administrative departments on their own machines-like Chemistry or like Electrical Engineering and Computer Science—represents a second leg. And the third leg of that stool is Project Athena.'

Lerman considers Athena a catalyst for computing in education at MIT. Athena's technical director, Prof. Jerome Saltzer, sees Athena as altering the course of MIT education by making computers intrinsic to the education process, not just tools for research.

Compatible goals must be realized in stages, however. "One of IS' major challenges is converting from a mentality focused on mainframes to one focused on small workstations," Bruce says. The establishment of a network of high-performance workstations throughout MIT is one of Athena's major goals. IS benefits from Athena's experience and momentum, as it develops the campus network, and associated workstation support.

Part of the success of both ventures rests with the interaction of IS and Athena. "Many faculty are going out and buying computers that are compatible with the Athena environment," Bruce says. "They then turn around and say, 'Where's the software?' There is no place for them to get the Athena software today. IS will be the organization that provides that distribution service." IS is developing plans to supply a standard Athena operating package to offices and labs that want to use the Athena software environment.

Both groups are contemplating 1988, when Athena's fiveyear term runs out. If MIT decides that the Athena model of education should continue. how will the IS/Athena connection change? "There is a tremendous interplay between the two organizations," says Bruce. "It was designed that way. One of the principles that was accepted before Athena really got rolling was that you plan for Athena to be a success, and you plan for the merger of

FROM THE DIRECTOR

MIT's computing and communications environment is in the midst of a

major transformation affecting all areas of the Institute. Although many departments still use Information Systems' mainframes

for their administrative and research work, most now operate their own personal computers, and in many cases their own minicomputers. In addition, Project Athena is providing students and faculty with access to an expanding network of computers, and offering them the opportunity to make computing an integral part of the educational process. We have begun construction of a campus-wide computer network—due in large part to the needs of Project Athena—that now links approximately 500 computers. As the network grows over the next few years, we expect it to become an important mode of communication at the Institute. These developments have expanded tremendously the availability of computers, and led to unprecedented growth in the number of users and the range of educational, research and administrative activities to which technology is being applied. These changes present a great challenge to the Information Systems

organization. IS traces its origin as a provider of computing services back to the MIT Computation Center in the 1950s, some 30 years ago. Until two years ago, we focused almost exclusively on time-shared and batch services on large, centrally managed mainframe computers. While we will continue to offer mainframe-based services—which remain important to a wide variety of our clients—the group's primary focus is shifting to accommodate the changing environment.

Over the next few years Information Systems must evolve into a serviceoriented provider of those products and services necessary to support a networked computing environment with thousands of users. These services will include centrally licensed software at reasonable prices; increased support (training, on-site maintenance, etc.) for microcomputers and workstations; a widely accessible campus computer network with related network services such as document printing, electronic mail, file storage, and specialized databases; and increased support for

With this publication we inaugurate is, a newsletter dealing with comend users including faculty, students, and staff. puters and communications at MIT. The rapidly changing environment demands a forum for sharing information, experiences, and ideas. We believe that this is

In this issue you will find descriptions of Information Systems' products a service right in line with our evolving role. and services—some current, some planned. We have also included introductions to each of the IS divisions to let you know who we are and what we do. In future issues we expect to talk not only about the activities of the Information Systems group—we're only part of the picture—but about how computing and communications systems are being used to support all aspects of MIT's mission as a research

Your response to our efforts will be essential to smooth transitions in the months and years ahead. We welcome your feedback on the newsletter and on our and educational institution. efforts to become a service-oriented organization that meets MIT's changing information systems needs. Let us hear from you.

these two streams at some point in the future."

'Integration depends,' according to Lerman, "on how things end. If we go to the Phase III 'Private Workstation' model of Athena, where students have their own workstations, then IS would help form the deals with the vendors at a lower, bulk, cost. Perhaps IS would provide the server services of the system. As well, a lot of Athena support staff might go to IS."

At the mid-point in the Athena project, the two groups are beginning to knit their organizations more tightly together, preparing for a likely merger. Plans for 1988 are being suggested, but, as Lerman notes, "it depends on what direction MIT chooses for the post-Athena period."O

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PLANNING FOR THE FUTURE

arly in September, Information Systems commissioned an investigation of how computing and communications technologies should support the Institute's administrative and business functions.

Several concerns prompted the project. More and more people throughout MIT make use of computers. The trend for many of these people is away from mainframe-based applications, and toward individual workstations. Many departments now have their own data processing support groups. Efficiency is another issue. Administrative computing currently involves too much duplication of efforts. We must

examine the possibility that insufficient value is being received from MIT's investments in centrally developed administrative systems. The rapid growth of information technology urges us to examine new ways of addressing these issues.

Staff at many departments contributed their time and insights to this project. It is now complete, and its recommendations are being reviewed by the senior administration. In subsequent issues of i/s we will discuss various aspects of the plan as it unfolds.

IS appreciates the energy of all who participated. Your help has allowed us to help you, and others at the Institute.O

O V E R

HOW TO REACH US

MICROCOMPUTER CENTER 253-0200

MICROCOMPUTER CONSULTING 253-7687

COMPUTING ASSISTANCE OFFICE 253-6322

TRAINING SERVICES 253-6322

PUBLICATIONS SALES 253-6325

ADMINISTRATIVE SYSTEMS 253-1347

DEPARTMENTAL SYSTEMS 253-1359

TELECOMMUNICATIONS 253-3651

COMPUTER NETWORK 253-4101

TELEX MESSAGE CENTER 253-3690

CABLE TV NETWORK 253-7431

FACILITIES MANAGEMENT 253-7011

> SITE LICENSING 253-1950

INFORMATION SERVICES

Information Services provides support services directly to individual users, from the novice to the expert, working on the largest mainframe or the smallest microcomputer.

IS operates the MIT Microcomputer Center in Room 11-209, where the MIT community is welcome to browse, confer with Center consultants, and purchase hardware, software, and accessories (see page 4). The Center also acts as a clearinghouse for information on other computer resources within MIT. The Micro Center phone number is 253-0200.

Further responsibilities include software site licensing and distribution to computers throughout the campus (see article below). The department also serves as the source for several data archives, and statistical/numerical libraries and packages. Information Services Publications produces the On-Line News service on VM and Multics; creates this newsletter; and writes, edits, and distributes documentation for Information Systems and Project Athena. For manual ordering information, call 253-6325.

Information Services also offers consulting, courses, and seminars. Areas of expertise include communications, database management, graphics, numerical and scientific computing, office systems, programming, statistics, and text processing.

Consulting advice runs the gamut from helping a new user select a computer, to finding out why an elegantly structured program won't compile. Several avenues are available for help. If you have questions on microcomputers, contact the Microcomputer Center consultants at 253-7686. Multics and VM users can call the Computing Assistance Office at 253-4114, Room 11-314. You can discuss more specialized or contract consulting by calling 253-6322.

Throughout the year, Information Services offers seminars, short non-credit courses, and training sessions. Some courses are introductory; others treat one topic in depth. The popular "survival" series gives the inside story on getting around particular computing systems. A quarterly course catalog is distributed across the campus. Information Services personnel are also available to teach customized courses. If you have any questions or suggestions about courses, contact the Training Services Manager at 253-0540.0

TELECOMMUNICATIONS SYSTEMS

elecommunications
Systems enables people
and machines at MIT to
communicate electronically
with each other and with
points off-campus.

Among the media covered by Telecommunications Systems are telephones, the campus computer network, private and public radio paging, facsimile, Telex/TWX facilities and the MIT cable television network. Data communications facilities, and the installation or maintenance of equipment, are all dealt with here. For details, call 253-3651.

MIT phone service currently consists of the Centrex and DormLine systems. Centrex service is supplied by New England Telephone; MIT supplies the DormLine service. By June 1988, however, Telecommunications Systems will begin operating its own state-of-the art digital switching system from AT&T.

The campus computer network is providing high-speed data communications (initially 10 megabits per second) to oncampus computer systems. The physical network, using fiberoptic cable, now connects Buildings 1, 2, 4, 11, 38, 66, W20, W91, NE43, E15, E19, and E40. A growing number of departmental local-area net-

works are attached to the network spine. Telecommunications is now connecting computers as small as the IBM PC, and eventually will even add the Apple Macintosh. To connect to the network, call 253-4101.

Telecommunications Systems operates a message center for Telex, TWX, and telecopier facsimile services. These services are available to the entire MIT community. The Message Center can be contacted by telephone (253-3690) or electronic mail (Telex.Telecom@Multics).

The cable television network transmits live and videotaped programs for both education and entertainment. The Student Cable Programming Group collaborates with Telecommunications Systems to involve MIT students in program production. Call 253-7431 for more information on the cable network.

For academic and research users, a high-speed communications link to the John von Neumann supercomputer facility in Princeton will soon be provided. That center is expected to become operational in the second quarter of the year. Supercomputer consulting services will be available through Information Services.

INFORMATION SYSTEMS JAMES D. BRUCE, DIRECTOR

ADMINISTRATIVE SYSTEMS MARILYN A. MCMILLAN, DIRECTOR TELECOMMUNICATIONS SYSTEMS MORTON BERLAN, DIRECTOR OPERATIONS & SYSTEMS ROGER A. ROACH, DIRECTOR INFORMATION SERVICES RICHARD D. SCOTT, DIRECTOR

WORDS' WORTH

he end of the academic year approaches. With it come deadlines on annual reports, grant proposals, academic papers, and other documents. If you are looking for high-quality word processing and laser printing, or if you are in the market for some specialized software for your microcomputer, Information Systems can help.

IS supports a variety of editing and word processing software on both its Multics and CMS systems. IS offers the Emacs editor and two text formatters, runoff and compose, on Multics; CMS runs the XEDIT editor and SCRIPT for text formatting. Another formatting alternative on both systems is Generalized Markup Language (GML).

Text Editors

Emacs, developed at the MIT Artificial Intelligence Laboratory. An extremely versatile text editor, it is available on a number of different systems, including Multics, Unix and TOPS-20. Versions are also available for micros. Epsilon, a full-screen text editor for the IBM PC, is modelled on Emacs.

On CMS, Information Systems offers XEDIT. XEDIT is both a full-screen editor and a line editor, with a heavy orientation toward line and column editing. This is particularly appealing to programmers. As with Emacs, XEDIT has a micro version called KEDIT, which runs on the IBM PC.

You can also prepare your document on your own micro using your own word processing software, and send your file to Multics or CMS for printing on the IS laser printer (some pre-processing may be necessary). This requires that you have a modem and a software communications package such as Kermit. You can obtain your own mainframe account, or use the Kermit Print Server, for which no account is needed. Free Kermit manuals are available at Information Services Publication Sales, Room

Formatters

Recently, IS added Generalized Markup Language support to both systems. GML simplifies the creation of attractive documents by placing much of the formatting burden on the computer. You designate the type of document, label the various text elements (e.g., paragraph, heading) with GML tags, and have the computer format each element according to the rules for the chosen document type. Complete documentation is available for both Multics and CMS GML. You can use GML in conjunction with the compose, runoff, or SCRIPT formatters to gain full control of your document.

IS consultants can help assess your word processing needs. Among other things, they can help you decide which system, Multics or CMS, is most appropriate for your use. Or they can suggest alternatives, if neither system meets your needs.

Laser Printers

IS operates two Xerox highspeed laser printers, with a wide selection of fonts (proportional and non-proportional) and typefaces. You can produce camera-ready and thesis-quality copy on these printers. When you use the laser printer with either SCRIPT or compose, or with GML, you have access to a variety of fonts. SCRIPT has three public fonts: elite, pica, and univers. Compose has elite, pica, univers, and press roman. Although you can't always find an umlaut in every font, almost all have mathematical symbols. Both formatters produce printed copy in bold and italic typefaces as well.

Microcomputer Center

With so many word processing packages available for micros, a good evaluation of your needs can save you time, money, and trauma. The Microcomputer Center consultants can help you decide on appropriate hardware and software. The

Microcomputer Center regularly carries Epsilon, Kedit, and pfs:write for the IBM PC; Mac-Write for the Macintosh. The Center also maintains a note-book of word-processor evaluations, and gathers related periodicals to assist in your research. If you already own a Mac, you can take advantage of the Center's new LaserWriter printing service (see page 4).

To Find Out More:

- Mainframe word processing systems, call Barbara Hughes, x3-7729.
- Microcomputer word processing software, call Tricia Kellison, x3-0514.
- Accounts on Multics and CMS, see User Accounts, Room 3-123. Charges are detailed in the free Information Services manual Rates for Computer Services (RT-2). Students may be eligible for free Multics accounts from SIPB, the Student Information Processing Board.

OPERATIONS & SYSTEMS

t Information Systems, the nuts and bolts-or rather the chips and wires-of computers come under the purview of Operations & Systems.

O&S attends to the needs of several mainframe and minicomputer systems through its "facilities management" services. This means providing systems programming support to all centrally-managed computers at MIT, watching over these machines on a day-to-day basis, and planning for the long

O&S microcomputer services offers software development, maintenance, and repair (see article on page 4).

Operations & Systems is also working with Telecommunications Services and Project Athena to provide MIT with comprehensive computer services and communications capabilities. These will be built around the campus network and the use of "server" machines, computers devoted to specialized functions such as electronic mail transmission and file storage.

Operations & Systems manages two groups of Information Systems computers that serve MIT's academic and research needs on the one hand. and its administrative needs on the other. Academic, research, and general computing clients use either a Honeywell DPS 8/70M running Multics, or an IBM 4381 running VM/SP. Both machines give access to national and international networks. Administrative clients who need restricted-access facilities work on two other IBM systems and three DEC VAXs. All offer two high-speed, high-quality laser printers, and various graphics devices.

Staff members work in teams, engaged in a variety of different projects, such as production management, database development, and accounting support. One new project is the installation and operation of the FPS (Floating Point System) computer, a highspeed, FORTRAN program processor geared to scientific and numerical users.

The Operations & Systems group also sells its facilities management expertise. Project Athena is a major client, taking advantage of O&S experience in on-site operation of DEC equipment. Smaller computer facilities can contract with O&S for systems programming and operations support to ensure a more efficient use of computer support personnel. Operational service can range from once-aweek backup to 24-hour operational coverage. Systems programming support is available for new hardware and software releases, crash analysis, and the installation of new program products. In the near future, O&S will offer hardware and software support services for DEC and IBM workstations in offices and laboratories. Call 253-7011 for details on facilities management services.

ADMINISTRATIVE SYSTEMS

aychecks, budgets, pensions, endowments, admissions. The Administrative Systems group currently provides the Institute with software support for keeping track of people and resources.

Located in Building E19, AS acquires, develops, implements, and maintains business applications software for the Institute's central administrative offices. In addition, a recently formed Departmental Systems division has begun to address the business needs of academic departments and research laboratories.

AS has two major organizational components: area teams and service groups.

Area teams support computing for office groups with shared information needs (see box). AS teams work with clients to develop and tailor software in the areas of finances, facilities, personnel, and resources; consult on databases, networks, and office automation; and provide database and communications software that gives users immediate on-line access to essential information. Call 253-1347 for more information on these services.

Four service groups support the area teams. Access Planning Services assists in arranging communications access to ad-

ministrative mainframes. Database and Technical Services staff are concerned with all aspects of database activity: design, testing, production, maintenance, security. They are experts in NATURAL and ADABAS, the database package on which most new central administrative applications are built. Documentation Services writes user guides associated with each application. Maintenance Services enhances applications already in production.

A growing number of offices around MIT are using or considering microcomputers for their administrative tasks. The newest AS team, Departmental Systems, is beginning to work closely with other AS teams and the Microcomputer Center to serve the administrative needs of academic departments, laboratories, and research centers. Staff members conduct needs analyses in the departments to help determine their office automation requirements. This group also recommends solutions, prepares hardware and software implementation plans, and develops generic applications that can be used in a variety of Institute offices to handle common tasks. Call 253-1359 for further information. O

AS TEAMS

- ASSETS SYSTEMS Admissions Office, Alumni Association, Resource Development Office, Sloan Alumni Office, Student Systems, Treasurer's Office.
- EMPLOYEE SYSTEMS Comptroller's Accounting Office (CAO) Payroll Section and Benefits Accounting Office, Personnel Office, Telecommunications Systems, Medical Department.
- FACILITIES SYSTEMS CAO Accounts Payable Section, Office of Facilities Management Systems. Physical Plant, Purchasing Office, Property Office.
- FINANCIAL SYSTEMS CAO Accounting Section, Office of Budget and Finance, Office of Sponsored Programs.
- DEPARTMENTAL SYSTEMS Deans' offices and administrative offices of departments, laboratories,

and centers.

USERS HELP EACH OTHER

f you're interested in the why's and how's of micromainframe connections at MIT, you might find some answers at the Mainframe to Word Processors Users Group. This group gathers monthly to hear speakers and share experiences.

Members currently work with various office systems, including DECmate, Apple, IBM, and Wang computers. Discussions focus on ways to improve access to MIT's administrative mainframes—downloading files from central databases and uploading local files for processing on the mainframe.

Related topics include communications software (Linkware, Kermit), database languages (EASYTRIEVE, NATUR-AL), spreadsheet processing, JCL, and workfiles.

Meetings take place the first Wednesday of each month at 11 a.m. Location varies. For more information, contact group leader Lindsey Humes in Room 10-277, or at userid

LINDSEY on MITVMC.O

ACADEMIA LEADS THE WAY: SITE LICENSING

rganizations with large computing needs are seeking solutions. Universities, for whom these problems are particularly acute, often take the lead. One approach is site licensing, which allows an organization to make unlimited copies of a given product for its own internal use at a fixed fee. For example, Unilogic, Ltd., which produces the Scribe text formatter, has offered site licensing for a number of years; and MIT has a campus-wide license for the use of this software on DEC machines.

Faced with the choice of providing this kind of arrangement or losing business to competitors, many vendors are willing to negotiate. Project Athena, operating 60 DEC VAXes in its first phase, was able to obtain site licenses from vendors such as the Numerical Algorithms Group, Inc., who had not previously considered this approach. Vendors such as Addison-Wesley, recognizing the value of site licensing as a selling point, are now beginning to offer site licensing options voluntarily. However, others, notably the Lotus Development Corp., are opposed to such arrangements.

While site licensing can significantly reduce the percopy cost of software, it is not appropriate in every case. With the cost of such licenses as high as \$100,000, licensing represents a savings to MIT only if the software is widely used.

To help MIT make the most of site licensing, Information Services is beginning to coordinate activity in this area. Our goal is to build a portfolio of widely-used software at favorable per-copy prices, and to provide central support for distribution, updates, and problem reporting, as well as extended services of consulting and training, where appropriate.

While Information Services does not, in most cases, have the funding to purchase site licenses outright, it can facilitate the process of obtaining them in several ways. We can

distribute software and report bugs for groups such as the Sloan School, who may already own campus-wide licenses, in return for their making the license available to the rest of MIT. We can work with Project Athena and other groups who already have limited site licenses to extend those licenses to the whole MIT campus. Employing the "consortium" approach, Information Services can serve as a coordinator, pooling the funds of several groups in need of a particular software product, obtaining the license, and administering it.

Where the need for a product is too diffuse for these methods to be effective, Information Services may obtain the license with its own funds. For example, as of this writing we are exploring site licensing for an IBM PC-based version of the TeX technical text formatter.

Information Services will charge a distribution feemuch less than the individualcopy price of the software program-in order to recover the license fees over an expected number of users and cover the costs of distribution. When a department has already invested in a license, Information Services may be able to negotiate a partial return of the fee to that department. This publication will let you

know what software is currently available through site licensing. We will also let you know what software is under consideration, so you can let us know of your interest. If your organization has a site license that can legally be extended to the rest of MIT, or if you are interested in joining with other groups in obtaining a site license, please contact the Director of Information Services, Richard Scott, at 253-1950.

The department now holds central site licenses for Scribe on DEC VAXes running the VMS or Berkeley UNIX operating systems, and for Linkware micro/mainframe communications software. To get copies of Scribe, call the Information Services main office at 253-1793. For Linkware, contact the Microcomputer Center, Room 11-209, at 253-6325.

Three additional packages are under consideration: the PC TeX text formatter, MicroTeX text formatter, and MASS11 word processor. Call 253-1950 if you are interested in pursuing these options.

Do you have a user group? Or are you interested in forming one? Maybe we can help. Call Richard Scott, Director of Information Services, at 253-1950.

MICROCOMPUTER CORNER

ATTENTION! MACINTOSH HIGH-QUALITY PRINTING!

he Microcomputer Center announces its Macintosh LaserWriter Print Service, where you can print your text and graphics files with the polished look of neartypeset quality. Any files created with a Macintosh-based application (such as MacWrite, MacDraw, and Lotus Jazz) can be printed on the LaserWriter. Compare printed examples of text and graphics done on the ImageWriter II, in high-quality mode, with the LaserWriter.

Before printing documents on the LaserWriter, you must "laserize" your applications disk with the LaserWriter Install program. This program updates. the system folder with the commands necessary for using the LaserWriter; it also installs the LaserWriter fonts (Courier, Helvetica, and Times) that give the best results with this printer. You can purchase a copy of the LaserWriter Install

Notice the difference between ImageWriter and LaserWriter printing.





Even in high-quality print mode the Imagewriter can leave your text and graphics looking "dotty"

program for \$2.50, from

Publications Sales in the

Microcomputer Center.



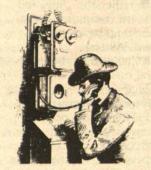
But now you can sharpen your words and images with the Microcomputer Center's new Laserwriter Printing Service!

A fee of \$0.30 per minute is charged for using the Laser-Writer equipment. To save

yourself time and money, what you want to print should be in its final format. The Laser-Writer prints on 8.5-by-11 inch paper, in portrait or landscape orientation, with a half-inch margin on all sides. To allow for this margin requirement, format your text and graphics pages to 7.5-by-10 inches. Fonts for typed text should also be changed to one of the three LaserWriter fonts for the highest-quality look.

To use the service, visit the Microcomputer Center during regular business hours and reserve a ten-minute time slot by leaving your name and MIT ID number. At the same time, pick up a copy of the Laser-Writer Print Service Procedures, which includes prices. Then all you do is arrive at the appointed time with your Macintosh diskettes in hand, and go to work.O

CONSULTANT'S HOTLINE



icrocomputer Center consultants often hear similar questions from different people. Each issue of this column will feature a few such questions and their answers, gleaned from our consulting logs. For answers to your own micro questions, call 253-7686.

Can I get a dump of the Macintosh screen to the printer?

Certainly, although it involves a bit of prestidigitation. Press simultaneously the Command key, the Shift key, and the (4) key, to send the contents of your screen off to the printer.

I own an IBM PC/XT with a monochrome display and like to produce simple graphs. Can I get such things as bar, line, and pie charts with a monochrome display?

Only if you have a mono-Only if you have a mono-chrome graphics card compat-ible with the IBM PC/XT, such as a Hercules or Paradise card. If you intend to purchase a graphics card for your PC/XT, be sure your software supports it. The IBM Enhanced Graphics Adapter (EGA) gives graphics capability to the monochrome display, but not much software supports the EGA.

I hear I can speed up my IBM PC by using a "vdisk" (virtual disk) with DOS 3.1. How does "vdisk" work? How do I set one

VDISK is a portion active memory (RAM) that is set aside as a virtual disk drive. It speeds up your work by cutting down the amount of time spent calling the real disk drives. First, create a file named CONFIG.SYS in your root directory, then add this command to it:

DEVICE=VDISK.SYS 128

DEVICE is a DOS command that allows you to specify the name of a device driver (here, VDISK). Here, 128 indicates the amount of RAM (in kilobytes) to be used as a virtual disk; you can specify from 64 Kb (the default) to 512 Kb (the maximum).

If you have a PC/AT, you can add the \E option to use that system's extended memory:

DEVICE=VDISK.SYS 128\E

Be aware of two pitfalls when using a VDISK: 1) Any data stored in the VDISK is lost if you have to restart the system, or if you turn off the power. 2) The specified VDISK memory is not available for use by other applications you may be running.

For further information on the DOS DEVICE command, your DOS manual.O

NEW "MACINTOSH PLUS"

pple Computer introduced its Macintosh Plus at the mid-January AppleWorld Conference in San Francisco. Aimed at the serious business and scientific user, the Macintosh Plus combines "userfriendly" features found on the smaller Macintosh models with increased memory and speed needed for large applications. Other features of the Mac Plus:

- A hierarchical file system in ROM gives greater flexibility in organizing stored files, and faster searches for named files.
- More RAM capacity, plus new software in ROM, speeds up processing by keeping instructions and data in active memory instead of reading them repeatedly from a disk. More RAM lets you work with larger spreadsheets or word-processing documents. One-Mb chips will be available to upgrade RAM to 4Mb.
- The 800Kb, double-sided, 3.5-inch disk drive can use 400Kb, single-sided diskettes.

- · A high-speed, small computer system interface (SCSI) handles data transfers up to six times faster than the serial port. This is Apple's interim answer to requests for access to internal slots.
- The keyboard combines a numeric keypad and cursor control keys.

MIT's Microcomputer Center sells the Mac Plus for \$1539. A Macintosh 128 or 512 can be upgraded to a Mac Plus with these kits:

Read-only memory (ROM):

retaining full compatibility.

Diskette drive:

Random-access memory (RAM):

- 800Kb internal diskette drive and 128Kb ROM - \$275.
- Logic upgrade: 1Mb RAM and SCSI port - \$527 for Mac 512, \$659 for Mac 128.
- 800Kb external diskette drive - \$354.
- Keyboard (numeric keypad, cursor control keys)- \$94.

There is no upgrade for the Macintosh 400Kb external diskette drive, but it can be used with the Macintosh Plus. Apple is not yet marketing an external hard disk drive that connects

Macintosh Plus Macintosh 512

40 kilobytes

512 kilobytes

400-kilobyte,

single sided

128 kilobytes

800-kilobyte,

double sided

1 megabyte

Also announced at the

to the Macintosh Plus SCSI

announced such drives.

port, but other vendors have

AppleWorld Conference was the LaserWriter Plus, with 1.5Mb ROM, 1.5Mb RAM, and seven new font families. An upgrade kit for the original LaserWriter is available at the Microcomputer Center for \$689.0

PC SUPPORT CENTER OPEN

s your Macintosh or IBM PC acting up? You can have it checked and repaired right here on campus. If you've bought one of these machines and aren't sure which plug goes where, aid in setting it up is just a phone call away.

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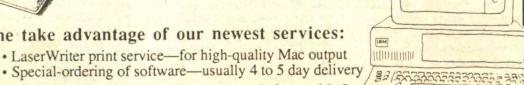
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The Emerald Forest** - LSC Movie, March 7, 7&10, Rm 26-100. \$1/MIT-Wellesley ID.

Prizzi's Honor** - LSC Movie, March 8, 7&10, Rm 26-100. \$1/MIT-Wellesley ID.

Hair** - LSC Movie, March 9, 6:30&9:30, Rm 26:100. \$1/MIT-Wellesley ID.

Music

MIT Gospel Choir* - Black History Month at MIT concert, Feb 27, 12noon, Lobby 7.

Noon Hour Chapel Series* - Music of South America, Thurs, Feb 27, 12:05pm, MIT Chapel. Free.

Music from IRCAM (Institut de Recherche et Coordina tion Acoustique/Musique* – Experimental Music Studio, New Musical Resources Series performs works by Pierre Boulez, Stanley Haynes, Johathan Harvey, Tod Machover, Kaija Saariaho with guest artists Rosemary Hardy soprano, and soloists of the Ensemble InterContemporain, Fri, Feb 28, 8pm, Kresge Auditorium. Tickets: \$6; \$3/student, senior, MIT. For info, call x3-7441.

MIT Affiliated Artist Series* - Richard Given, trumpet, Sat. March 1, 8:30pm, Kresge Auditorium. Free

Noon Hour Chapel Series* – Louise Treitman, gamba; Sonja Ludblad, recorder, Gisela Krause, harpsichord, Thurs, March 6, 12:05pm, MIT Chapel. Free.

MIT Faculty Series* - Prof Stephen Erdely, and Beatrice Erdely, piano, Fri, March 7, 8:30pm, Kresge Auditorium. Free.

MIT Symphony Orchestra* - David Epstein, music director Sat, March 8, 8:30pm, Kresge Auditorium. Admission \$1.

MIT Brass Ensemble* - Richard Given, director, Sun, March 9, 3:30pm, Kresge Auditorium.

Chinese Intercollegiate Choral Society* - Meets Suns, 3-5pm, Rm W20-491. Currently rehearing Chinese folk songs. Free voice lessons and music theory class, 1pm.

Theater

Arsenic and Old Lace* - MIT Community Players produc-tion, Feb 27-28, March 1, 8pm, Kresge Little Theatre. Tickets: \$4/students, MIT affiliates, senior citizens; \$6/general. Reserva-

Dance

MIT Ballroom Dance Club Workshops* - March 2: Begin ming Rumba, 12:30-1pm; Intermediate Quickstep, 1:30-2:30pm; Advanced Viennese Waltz, 4-5pm. March 9: Beginning Waltz, 12:30-1pm; Intermediate Rumba, 1:30-2:30pm; Advanced Quickstep, 4-5pm. All classes at Student Ctr Sala de Puerto Rico. Admission: Beginning — \$.25/members, \$.50/nonmembers; Intermediate — \$.50/members, \$1/non-members; Advanced — \$2/members, \$3/non-members. Info: x5-9171 dorm.

Western Square Dancing* - Tech Squares Club Level dancing and rounds, Tues, 8-11pm, Student Ctr 2nd Floor. Dennis Marsh, club caller & instructor; Veronica McClure, club cuer. Recorded info: x5-9126 dorm.

MIT Dance Workshop Classes** - Beginning Modern Dance Technique, M/W, 3-5pm, DuPont T-Club Lounge; In-

termediate Modern Dance, T/Th, 5:30-7pm, Walker 201; Improvisation, Th, 1-3pm, Walker 201.

MIT Contemporary Dance Club* – Cynthia Mallick, instructor, Aerobix, M.W. 6:30-7:30pm; Jazz I, M. 7:30-8:30pm; Jazz II, W. 7:30-8:30pm, all at McCormick Gym. Fee: \$3/single class, \$4/non-MIT. Free to McCormick residents. Info: call

Children's Dance Classes** - Pamela Day, instructor.

Creative Movement/Modern Dance classes for children ages 3-9. Classes, Fri afternoons. For info, call Pamela, x3-5791, T/Th mornings or 648-4838 eves/wkends.

MIT Folk Dance Club* - weekly dancing Sundays, International Dancing, 7:30pm, Student Center Sala de Puerto Rico; Tuesdays, Balkan and Western European Dancing, 7:30pm, Rm 407 Student Center; Wednesday, Israeli Dancing, 7:30pm Sala

Rhythmic Gymnastics Classes for Women** – MIT Women's League classes, Fri, 12-1pm, Rm 10-340. Info: Helena,

Yoga* — ongoing classes in traditional Hatha and Iyengar style. Beginners: Mon, 7:20pm; Intermediates: Mon, 5:45pm. For information call Ei Turchinetz, 862-2613.

The exhibition has been organized by the MIT Committee on the Visual Arts with the collaboration of Peter Testa, an architect associated with Siza's office who is currently writing the first critical study in English of

dense expression of several contemporary concerns. At once alive and controlled, Siza's works describe a unique coincidence between various branches of twentieth century architecture. Characterized by a strong material presence, his architecture is centered on human perception and finds support in a paradoxical play between tradition and actuality."

The exhibition will be accompanied by a substantial brochure with illustrations, a biography of the architect, and an essay by Mr. Testa.

from the Calouste Gulbenkian Foundation in Lisbon, and from TAP, Air Portugal.

Alvar Aalto: Furniture and Glass, organized by the Museum of Modern Art, New York, will be on view in the Hayden Gallery in the List Visual Arts Center concurrently with Alvaro

The galleries of the center are open weekdays 10-4, weekends 1-5. Admission to exhibitions

Albert and Vera List Visual Arts Center Jerome & Laya Wiesner Building

COMMITTEE ON THE VISUAL ARTS

Exhibits

Hayden Gallery - Alvar Aalto: Furniture and Glass. the 40 pieces of furniture, 25 glass objects and 35 drawings on view demonstrate Aalto's sensitivity to individual materials, respect for regional traditions and simple timeless forms in an integra-tion of architecture and design. Through April 13.

David and Sandra Bakalar Sculpture Gallery - Alexander Calder: Artist and Engineer, through April 13. Reception:

THE MIT MUSEUM

de Puerto Rico.

MIT Museum Bldg - A Continental Eye: The Art and Architecture of Arthur Rotch, 166 watercolors in which the 19th-century Boston architect recorded his impressions of Europe and the Near East between 1871 and 1892, through April 5. Sculpture by Beverly Benson Seamans, through July 26. Three Photographers, photos by Linda Cuccurullo and Gordon Thomas (MIT Libraries staff), and Carolina Salguero (formerly of MIT Dept of Architecture), through April 19. Minor White: Photographs, 102 prints dating from the 1930s to 1968, through March 1986. Gjon Mili '27: A Tribute, Born in Rumania, world famous photographer Gjon Mili studied electrical engineering at MIT and pioneered in the use of electronic flash and multiple exposure photographs. In 1938 he began ic flash and multiple exposure photographs. In 1938 he began doing stories for Life magazine, ongoing. Of Aerostatic Machines: Early Ballooning in France and Britain, Prints from MIT's Vail Collection illustrate the development of ballooning as a science and sport including fanciful inventions for steering balloons, and aerial views of Paris and other cities ongoing. Light Sculptures by Bill Parker "74, A synthesis of scientific knowledge and artistic composition gives expression to these changeable, touchable plasma sculptures, ongoing. Physics at the Laboratory for Nuclear Science: 35 Years at LNS, through Feb 28. Hours: Weekdays 9am-5pm, Saturdays

Compton Gallery - Images of Infinity: Photomontages by Yulla Lipchitz, 50-60 photographs and photomontages reflec-

ting the artist's personal vision, through March 8. Hours: Weekdays 9am-5pm, Saturdays 10am-4pm.

Hart Nautical Gallery

Ongoing exhibits: Currier & Ives Prints From the Hart Nautical Collections - Colored lithographs of sailboats, Yacht Designer - Line drawings and half-models designed by one of the early professors of naval architecture at MIT. MIT Seagrant - A review of MIT ocean research; Collection of Ship Models - Half-models and drawings, Historical view of the design and construction of ships.

Edgerton's Strobe Alley - Exhibits of high speed photography. Main corridor, 4th floor.

Corridor Exhibits: Building 1 & 5, 2nd floor: John Ripley Freeman Lobby, Building 4: Norbert Wiener, Karl Taylor Compton. Community Service Fund, Ellen Swallow Richards. Women at MIT. An overview of the admission of women at MIT. Five photographic panels with text documenting the circumstances that increased the number of women in the classroom since Ellen Swallow-Richards. Building 6: Laboratory for Physical Chemistry. Building 8:

OTHER EXHIBITS

Institute Archives and Special Collections - Planning the New Technology. Part Two: Constant Desiré Despradelle. Part two of a three-part series about the relocation of MIT from Copley Square to Cambridge portrays the impressive design of architect and teacher Despradelle. Though he died before the project began, several of his ideas were incorporated into the ultimate July he his accessor. William Walles Resworth Hall ultimate plan by his successor, William Welles Bosworth. Hall exhibit case across from $14N{\cdot}118$.

People of Monhegan — through March. Architecture & Planning Computer Resource Laboratory sequential exhibit of photographs by S. Leland Smith, teacher of filmmaking and photographic darkroom skills at the MIT Student Art Associaon. Hours: M-F, 9am-5pm, Rm 9-514.

Jerome B. Wiesner Student Art Gallery – for 1986 scheduling, any MIT student or student group interested in showing or performing art in the Gallery, call Andy Eisenmann, x3-7019 in Rm W20-429, M.F., 9-5.

Sports

HOME EVENTS: Feb 27: M's Volleyball vs Springfield, 7:30pm. Feb 28-March 1: Indoor Track New England Championships, 6pm. March 10: MIT M's Swimming Invitational, 7pm. March 18: M's Volleyball vs Wentworth, 7pm

Wellesley Events

Jewett Arts Center* - African Art of the Dogon, Selections from the Hans Gugenheim Collection symbolizing the com-plementary duality of natural and social order in Dogon culture, through March 23. Nic Nicosia: Recent Photographs, Includes selections from his most recent series, The Cast, through March 23. Clay, Paper, Fabric and Glass Workshop Experiments, Examination of selected works produced in contemporary workshops by leading artists, through March 23. Contemporary Arts: An Expanding View, Selected works by contemporary artists which transcend the historical concept of craft, through March 23. Contemporary Prints from the Per-

T. Boone Pickens Jr., president and chairman of Mesa Petroleum Company, will discuss "Let's Get Corporate America Going" Thursday, March 6 at 4:30pm in Bowen Hall (E51-329). Mr. Pickens founded Mesa Petroleum, the country's second largest independent oil and gas producer. The lecture is sponsored by the Sloan School of Management's 1985-86 Distinguished Speakers Series. All members of the MIT community are invited.

on Wednesday, March 12 at 4pm.

An extended brochure published by the Museum of Modern Art will accompany the exhibition and includes an illustrated critical introduction to the exhibition written by Mr. Johnson as well as a checklist of objects. This publication is available at the gallery reception

Alvar Aalto: Furniture and Glass was organized with grants from the Finnish Society of Crafts and Design and the Finnish Ministry of Education; Artek; and ICF, Inc.

Corporate Policy and Women's Career Development* – Bette Woody, project director; Phyllis Schlessinger, visiting research scholar, Ctr for Research on Women, Ctr for Research on Women Luncheon Seminar, Feb 27, 12:30-1:30pm, Cheever House. Bring bag lunch, coffee provided.

South Africa* - Dennis Brutus, S African poet and activist, Lecture, Feb 28, 7pm, Houghton Memorial Chapel.

Spoon River Anthology and All is Well That Ends* - Experimental Theater, Feb 28-March 1, 8pm, Jewett Rehearsal Rm. Info: 239-2121.

Taking Initiative: Women in International Development*

Andrea Von Ramm, Medieval and Renaissance Singer* – Medieval and Renaissance Symposium sponsored by the Moffett Endowment, March 2, 7pm, Houghton Memorial Chapel.

Females in Medieval and Renaissance Era* - Prof Caroline W. Bynum, University of Washington, Medieval and Renaissance Symposium sponsored by the Moffett Endow-ment, March 3, 8pm, Science Ctr Rm 377.

The Graceful and the Grotesque: Martin Brothers Pottery* - Prof Peter J. Fergusson, Art Break, March 5, 12:30pm & 4:15pm, Jewett Main Corridor Gallery.

The Medieval and Renaissance Era** - Prof Glending Olson, Cleveland State University, Medieval and Renaissance Symposium sponsored by the Moffett Endowment, March 5, 4:15pm, Library Lecture Rm.

Sanctuary Movement Aiding Central American Refugees*

- Prof Renny Golden, Northeastern Illinois University and co-author, Sanctuary: The New Underground Railroad, Wellesley College Sanctuary Committee Lecture, March 5, 7:30pm, Science Ctr Rm 277.

Understanding Black Single Parent Families: Stress and Strengths* - Michelene R. Malson, Bunting Institute, Stone Ctr Women's Psychological Development: Theory and Application Colloquium, March 5, 8pm, Science Ctr Rm 377.

Continuing Education Information Meeting* - For w beyond traditional college age who wish to work toward a BA, March 6, 10-11am, Continuing Education House.

Medieval Anatomy, Renaissance Art, and Modern Science* - Sam Edgerton Lecture and Slide Presentation, Medieval and Renaissance Symposium sponsored by the Moffett Endowment, March 7, 4:15pm, Jewett Auditorium

A New Experience in Contemporary Music for Symphonic Bands* - MIT Concert Band directed by John Corley, March 7, 7:30pm, Houghton Memorial Chapel.

Send notices for Wednesday, March 5 through Sunday, March 16, to Calendar Editor Rm 5-111, before noon, Friday, February

Strehle named to direct effort in development

(continued from page 1)

Mr. Strehle is trustee and chairman of The Common Fund for nonprofit organizations in Fairfield, Conn., a director of SofTech, Inc., of Waltham and of BayBanks, Inc., and Liberty Mutual Insurance Companies of Boston. He is a member of the Consulting Investment Committee of Arkwright-Boston Insurance of Waltham. He is a chartered financial analyst and a member and past president of the Boston Security Analysts Society and the Boston Economic Club.

A native of Schenectady, N.Y., Mr. Strehle was graduated from MIT in 1958 with a bachelor of science in industrial management. As an undergraduate he was manager of the track and cross-country teams, varsity vice president of the MIT Athletic Association and a campus sports correspondent for the Boston Globe and national wire services. At graduation, he received the Karl Taylor Compton Award for students who contribute signifi-cantly to undergraduate life and the MIT community. He returned to MIT in 1959, after employment and military service, as a graduate student in industrial management. He received the SM degree in 1960. Until 1962 he held various administrative positions at MIT, cluding assistant to the director of aid and assistant to the director of athletics. the provost, the Alumni Association, the deans, department heads and members of the faculty.

Before joining MIT as treasurer in 1975, Mr. Strehle was vice president, director and a member of the executive committee of Colonial Management Associates, Inc., of Boston, a registered investment advisor. He was also president of Colonial's Advisory Services Division. He joined Colonial in 1962 as a security analyst and five years later became portfolio manager and vice president. He became a director in 1972 and a member of the executive committee in 1974.

Mr. Strehle has been active in the MIT Alumni Association. He has been president of the Boston Club, vice president of the Alumni Association, chairman of the Alumni Club Advisory Board, an alumni member of the MIT Athletic Board and chairman of the alumni Interfraternity Council Steering Committee. He has also served on the Student Affairs Visiting Committee and as alumni president of the Nu Delta chapter of Phi Mu Delta fraternity, of which he is now alumni treasurer. In 1973 he received the Alumni Association's Bronze Beaver Award for his outstanding contributions.

Architect Alvaro Siza featured The work of contemporary Portuguese architect Alvaro Siza will be examined in an Iberian peninsula.

exhibition in The Reference Gallery of the List Visual Arts Center in the Wiesner Building (20 Ames St.), February 28 - April 6.

Considered the most important Portuguese architect of his generation, Mr. Siza is the recipient of prizes and commissions in several invited international competitions. His buildings currently are under construction in Italy, the Netherlands, West Germany and Portugal.

The architect will be present at the opening reception on Friday, Feb. 28 from 5-7pm. The public is invited.

The exhibition will be mounted in an installation designed by the architect himself for The Reference Gallery, thus providing viewers with an actual three-dimensional experience of Mr. Siza's spatial problem solving.

Alvaro Siza: Portuguese Architect will include original drawings, sketches, and models of Mr. Siza's recent buildings and projects, including his works for the International Building Exhibition of Berlin (IBA) and the recent winning design for the Campo Di Marte, Venice. A series of seven houses, extending from the late 1950's to the highly acclaimed Duarte House of 1984, manifest the progressive transformation of his architecture

over time. Mr. Siza will speak about his work on Wednesday, March 5, at 8pm in the Bartos Theatre of the List Visual Arts Center. Admission is free. He will be joined by Rafael Moneo, chairman of the Department of Archirelation to architectural traditions of the

Mr. Siza's work.

Discussing Mr. Siza's role in contemporary European architecture, Mr. Testa stated: "Departing from a peripheral position, his architectural production forms a particularly

The exhibition has received generous support

Siza: Portuguese Architect.

tecture at Harvard's Graduate School of and all events is free. Further information Design, who will discuss Mr. Siza's work in may be obtained by calling x3-4680.

Alvar Aalto Design Is subject of major exhibit

Finnish architect Alvar Aalto's innovative contributions to twentieth century design are the subject of a major exhibition organized by the Museum of Modern Art, New York, presented by the MIT Committee on the Visual Arts in the Hayden Gallery in the List Visual Arts Center February 28 — April 13.

Mr. Aalto's first contact with MIT was in 1940, when he served as a visiting professor in the School of Architecture, and was commissioned to design the Baker House dormitory, completed in 1949.

All of the original furniture, little of which remains, was designed by Mr. Aalto and his wife, Aino. Speaking of the exhibition's scope, Katy Kline, curator of the Committee on the Visual Arts, stated: "This exhibition is the first to present the full range of Aalto's furniture — from his short-lived experiments with tubular steel in the 1920s and his subsequent groundbreaking explorations of bent wood techniques through his mature pieces of the

"The glass exhibited will include examples of Aalto's famous 1937 free-form vases and bowls, the shapes of which were a radical departure from the streamlined styles prevalent at that time. In addition, earlier and less well known, mass-produced glass dinner and kitchen wares he designed with his wife Aino will be shown.

"Included will be approximately 35 examples of furniture, some 35 pieces of glass, and a number of furniture parts and sculptural reliefs. There will also be more than 50 sketches and finished drawings for the above work as well as photographic panels showing the furniture as it originally appeared in interior settings and at international expositions."

J. Stewart Johnson, organizer of the exhibition and currently consultant to the collections of architecture and design at the Museum of Modern Art, will lead a tour of the exhibition

The Hayden Gallery is open weekdays 10am 4pm, weekends 1-5pm. Admissions to exhibi-

tions and events is free.

Wellesley International Development Organization (WIDO) all-day conference, March 1, 10am-4pm, Pendleton East Rm 112.

The Concerto Company* - Victor Rosenbaum, director, March 2, 8pm, Jewett Auditorium.

Jazz Concert* - Paul Barringer, Wellesley performing music faculty, March 3, 8pm, Pendleton West Rm 111.

Employed English Majors* - March 6, 8pm, Shakespeare

*Open to the public

**Open to the MIT community only

***Open to members only

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INSTRUCTIONS: Ads are limited to one (of approximately 30 words) per person per issue and may not be repeated in successive issues. All must be accom panied by full name and extension. Per sons who have no extensions or who wish to list only their home telephones, must come in person to Rm 5-111 to present Institute identification. Ads using extensions may be sent via Institute mail Ads are not accepted over the telephone.

Deadline is noon Friday before

For Sale

Photo eqpment: 4x5 Arca Swiss camra w/mny accssories, \$400; 90mm F8 Schneider Supr Angulon lens, \$300; Linhof prof tripod w/pan-tilt head, \$150; Leica Pradovit 250 slide prjctr, \$150. Garry, 497-1523.

Valiant prts: carb, strtr, alt, oil filtrs, 2 whls, 1 br nw stl rad, 2 rpr mnls, \$50 takes all; Old Sears mtrcycl w/mnl, baskt case, free. Carl, x3-3204.

Aria acoustic guitr w/case, \$50 or bst; Olympiette elec typwrtr, nds rpr, free. Jane Schneider, Rm 56-417.

23" M's SOMA 10-spd bike, silvr, gd cond, \$150 or bst. Call 437-8437 eves.

Ariens snw blwr, 4hp, 4-cycl, reg gas, slf-Ariens snw blwr, 4np, 4-cycl, reg gas, sir-proplld, 4 spds & revrs, 2 stage, \$350. John, x3-2075 or 646-6246.

Yamaha 12-string guitr, w/case, hrdly usd, mst sell, no skill or talent. Peter x3-7691 or 497-6199.

Touch-tone/pulse dialing phone, almst nw, grt for dsk top or wall-mnt, dbl connctrs, \$12 or bst. Hanson, x3-2843.

10' formica cntrtop, 12' wall & bttm ktchn cabnts, gas range/stv, dshwshr, all exc cond, \$1,300 or bst. Call x3-2449.

MacForth Lvls I & II, \$175 nego; sofa bed, almst nw, \$200; dbl bed, mttrss, pad, bx spr & frm, w/whis, \$80; 2 twn mttrsses, \$10 ea; car jack, \$3; br nw M's lthr sho sz 10, \$20. Chris, x3-2373 or 577-8226

Barbie Doll itms: bubblng spa, jeep & horse trailr, dolls & clothes, mch more, exc cond, call for prices; Braun juicr, nvr usd, \$60. Heather, x3-0801.

Store credit for LaSalle Music (Boston), validity guarntd, \$78.23 value, sell for \$60; TI-58 calcltr, nds batt pak, \$30. Makoto, 577-8180.

Stereo sys: Genesis I spkrs, Thorens TD-160 trntbl w/Ortofon FF15XE MkII crtrdg, Techniks SA-5070 rcvr, BSR EQ-1 eqlzr, exc cond, in orig bxes, \$200. David,

x3-5737 or 723-8844. Terrfc pro Sony condnsr microphn, case &

various adptr plugs, mdl ECM 939LT, \$110 or bst. Pamela, x3-8930. LR set, \$185; glss cabnt, \$60; tbl & 2 chrs,

\$55; full-sz bed, \$60; tstr ovn, \$21; bkshlf, \$60; BR dsk-drwr set, \$65; humdfr, \$5; steam irn, \$9; drwrs, \$15; mny othr sm itms. Antoine, x3-4511 or 497-5742.

Braun cffee grindr, w/bean hoppr, \$28; 10-spd bikes: W's 21" frm, M's 24" frm, \$125 ea; hvy duty wall mnt htr, \$40; Pinto wgn trailr hitch, \$10. Lenny/Diana, 321-3981 eves.

Billy goat lwn & vrd vac. 8hp. slf-proplld. 5" vac hose kit, clns up leaves, yrd littr, like nw, \$1,195; Digital VT180VR Robin prsnl cmptr sys inc VT100-AA video trmnl, LA34-AA hrd cpy prntr, RX180-AE dual dksette drv & more, br nvr usd, \$1,500. Bea, x7306 Linc or nw, nvr usu, 4. 569-4342 eves.

Wakefield, NH, approx 4 wded acres w/beach rights, gd solar possiblties, yr-rnd 000 C 1 599.784

Head ski w/bindngs, exc cond, \$95. Bob,

Wh Fr Provncl BR set, dbl bed, dbl drssr/mirror, highboy, nght stnd & chr. \$300; mapl dinette/drpleaf w/4 mtchng chrs, \$200; plywd china cabnt, \$100; antq hope chst, \$50; 2 rugs, 9x14, lt gr & bge w/paddng, \$35 ea. Call 324-4167 aftr 6p

Walnt colr 2-tierd end tbl. \$20; 5' L solid hvy dsk w/typwrtr drwr, \$125; bl couch w/mapl arms, \$50. Kim, x3-1740 or 242-0804 eves.

Fendi luggage, nw Singer sewng mach, indr/outdr rllr skts. Judy, x3-1784 1-2pm only or 547-2101 aftr 9:30pm.

Back entrnc dr w/glss panls & lck, 6'4\2"x32", \$55; suitcases, S,M.L. \$5-20; 2 Corningware casseroles, stll in unopr. box, \$18; elec donut factry, \$8; elec cffee percitr. \$10; Schick elec razr. \$10; AT&T phones, \$5-15; b&w tv, nds rpr, \$5; elec can openr, \$2.50; 2 Delta snw trs, nw, A78-13, \$25; bathrm scale, \$10; rllr skts, nw, sz 7-9, \$10. Call 332-8251.

RCA Exciter mdl 110 volt laser w/He-Ne laser head, \$100 or bst. Susan, x3-0962.

Cffee tbl; tbl lmps; M's 27" whl 12-spd bike; various infnt itms; 2 14x14x30" file cabnts; 2 wden brds to make dsk w/above. Call 494-8096 9am-10pm.

Page 6, Tech Talk, February 26, 1986

LR set, 2 couches, chr, 2 end tbls, cffee tbl, \$200 or bst. W's bike, mixte 19" frm, \$50 or bst. Greta, x3-5657 or 623-5587.

Orig Aust loden coat, sz s/med, nw, \$75; avox 12" b&w tv, v gd cond, \$25. Call x3-2208.

Jotul 602C wdbrning stv w/91/2" dia cooktop plate, red enaml cst irn, exc cond, inc stv pipe for frplc, \$350. 862-1163 .

2 wh ktchn storage cabnts, \$5 ea; teak tereo bnch, \$100; prtbl sewng mach, \$20.

Cape Dory 27' sloop, '81, full keel, inbrd diesl, rollr furling, well-eqppd, yrd maint. Rick, x3-3389 or 369-7576 eves/wkends.

Piano music: Chopin's polaniases, Schirmer ed: Schubert's sonatas (10), Schirmer ed; Mendelssohn's Songs W/Out Words, Peters ed, prices nego. Roger, x3-7144.

Digital breadbrdng kit, slf containd & modular w/pwr supply, 2MHz pulse generatr, 8 LED lmps, 8 switches, 2 pshbttns, \$175 or bst. Call 648-6389.

JVC DD-99 3-head cass dck, auto bias & eqlzatn setting, exc cond, \$300. Call x3905 Linc or 655-4871.

Vehicles

'71 Super Beetle, for prts/restoratn, eng rnning well, \$200 or bst. Luise, x3-5907

'73 Ford Torino, 30K, v gd cond, radio, rns well, \$1,500 firm. Jim, x2960 Linc.

'73 Plymouth Valiant, gd relbl trnsprtn, slant-6 eng, auto, ps, etc, \$450. Ben, x3-8337 or 235-2593 eves.

74 BMW 2002, factry sunrf, mny nw prts, rns strong & daily, 212K, uses some oil, some rst, askg \$1,000 as prts car, inspctd 12/85. Luch, x3-4971.

'74 Mercedes Benz 450SE sdn. \$8,000 firm. Tom, x4212 Linc or 245-9187 eves.

'74 Ford Mustang, 4 cyl, 100K, trs/batt/radio gd cond, rns well, avg looks, \$600 or bst. Carol, x3-0551.

74 Dodge Coronet, AM/FM, rads, nw exh, brks, wtr pmp, frnt end pts, gd cond, \$650 or bst. Demetri, x3-7906.

'74 Lark Travel trailr, 16', sleeps 5, slfcontaind stv, ovn, sink, fridge, htr, mirrors & lvling jacks, sgl axle, all alum, mnt cond, \$2,000 or bst. Ron, x4339 Line or 665-5760 aftr 6pm.

75 Plymouth Fury, V8, sta wgn, exc nw strtr & carb, \$825 or bst. Call x3-5209 or 263-4643.

'75 Ford Pinto htchbck, 73K, rns well, stdded snws on car & 2 xtra reg trs on rims, all trs in v gd cond, bdy rot on rckr panl & fendr, \$395. Ed, x8-4552 Draper.

76 Datusn 710, 2-dr, 60K, some rst, nw trs, exh, reblt carb & dist, \$600 or bst. Steve, 3-7982, 6-8pm only.

76 VW Dasher, 73K, 4-spd, mnl trans, nw batt, rns well, some rst, nds some wrk \$400 or bst. Ignacio, x3-7660 or 437-7956

'76 Dodge Dart Sport, 6 cyl, 3-spd, std shft, v gd, nw snws+ 3 othr trs on rims, AM/FM/cass stereo, orig ownr, \$1,300. Call 957-0219.

'76 Honda Civic CVCC wgn, 4-spd, air, AM/FM stereo, nw trs, cltch, exh, 78K, 35mpg/cty, some rst, \$500 or bst. Keita,

'77 Ford Granada, 2-dr, 73K, 6 cyl, AM/FM, auto, gd mech & ext cond, buying nw car, \$1,150 or bst. Jim, x3886 Linc

or 658-9840. '78 Fiat 128 htchbck, 70K, relbl, gd mpg

on reg gas, mtr nds some wrk, \$450. Charlie, x3-8088 or 723-4556 eves. 78 Chevy Chevette, 2-dr htchbck, auto

AM/FM/cass, 60K, gd cond, \$650. Call 926-4627. 78 Plymouth Volare, 4-dr sdn, rns well,

slnt 6-cyl eng, rcntly repaintd, \$700. Becky, 492-7181. '80 Chevy Chevette, mnt cond, 1 ownr, nw rads, exc maint, 51K, \$2,200. Call

438-7429 aftr 6pm. '80 Mazda 626, AM/FM, 5-spd, a/c, 4-dr, no rst, 77K, v gd cond. Call x3-4064 or

548-3017. '80 Chevy Monza 2-dr cpe, 40K, dpndbl, 4 cyl, 4-spd, nw cltch & rads, bge colr,

\$2,500. Joanne Chute, 389-5154 aftr 5pm. '80 Buick Regal Ltd, a/c, tilt whl, cruise, Chapman lck, AM/FM stereo, rear dfrstr, \$3,500. Paul, x3-7903 or 628-1878 aftr

'80 Honda Civic, wh, cared-for 73K, \$1,500 or bst. Call 354-5362.

'81 BMW 320, S pckg, sport suspnsn, lthr recarro seats, spcl BMW alloy whls, 5-spd, 2-way sunrf, a/c, frnt spoilr, fog lmps, flawless cond. Pat, x8-4575 Draper

81 Pontiac Firebird, wh, V6, ps, pb AM/FM, rear wndw defog, elec sunrf, g cond, \$3,300 or bst. Jayne, x8552 Linc.

'81 Ford Escort wgn GL, 70K, nw exh sys, radiatr, wtr pmp, v gd cond, mst sell, leavng cntry. Nick, x3-6732 or 277-0401

'82 Toyota Starlet htchbck, lo mi, 34K, rstprf, AM/FM/cass, rear wndshld dfrst & wipr, all wthr trs, exc cond in & out. avr, 1 ownr, askg \$3,900. Call x3-7142 AMs or 648-2399 eves.

'82 Toyota Corolla SR5, 5-spd, dk bl, nw rads & batt, stereo, Chapman lck, exc maint, like nw cond. Call 353-1908.

'84 Chevy Camaro, red, 5-spd, char/clth, ps, pb, AM/FM/cass, a/c, rear defog, rear louvr, 13K, exc cond, \$7,700 or bst. Laurie, x7520 Linc.

'85 Pontiac Grand Am, AM/FM/stereo eglzr, a/c, pwr drs, wndws, & seats, sunrf, auto, rstprf, Chapman & warr, 30mpg below bl book price, nd \$. Chuck, x8-3361 Draper or Chuck/Scott, 774-2045 aftr

'85 Cadillac Cimarron, 8K, silvr bl rdstr pckg, mny xtras, \$11,000. Call 327-5486 aftr 6pm.

Housing

Belmont, 5 rm, 2BR in hse, frplc, prches, prkg, nr T, March sublt, \$550, short-trm

mnthly renwl w/lndlrd, \$600+ utils. Mark, x3-6522 or 484-8458

Arlington Hts, 5 rms, 2BR, mod ktchn, disp, lrg LR w/DR, wden flr, ceramic bath, nxt to shps & T, no pets, \$700+ utils, req refs. Dana, x4580 Linc.

Volntrs for study in prevnting weight gain aftr stopping smkng. Judy, x3-6737.

od & perfrmnc, \$200. Teri/Sharon,

Roommates

nego. Vic, x3-6550 or 576-3795.

Lost and Found

Miscellaneous

dorm.

Marie, x3-7309.

yrs exp. Debbie, x3-3386

Lost: Casio calcltr, musical mdl #80, lost

in Kresge, mst grateful for retrn, Rm 7-103. Sharon, x3-4158.

Artist/group nd to perfrm The Thirsty Ear Pub. A. Taiwo, x3-6928 or x5-9763

Wrd pressng, editng, 10 yrs MIT exp.

Typng on IBM Corr Sel II; wrd pressng on

Wang; theses, corrspndnc, propsls, books, resumes, tech paprs, free dsk storage, 17

Babysttr avlbl, full/part-time, Westgate

MIT, chldrn 2 yrs or oldr. Maria,

itoring monthly statements and maintain

ing current balances for appropriate

departmental accounts; and perform other administrative and financial duties as re-quired. Will also have various super-

visory, coordinating, and liaison responsibilities. Requires a B.A. or B.S. degree and a minimum of 3 years of direct/related experience. Should have excellent

organizational, written, and oral com-munication skills. Must have ability to

vise junior support staff members. A86-675 work independently and be able to su

Editor/Production Manager, Campus

Information Services, to assist Com-munications Manager in editorial and

production assignments related to the

publishing of course catalogues, direc-

tories, fiscal year reports, and additional publications for the Institute. Will be

responsible for duties at all stages of pro-

duction: editing copy for consistency and style, detailed production scheduling of

publications, manuscript preparation and

typesetting specification, accurate proof-

reading of galleys and page proofs, preparing dummy layouts and in some case executing final camera-ready mechani

cals, selecting and sizing of photographs,

maintaining and updating photo file, contacting typesetting and printing firms for prices, handling distribution of publica-

tions. Will also be responsible for administrative and budgetary duties assoc-

iated with publication production. Ex-

cellent editing, organizational, and in-terpersonal skills necessary. Attention to detail is essential. Word processing and

university-related experience helpful. Some physical work involved in moving

cartons and distributing publications on

campus. Bachelor's degree in English, Communications, or closely related field

required, with a minimum of 3 to 4 years

experience in related publishing or graphic arts field desired. NON

Senior Technical Writer, Information

Services, to coordinate news activities and various marketing activities for Informa-

tion Systems. Will oversee collection of

news from all areas within IS; participate in preparing news for the IS on-line news

system; edit the IS computing newsletter;

graphic arts field desire SMOKING OFFICE A86-673

Beverly, 6 rm, 3BR, sgl fmly hse, mod ktchn & bath, LR w/wdbrn stv, lrg bckyd, quiet st, 1 yr lease, \$770+ utils. Dick, x3-4643.

Winchester 2BR apt, ktchn, LR, bathrm, terrace, off-st prkg, residntl area, a/c, hdwd flrs, \$525/mo, avlbl anytime betwn now & 6/1. Call 721-1319.

Wanted

L's 3-spd bike, Raleigh or Robinhood, old but in wrkng ordr, inexpnsv. Jane, x3-2281.

Sublt any/all of Feb-June. Margaret, x3-3767.

Typst, 55-60wpm, to type thesis scrpt, urgnt, will bring wrk to your

hm. Maria, 494-8267. 6.041 txt book, in gd cond. James, x3-6707

or 787-5564. To buy/borrow cpy of TK: Solvr sftwr pckg. Brent, x3-4046.

Feedrs for stray cats, approx 1 hr/wk, food provided, mst have car. Anna, x3-1415.

Hse/dog sittr for sm Belmont hse & medmutt, 3/14-3/22 or 3/9-3/22, refs req. Wendy, x3-3924.

Mtrcycl, 200-550cc, not necssrly in gd wrkng ordr. Andrei Konradi, 437-7795, lv mssg if not there.

Fit M/F volntrs, aged 40-70, for cntrls for 2 wk study on the effct of renal disease on nutrition, \$400 paymnt. Call x3-5801, Rm 56-333.

Laboratories, will be involved in develop-ment and maintenance of VLSI processes for the Integrated Circuits Laboratory of Hlthy norml-weight volntrs, aged 20-35 for study on how the foods you eat affet the Microsystems Technology Labora tories. Duties include process develop ment, characterization, and maintenance in photolithography, etching, oxidation diffusion, ion-implantation, chemical Usd b&w or colr tv. Dragan, x3-3449 or Ari, x3-4186 or 497-7763 eves. vapor deposition, and metalization. In-dividual will program and operate auto-matic testing equipment and analyze re-sulting data. Will be responsible for docu-mentation including process flow charts and yield trend charts. Must possess a M to shr 3BR Arlington apt, off-st prkg, lots of space, \$245/mo+ 1/3 utils. Dave, x2522 Linc or 646-0879. technical undergraduate degree and two years of related experience. Ability to operate semiconductor proces Nonsmkng M to shr 4BR partly furn apt, 10 mins walk to MIT, \$300/mo+ utils. ment equipment is essential. R86-919 Christn envrnmnt, mst rnt soon, so rnt Research Associate, Materials Science Sgl rm for mature quiet F grad stdnt in neat Camb apt w/MIT PhD stdnt, opp Fresh Pond Reservoir, \$300/mo+ 1/2 utils. Call 354-5362.

and Engineering, to work in the H. H. Uhlig Corrosion Laboratory at MIT. Will be expected to work in the areas of photoelectrochemistry and a.c. impedance studies of passive films on pure metals and amorphous alloys. A Ph.D. in Materials Science and Engineering or related subject and research experience in elec-trochemistry and photoelectrochemistry is required. At least two years of experience preferred as well as publica proposal writing experience. Will be expected to work with graduate research students as well as with research staff from other groups in the department of Materials Science and Engineering

Technical Assistant, Spectrometry Lab, Chemistry, to operate Chemistry Department Mass Spectrometers. Position entails running service operation for low and high resolution samples. Techniques include GC/MS, FAB and CI. Will also be sponsible for routine upkeep of expend-oles for the instrument. Good interpersonal skills are important as person will deal directly with research personnel. A bachelor's degree in Chemistry is required and experience with analytical instrumentation is preferred. R86-916

Administrative Officer, Sloan School of

Management/CCREMS, to manage licensing of CCREMS' econometric modelling software package, TROLL, including responding to inquiries, negotiating with prospective licensees, supervising an assistant in the accounts receivable func tion, and maintaining files for licensees. Will also monitor all Center accounts, including TROLL and research accounts: supervise reconciliation of monthly state ments, produce projections, and generate orts comparing actual and projected ancial performance. Other duties will include overseeing general office functions; serving as liaison between CCREMS and all centralized MIT functions, such as accounting, personnel, pur chasing, and telecommunications; and maintaining the records related to these interactions. Will process all payroll documents, assist in development of search plans, and coordinate paperwork associated with staff and visitor appoint ments. Candidates should have p nancial control experience, as well as of fice management experience. Position requires individual who is well-organized and detail-oriented. Knowledge of and experience with computers for financial (especially Lotus 1-2-3) and word processing applications preferred. Excellent com-munication skills necessary. MIT experience preferred. A Bachelor's degree in business administration or equivalent education/experience required. R86-914

Research Scientist, Research Laboratory of Electronics, to work under the direction of a faculty member and with the Speech and Auditory Groups. Position will be based primarily at the Eaton Peabody Laboratory of the Massachusetts Eye and Ear Infirmary. Primary research activity will be to generate a physiologically realistic model of human speech processing and to test this model by conducting appropriate physiological and psycho-physical experiments. Will also be some involvement in physiological experiments using electric stimulation of the auditory nerve in animals. PhD degree in Physiology, Psychology, or Electrical Engineer-ing and Computer Science required as well as 3-5 years of postdoctoral experience. A strong background in speech is required and some experience in auditory psychophysics. R86-912

Library Support Staff

Library Assistant IV, MIT Libraries Catalogue Department (temporary), will participate in a project funded by a U.S. Office of Education Title II-C grant that provides for the original cataloguing and online conversion of 11,250 scientific and technological publications issued by MIT from 1861 to 1974. Converts the bibliographic records of MIT publications (technical reports) to machine-readable form directly online, according to AACR2 catalogue code, OCLC bibliographic input standards, and MIT cataloguing policies. Assigns OCLC field and subfield codes and indicators Barcodes publications Verifies personal names and series in MIT and online authority files, and creates new authority records on the OCLC terminal from work forms prepared by cataloguers. Edits online con-tributed and Library of Congress catalogue records based on cataloguer's written instructions. Assists in retrieval of items for cataloguing for Divisional/ Branch Libraries and the Retrospective Collection facility. Maintains statistics of items converted and input. High school graduate or equivalent is nec college study preferred. Minimum of 2.5 years direct/related experience required. Working knowledge of the MARC format, preferably in the OCLC cataloguing Subsystem, and experience with CRT opera-tions desired. Experience using AACR2 catalogue code is desirable. Accurate typing and attention to detail essential. L86-229

Secretary/Staff Assistant

Administrative Secretary, Center for Real Estate Development, to type and proofread reports, correspondence, manuscripts and similar material from rough draft and dictaphone. Duties will also include editing and limited rewriting, composing routine correspondence, and maintaining files. Will involve consider-

ing complex travel arrangements, obtain ing travel advances, and preparing travel reimbursement vouchers. Will also coordinate and schedule complex appointments meetings, seminars, and events, including large groups. Will serve as a source of information about the Center and its pro grams, including dissemination of pub-lished material. Will arrange for repro duction and printing of reports and manu scripts; oversee inventory and reprinting of Center's publications; oversee inventory of office supplies; maintain journal sub scriptions file; and may direct work of other support staff. Will work under the supervision of the Administrative Officer and coordinate and direct flow of information between Center's Director, Associat Director for Education, senior faculty and other professionals within the Center. High school graduate with some college or secretarial school experience and/or 3.5 years direct/related experience required. Minimum typing speed of 50-55 wpm necessary. Must have ability to speak and grammatically. Knowledge of or to learn word processing necessary. Ability to prioritize work and desire to work with diverse groups in an active office preferred. B86-264 Administrative Secretary, Chemistry Department, to provide administrative

able and complex telephone contact, in-cluding setting up of appointments, mak-

secretarial support to Department Head. Will perform varied duties related to the administration of an academic depart ment; arrange department faculty meet-ings; compile data for statistical reports; prepare necessary documents for faculty recruitment and appointment process Make travel arrangements. Teach and help secretaries use of word processor. Excellent typing and word processing skills required. A knowledge of MIT helpful, 4.5 years direct/related experience required. B86-260 Sr. Secretary, Educational Council, to

handle various duties in alumni-related section of Admissions Office. Will provide secretarial support for Director; maintain office files and records (including data entry); handle correspondence and phone calls from alumni interviewers, appli cants, parents, etc., and respond to re-quests for information; assist with other office responsibilities as needed, including some supervision of student employees. Excellent secretarial and organizational skills required. Strong interpersonal skills and initiative necessary. Ability to deal with sensitive situations with tact, understanding, and good judgement important. Willingness to learn DECII word pro-cessor preferred. Familiarity with MIT is helpful and 2.5 years of direct/related experience required. NON-SMOKING OF FICE B86-263

Sr. Secretary, Biology (part-time, 17.5 hours/week), to serve as secretary to facul-ty member. Primary responsibility will be in the administration of research funds, which involves day-to-day bookkeeping and record-keeping, order processing, and short- and long-term forecasting. Other duties include typing and editing manu-scripts, composing and typing correspondence; preparing grant applications, i.e. computing salary and supply require-ments and typing; making travel arrange-ments; answering telephones; filing; typ-ing and coordinating course materials; ing and coordinating course materials; and general coordination of laboratory of about ten people. Must have experience with IBM PC. Excellent typing skills, interpersonal skills, and strong organizational skills necessary. Ability to transcribe from dictaphone preferred. Minimum 2.5 years direct/related experience required. B86-261

Sr. Staff Assistant, Center for Advanced Engineering Study, to work in Video Course Program. Duties will include ex-tensive telephone coverage; screening and forwarding calls both in primary and backup position (includes taking phone orders). Will initiate calls to customers on order and research related information. Will be responsible for accurate and timely order processing and will organize all aspects of pre-order entry. Will work with Data Entry Marketing Assistant on order entry. Other duties will include preparing correspondence, filing, typing, and all other client-related duties. Requires ex-cellent telephone presentation, and superior organizational and interpersonal skills. Accurate typing of 40 to 50 wpm necessary. Minimum 2.5 years direct/related experience required. B86-259

Sr. Secretary, Center for Materials Research in Archaeology and Ethnology (part-time), to work in and essentially run the office of the Director of CMRAE. Most of work is generated by the Director and by several faculty members who are staff members at the Center and who ad minister the graduate courses taught by CMRAE. Duties will include keeping track of the various programs of the Center and assisting in their administration. Will type correspondence, course syllabi and reading lists, and research proposals. Will have primary responsibility for reserve book material for all urses, including ordering of books and xeroxing of articles; arranging meetings of CMRAE staff; helping to run the Sum mer Institute course; and general coordination of all CMRAE activities through the Director's office. Position requires a highly skilled and very well organized and experienced person. Prior experience in managing an office helpful. Excellent typing, interpersonal, organizational, and telephone skills necessary. Minimum 2 years experience required. Will work from 8:00 am to 12:00 noon. B86-257

Sr. Secretary, Electrical Engineering and Computer Science (part-time, 20 hours/week, flexible), to assist faculty member, Principal Research Scientist and the students and staff of the Sub icron Structures Laboratory. Duties will include arranging appointments and scheduling meetings, and responding to routine correspondence and memos. Will involve extensive multiple revisions, coor dination of graphics with text, typing of course material, research reports, proposals and publications using a Xerox 820-11 word processor system. Familiarity with use of a Xerox 820-11 word processor system would be desirable. Minimum 2.5 years direct/related experience necessary.

Sr. Secretary, Office of the Dean for Student Affairs (part-time), in the Undergraduate Academic Support section of the Office of the Dean for Student Affairs. This is a busy undergraduate infor

POSITIONS AVAILABLE

It is Institute policy not to discriminate against individuals on the basis of race, color, sex, sexual orientation, religion, handicap, age, or national or ethnic origin in the administration of its programs and activities.

This list includes all nonacademic jobs currently available on the MIT campus. Duplicate lists are posted outside the offices of the Special Assistant (10-215) and in the Personnel

Information on openings at Lincoln Laboratory (Lexington, MA) is available in the Personnel Office.

Persons who are NOT MIT employees should call the Personnel Office on extension 3-4251.

Employees at the Institute should continue to contact their Personnel Officers to apply for positions for which they feel they qualify.

Dick Higham

, 11 Britis Dionob	OTODA		
Appointments:			
Therese McConnell	3-4274		
	7-1-17		
Oveta Perry	3-1594		
Kenneth W. Chin	3-4269		
Sally Hansen	3-4275		
Appointments:	3-4268		
3.0	0 1000		

3-4278

Maureen Howard Kim Bonfiglioli Appointments: Nancy Collins 3-4077

Administrative and Academic Staff

Sr. Analyst Programmer, ministrative Systems, to analyze user information requirements and design information handling systems to satisfy requirements. Requires overall knowledge and experience with all phases of infor mation system development and concepts. Duties will include performing feasibility defining client/user system objectives and requirements; preparing systems external design specifications; developing program and date specifications; analyzing personnel and resource requirements for new and modified systems/programs; ensuring adequate system documentation; interpreting system to users; directing preparation of user manuals; providing functional supervision and direction to as signed systems analysts; maintaining close liaison with client/user personnel; and performing tasks as necessary to facilitate the project. A Bachelor's degree or equivalent combination of education and experience is required. At least five years experience in systems analysis and computer-related activities is necessary. Should have experience with Digital computer equipment including VAX 11/785, VMS operating system, RMS file structures and TDMS. Technical supervision of programming and/or systems personnel in a business application environment necessary. Knowledge of general accounting applications preferred. A86-676 Assistant to the Department Head, Ap

plied Biological Sciences, to provide ad ministrative support to the Department Head with major responsibility dinating faculty recruiting and promo tions, various annual reports, and meet-ings. Duties will include coordinating schedule for Department Head; scheduling and organizing faculty meetings; or ganizing and supervising production of faculty research summaries; coordinating preparation of 5-year plan updates, in-cluding future-year budget request; mon-

lated Publications functions.

and prepare related hardcopy announce-ments and advertisements as necessary Will be responsible for planning and evaluation of news activities, and for some marketing research and marketing efforts in connection with news and re volves extensive contact with Information Systems staff at all levels, as well as with others involved in computing throughout MIT. Should have knowledge of text processing. Bachelor's degree required, or higher degree or certificate in relevant field desirable, and 3-5 years combined experience in at least two of the following fields required: technical writing, journalism, and marketing or public rela-

Two writing samples required.

A86-674 Supervisor, Mechanical Services Physical Plant, to assume the responsibil ity for the supervision of up to 15 skilled mechanics. Will provide technical expertise for the Automatic Temperature Con trols group. Will be responsible for evaluating and trouble shooting HVAC Control problems and for the day to-day implementation of Institute policies. Minimum of 5 years experience in trouble shooting and repair of pneumatic and electronic building temperature controls essential. Requires ability to diagnose electronic control problems to the component level required. 2-3 years in direct supervision of trades personnel desirable. Advanced technical school training in HVAC controls desirable as is an Associate's degree in engineering science or business administration. A86-672

Sponsored Research Staff

Technical Assistant, Center for Cancer Research, will make preparation of tissue culture and specialized media for group of four to five laboratories: preparation, sterilization, and testing of solutions to dependently, R86-920

Research Specialist (Process Development), Electrical Engineering and Com-

specification with stringent quality con trol. Bachelor's degree in chemistry or biology, with previous laboratory experi-ence is preferred. Must be able to work in-

puter Science, Microsystems Technology

Professor Tribus to retire

Professor Myron Tribus, director of the Center for Advanced Engineering Study



(CAES), has indicated his desire to retire effective June 30, Dean Gerald L. Wilson of the School of Engineering has announced.

Professor Tribus intends to move to the San Francisco area, where he will more intensively pursue interests to which he has devoted some time for the last several years. These interests include work on quality manage-

ment. Dr. Tribus has become a principal advocate in the US for the Deming approach to quality in manufacturing, which has had considerable success in Japan. He also intends to pursue work on a thermal powerplant cycle, known as the Kalina cycle, which uses waterammonia mixtures. Substantial improvements in powerplant efficiency are claimed for the Kalina cycle.

Professor Tribus has had a long and distinguished career in industry, academia, and government. He received the BSc degree in chemistry from the University of California, Berkeley, in 1942, and the PhD in engineering from the University of California at Los Angeles in 1949 and worked in turbine cooling and nuclear aircraft engines for General Electric. He became an associate professor at UCLA in 1953, and professor in 1961, after which he became dean of the Thayer School of Engineering at Dartmouth. From 1969 to 1976 he was assistant secretary of commerce for science and technology and was responsible

for the National Bureau of Standards, the Patent Office, and the predecessor to NOAA. In 1970 he joined Xerox as senior vice president of the Information and Technology Group, and manager of the Research and Engineering Division. He became a vice president of Xerox in 1974.

During his 11 years as director of CAES, Dr. Tribus has provided leadership and highly competent management to the CAES program, Dean Wilson said. The CAES program consists principally of a Video Course Program, an Advanced Study Program, and a Conference and Seminars Program. The Video program has prepared more studio quality courses than all other universities combined, and has more than 2,000 industrial clients who use the courses for employee education. The Advanced Study Program has brought selected engineers and managers to MIT for short, nondegree programs, each tailored to individual need.

In thanking Dr. Tribus for his contributions, Dean Wilson emphasized the commitment of the School of Engineering to the development of better techniques for continuing the education of engineers beyond their formal degree programs. He asserted the continued need for an organization within the School dedicated to broadening MIT's educational role beyond its immediate student body, and dedicated to development of means to provide for continued education of engineers. The CAES program, and particularly the Video Course Program, has been a successful step toward those goals, and MIT is grateful to Professor Tribus and his able staff for their contribution, Dean Wilson said.

A committee will be announced soon to study the School's future directions in these areas, and to help identify Dr. Tribus's successor.



A festschrift evening for Professor Stephen H. Crandall of mechanical engineering was highlighted by musical selections from the MIT Logarhythms February 10 at the Faculty Club. Festschrift authors represented Austria, Canada, Czechoslovakia, England, Federal Republic of Germany, German Democratic Republic, India, Israel, People's Republic of China, Poland, Romania, USA and USSR.

-Photo by Frank Revi

March 4 celebration to fete several professors

A party celebrating "The Once and Future School: Ten Years of Critical Cultural Analysis of Science and Technology at MIT 1976-86" will be held Tuesday, March 4 from 5-7pm in the Compton Room (Rm 26-110).

During the affair, students will fete the following professors: Joseph Weizenbaum of electrical engineering and computer science; Sherry Turkle, Kenneth Keniston, Merritt Roe Smith, Charles Weiner and Leo Marx of the Program in Science, Technology and Society; Sharon Traweek of anthropology and

archaeology; Lawrence L. Bucciarelli of the School of Engineering; Thomas S. Kuhn of linguistics and philsophy; Steven L. Chorover of psychology. Also, Evelyn Fox Keller, a visiting scholar; and former MIT professors Landon Winner of Rensselaer Polytechnic Institute and David Noble of Drexel University.

The affair is sponsored by the MIT Student Pugwash, The STS Student Committee and the Technology and Culture Seminars. There is no charge. Call Craig Decker at 625-2887 for more information.

mation and advising center. Duties include responding to in-person and telephone inquiries for students and faculty; assisting with production of publications; helping with preparations for orientation of new students; and carrying out general secretarial duties to support office programs. Ability to set priorities in a fast-paced environment; good typing and interpersonal skills; familiarity with or willingness to learn word processing. Familiarity with MIT desirable. NON-SMOKING OFFICE. B86-252

Sr. Secretary, Alumni Association, to provide secretarial and clerical support to Administrative Officer. Duties will include preparing reports and correspondence; scheduling meetings and appointments; answering telephones; receiving visitors; sorting and distributing incoming mail; and maintaining files and records. Will also oversee inventory of all office and mailing supplies and operate office machines and equipment. Will prepare Institute forms, such as requisitions, vouchers, and receipts; and prepare support staff and student payrolls and related reports for Administrative Officer's signature. Ability to handle confidential information with discretion a must. MIT experience helpful but not necessary; word processing experience a plus. B86-251

Sr. Secretary, Sloan School of Management, to work for three faculty members in the Operations Management subgroup of the Management Science Area. Duties will include typing and proofreading correspondence, course materials, manuscripts, etc.; maintain complex calendar; schedule appointments; make travel arrangements; answer telephones; interact with students and outside visitors; process mail; monitor accounts; order supplies; and perform other general office functions. Must be willing to assume responsibility and work under minimal supervision. Will handle confidential material, work under pressure and be responsible for accuracy of materials. Knowledge of technical typing, word processor, and IBM PC preferred. Willingness to learn desirable. Excellent typing and organizational skills required and knowledge of MIT preferred. Minimum 2.5 years of secretarial experience required. NON-SMOKING OFFICE

Sr. Secretary, Center for Information Systems Research, to provide secretarial support to two CISR research associates and handle CISR Working Paper Series. Will involve frequent contact with managers from private and public sector organizations, as well as with faculty and students from MIT and other universities. Duties will include typing correspond and reports from rough draft or dictaphone using a Wang word processor; answering phones and screening calls; making travel arrangements; and prepar ing high-quality presentation materials using a Xerox Star workstation. Will also process working paper orders and pay-ments; track subscriptions, and maintain inventory of papers. Will be part of team supporting CISR's seminars and annual onference. Must have excellent organiza tional, interpersonal, and secretarial skills. Word processing experience pre ferred. Ability to handle detail with ac curacy important. Must have flexibility to function well in a busy environment and effectively set priorities. Minimum 2.5 ears direct/related experience required. NON-SMOKING OFFICE B86-238

Sr. Secretary, Medical Department, to work in the Social Work Service area. Will schedule appointments, arrange conferences, and provide general reception and secretarial support for three social workers. Duties will also include large volume of telephone and visitor contact; general typing from handwritten and machine dictations; statistical data preparation; maintenance of files; and some social work resource development. Will assist Coordinator of Institute Personal Assistant Program in matters related to program development, implementation and day-to-day operations. Will also work with support staff in Psychiatry

Service sharing in providing relief coverage for both services. Good organizational, interpersonal, and communication skills desirable. Accurate typing, meticulous attention to detail, and ability to work well under pressure necessary. Minimum 2.5 years direct/related experience required. Previous secretarial experience necessary. NON-SMOKING OFFICE B86-236

Staff Assistant, Personnel-Benefits Office, will assist Benefits Office Staff members in the completion of a variety of special projects including the development and conversion of office records to an automated database. Will provide editorial assistance and support in the redesigning of various benefit summary plan descriptions. Will utilize DECII word processors to generate various correspondence and for letters pertaining to MIT's retirement plans. Fully developed DECII word processing skills highly desirable. The ability to organize work, set priorities and work independently toward deadlines is essential. NON-SMOKING OFFICE B86-243

Staff Assistant, Personnel-Benefits Office, will assist in redesigning current procedures as appropriate in order to efficiently process a variety of benefits forms. Will utilize the DECII word processor to generate a variety of correspondence and for letters pertaining to MIT's retirement plans. Will assist in the development and conversion of office records to an automated database. Will maintain records thereafter via direct entry on a computer terminal. Other duties will involve corresponding with Institute employees on a variety of benefits related issues and communicating with other Institute offices on a regular basis. Experience in the use of automated office equipment is desired. Familiarity with word processing is important. The ability to organize work, set priorities and work independently toward deadlines is essential. Accuracy and attention to detail is also necessary. NON-SMOKING OFFICE B85-113

Technical Support Staff

Technical Assistant, Civil Engineering, to be responsible for collecting data on various research experiments in soil me-chanics, rock mechanics, and construction materials in the REMERGENCE Laboratory (a joint Civil/Mechanical Engineering facility), utilizing different Data Acquisition Systems. Will pre-process data for alysis by faculty and graduate students Individual will assist the Director in the administration of the Laboratory concerning financial, personnel utilization and the effective use of space. Must be able to keep records of operating costs such as purchases of supplies, maintenance con-tracts, etc., determine when and how to effectively utilize UROP students and where and how to dispose of testing materials, coordinate use of equipment with diverse needs by faculty and graduate students, and insure safety regulations are observed and space changes are implemented according to a plan accom-modating new equipment. Applicant must be understanding of testing principles, calibration procedures, and behavior of materials. Laboratory testing experience highly desired. Knowledge of MIT administrative procedures for Accounting Purchasing, Personnel and Safety pre ferred. High school degree required with post high school training/schooling pre ferred, T86-258

Dental Assistant, Medical Department (temporary), will work in the MIT Dental Service and report to the Head Dental Assistant. Duties will include assisting the dentists with dental procedures, preparing required dental solutions, sterilizing instruments, maintaining examining rooms as well as assisting with record keeping. High school and graduate of approved Dental Assistant program and previous work experience desirable. Must be pleasant, mature and able to work effectively and as a team member in a busy setting. T86-245

Medical Assistant (Obstetrics/Gynecology), Medical Department, to assist the physicians and nurses with routine examinations and with special procedures. Will report to the Nurse Coordinator for OB/GYN and the Director of Nursing Services. Duties will include chaperoning during examinations, assisting with cautery, IUD insertions, biopsies and prenatal exams. Will weigh patients, take blood pressures, and test urine samples. Responsible for requisitioning lab reports, following up reports for Alpha Feto Protein levels and amniocentesis. Will also be responsible for setting up exam rooms, stocking patient consultation rooms, washing, wrapping, autoclaving equipment, and ordering supplies. Will answer telephone; schedule appointments; prepare charts, records, and varied hospital forms; and help maintain rotation flow for clinics. High school graduate with medical assisting training required. Must be mature and able to deal effectively with patients and staff. Warmth and sensitivity to the needs of patients essential. NON-SMOKING OFFICE. T86-235

Office Assistant

International Marketing Assistant, MIT Press, to be responsible for implementation of international mail promotion program for MIT Press books: preand post-processing of foreign book orders; handling of routine telephone and written queries and requests from foreign customers by direct response or by routing to the appropriate department of action; maintenance and improvement of international marketing files; preparation of monthly book information sheets for booksellers, and supplying of other information to booksellers; and work on other special projects or tasks as directed by the International Sales Manager. Requires a college degree with 2-3 years post-college work experience, preferably in publishing. Ability to write English clearly, accurately, and correctly necessary. Good knowledge of a major European or Asian language necessary. Should have familiarity with use of word-processing systems, a minimum typing speed of 50 wpm, and a strong interest in publishing. A writing sample will be required. S86-240

Administrative Assistant, Sloan School of Management, to provide secretarial support for the Director of Master's Admissions and Counseling. Will report to the Associate Dean for Master's and Bachelor's Programs. (The Program Office performs services related to the recruitment, admissions, registration, and advisproximately 400 full-time students.) Will assist with the record-keeping of grades, subject registrations, and sec tion assignments. Will also assist with coordination of thesis process, including collecting forms from students and facul ty, maintaining files and records, answering students' questions regarding thesis format and procedures, and checking theses when submitted. Also involved with the admissions process, including processing of applications, computer data entry and retrieval, word processing, and tracking applications from receipt to mailing decisions. Will type correspondence and reports, process requisitions and vouchers, coordinate meetings, answer telephones, handle mail, and answer questions from students, faculty, and applicants. Requires excellent organization al, interpersonal, word processing, and typing skills. Ability to work well under pressure and as part of a support-staff team necessary. Minimum 4.5 years direct/related experience required. NON-SMOKING OFFICE S86-237

Sr. Office Assistant, Plasma Fusion Center, to perform duties as "Fiscal Office Verifier" for the Plasma Fusion Center's Fiscal Office. Will use computerized spreadsheets to monitor the status of all PFC purchase orders and travel vouchers. Will be responsible for detecting and correcting problem areas, and generating monthly status reports. Will work closely with other Fiscal Office staff and members of the PFC and MIT communities for the 100 accounts involved. Aptitude for problem solving with an eye

toward detail a must. Willingness to learn use of computerized spread sheet accounting program (supercomp 20) important. Ability to use a calculator and to work efficiently to meet deadlines necessary. Good interpersonal skills and desire to work in a team environment required. MIT experience desirable. S86-255

Office Assistant, Foreign Languages and Literatures Section, to staff the front office of Section Headquarters and provide office support services to the faculty. Duties will include answering telephones, handling mail, providing xerox services, ordering supplies and maintaining office equipment. Additional responsibility for classroom and event scheduling, processing of book orders, maintenance of office records and preparation of specialized mailings. Good typing, excellent organizational skills, flexibility and attention to detail essential. Will train on DEC word processing system. Familiarity with another language helpful. One year of experience in an office setting preferred. S86-248

Office Assistant, Office of the Registrar, will assist the supervisor of the Registration Section in the registration of students, verification of student status, preparation of registration data for entry into the CRT visual input terminals, and assisting in Registration Day Activities. Familiarity with word processing machine helpful. Good typing skills, an interest in detailed work and willingness to work with students and faculty is necessary. College experience is desirable. S86-246

Office Assistant, MIT Libraries

Administrative Services, will be responsible, along with other unit members, for following a detailed schedule in process ing incoming/outgoing domestic, interna-tional, and interdepartmental mail packages for the MIT Libraries. By means of a van and truck will deliver to and pick up mail from Libraries at various Institute locations. Will answer inquiries regarding current mail and shipping procedures and will request and maintain inventory of supplies. Responsible for knowledge and proper use of building facilities and li-brary equipment, and adherence to all safety/security procedures. Will also maintain files and records and compile daily/monthly statistics. Should have knowledge of current postal rates; maintain adequate postage and when necessary replenish supply of postage. Will also perform special assignments as requested by supervisor. High school graduate or equivalent is necessary. A minimum of 1 direct/related experience re-Willingness and capacity for physical ex-ertion and ability to lift 50 lb+ mail bags/boxes and push heavily loaded trucks and 2-wheelers. Should have 3 years driving experience, valid Mass. Driver's license and an excellent driving record (current registry clearance). Ability to operate a delivery van is required Some out-of-state and off-campus driving may be required. Requires good math aptitude and a good command of the English language. Ability to follow a schedule and adjust to variable flow of material essential. Mechanical ability desirable. Some knowledge of automobile/van maintenance required. NON-**SMOKING OFFICE S86-244**

Office Assistant, Office of the Registrar (this is a dual full-time position working in both the Registration Section and Commencement Section). The Registration Section involves the preparation and registration of students; verification of student status; input into the CRT terminals; and assistance in the preparation of student requests for transcripts. This will normally be from late June through December. The Commencement Section involves processing of Advanced Degree applications; checking the completion of degree requirements for graduate students; preparation of degree booklet; inputting into the CRT terminals; and assisting the supervisor in maintaining the inventory on diplomas, doctorate hoods, and other stock. Good typing skills and interest in detailed work required. Willingness to meet and work with stu-

dents and faculty. College experience is desirable. S86-242

Office Assistant, Cell Culture Center. Duties will include filing and processing all incoming and outgoing mail, Will handle reprint requests and other general office work. Will also assist supervisor in processing shipping materials and invoicing. Minimal accounting procedures. Ability to type 46 wpm with accuracy and neatness essential. Working independently and a good telephone manner necessary. Minimum one year direct/related experience preferred. NON-SMOKING OFFICE S86-195

Office Assistant, Personnel – Faculty and Staff Information Services, to process and maintain employment information concerning Faculty and Staff, under the supervision of the Assistant Manager. Will use word processing equipment or will type notification letters, update computer files daily, respond to telephone and written inquiries, assist in salary verification and review processes, and assist in the preparation of various reports and other projects. Work will include contact with other parts of the Institute and with outside agencies on a daily basis. High school degree or its equivalent and a minimum of 1 year direct/related experience is required. Attention to detail and basic office skills/experience preferred. Good typing and proficiency with computer terminals and/or word processing as well as absolute discretion in handling confidential material desirable. S86-190

Receptionist, Alumni Association, to serve as office receptionist for a busy office, providing information regarding the services of the Alumni Association. Duties will include receiving, screening and assisting visitors; answering telephone calls; assisting in scheduling of the Bush Room; opening Compton Gallery; updating a master calendar of events; ordering supplies; providing secretarial backup; and handling special assignments as they arise. Must have excellent interpersonal skills and good typing and clerical skills. Must have ability to take initiative and be flexible. Applicants should be interested in automating some of the scheduling procedures either with a word processor or personal computer. Must be able to work well under pressure, deal tactfully and effectively with people, and have a good sense of humor. NON-SMOKING OFFICE S86-262

Receptionist, Center For Real Estate Development, will greet visitors and students and direct them to appropriate individuals or offices; answer incoming calls; serve as source of information about Center and its services and policies; serve as source of general information about Center's M.S. Program in Real Estate Development to callers and visitors; schedule appointments and make complex travel arrangements; receive RSVP's; distribute incoming mail; maintain and replenish postage meter; post daily outgoing mail; order and maintain inventory of office supplies, and other related duties. Ability to work autonomously and under occasional pressure required. Accurate typing and ability to learn word processing necessary. Should be able to relate well with diverse group of professionals, faculty, students and visitors. Minimum of one year experience in an office setting required. S86-249

Service Staff

2nd Class Engineer, Day Crew Maintenance, Physical Plant. Operating Engineer with a Massachusetts 2nd Class Stationary License for regular Day Crew Maintenance shift (7 a.m.-3 p.m.). Must have operating and maintenance experience with high pressure oil/gas boilers, electric/steam-driven refrigeration equipment, and plant auxiliaries. Must also be willing to stand watch on any shift to cover for vacations, illness, etc. H86-348

Shop Helper B, Plasma Fusion Center, to assist an instrument maker, machinist, technician and other skilled employee or staff member in the performance of general shop or laboratory work. Under

supervision may be required to operate or maintain shop tools or laboratory equipment. Will assist in cleaning equipment and perform miscellaneous work necessary to the shop or laboratory which may not require the services of a machinist, instrument maker, technician, or other skilled employee to perform. Will work with machine specialists on Alcator C and Alcator C-MOD. A working knowledge of hand tools, electric hand tools, machine shop procedures and materials handling and the ability to work with others and maintain a safe environment is desired.

Medical Matron, Medical Department, to provide housekeeping support to assigned area(s) in Medical Department. Duties will include the daily cleaning of all offices, examination rooms, secretarial and patient waiting areas, lavatories and small-kitchen units-in accordance with required hospital standards of cleanliness and effective infection control. Will involve dusting and straightening; emptying waste receptacles and rubbish removal in accordance with strict detailed procedures; washing sinks, mirrors, etc.; and waxing desk tops when necessary. Will be responsible for stocking any necessary related supplies, and provide relief coverage for other Medical Department areas as required during sickness and vacation periods. Individual must be neat in appearance and be a willing and efficient worker. Previous work experience desirable. Ability to work independently and relate well to Department staff necessary. Will work 40 hrs/week (3:00-11:00 or 4:00-12:00) H86-347

Technician B (Electro-Mechanical),

Electrical Engineering and Computer Science - Microsystems Technology Lab oratories, to assist in laboratory or research work and operate experimental and technical equipment under the supervision of scientific personnel or techni cians of a higher grade. Must be able to work for periods of time without supervi-sion. The individual will be assisting in various aspects of the photo-lithographic and mask-making areas. This includes process development, operation and main tenance of optical pattern generators photo-resist coaters and developers, wafer and mask step and repeat systems, wet etch stations, wet and dry photo-resist strippers, and other related semiconductor processing equipment. This position re quires the ability to work with sophisticated measurement equipment such as microscopes, linewidth measures, develop-ment rate monitors, and SEMs, and to gather data from this equipment and nter it into a CAF system. The in dividual must be able to keep accurate laboratory notes and maintenance logs, and to assist in the preparation of process documentation. The individual will be working in a state-of-the-art semiconduc tor fabrication area and will be required to follow strict procedures regarding cleanliness and the safe handling of gases and chemicals. The individual mu flexible regarding temporary tasks or when needed to provide technical support outside of the designated area, such as to building support systems. Graduation from a two-year day technical school or its equivalent in applicable experience is the minimum experience requirement. Experience with microp equipment desirable. H86-340

MIT/Wellesley Upward Bound Program, SUMMER TEACHING AND RESIDENTIAL POSITIONS. Math, English, Science, Social Studies and Study Skills teachers and teacher assistants and residential assistants needed for a seven (7) week college preprogram for seventy (70) disadvantaged high school students. Must live at Wellesley College during the week. Salary range \$1200-\$1800 (based on relevant experience and position) plus room and board. For more information and an application, contact: MIT/Wellesley Upward Bound Program, 18 Vassar Street, Cambridge, Ma. 02139, 253-5124

McNair is remembered

The following is the text of the remarks delivered by President Paul E. Gray at the February 12 memorial service for Dr. Ronald E. McNair.

I begin with the words of the poet, Stephen Spender:

I think continually of those who were truly great. Born of the sun they travelled a short while towards the sun, and left the vivid air

signed with their honour.

We come together today to remember-and to comfort each other in our remembering. Anyone who knew Ron McNair can tell you that he truly was born of the sun. His brief time with us was one of stellar achievement, bright promise, clear vision and disarming and gracious generosity. As one of the sons of MIT, Ron stood out in that great company of self-starting high achievers. He set extraordinary standards for himself-higher that anyone else would dare set for him- and then met and exceeded those standards. He did so through patient hard work, through a firm and shining belief in his capacity to achieve his dreams, and through an indomitable spirit.

The promise he represented for future leadership-national leadership-in a nation with too few heroes, was evident to all who knew him. As we look at the roster of aspiring leaders on the national scene, how many hold within themselves the integrity, the wisdom, the judgment, and the personal achievement that we came to expect of this man?

Ron understood instinctively that he represented, for a whole generation of younger people at MIT and around the nation, a symbol, a shining example of what dedication and risk-taking and hard work and faith and self-confidence could achieve. He was very generous in sharing with us his experience and his perspective. He was at MIT several times following his first shuttle flight in 1984, will be with you.

and his rapport with students here-indeed with all who came into contact with himwas singular and very impressive. We are diminished-the nation is diminishedbecause of that terrible moment in the flight of Challenger.

The horror and shock of Ron's death haunts us all. The sense of irreplaceable loss-hard to bear for each person who loved him-impossible to imagine for his wife, his parents, his children, numbs our minds and chills our

And yet, there is-in this moment-cause for something beyond despair. Alfred Lord Tennyson, writing of another hero in another age, put it in these words:

Death closes all: but something ere the end, some work of noble note, may yet be done, not unbecoming men that strove with gods.

I suggest that the "work of noble note" which Ron McNair began and to which many can now contribute, is the task of communicating his dream-his wisdom-to the generations to come. It has the power to ennoble, the power to inspire, the power to cause people to achieve impossible goals. His is the contribution of the great teacher-a contribution that persists from generation to generation, and we are his acolytes..

Ron was a man of deeply felt, vigorously lived religious faith. And it is fitting, I believe, to conclude with words from the Book of Philippians-words that speak to the place he holds in our minds and in our hearts:

Finally, brethren, whatever is true, whatever is honorable, whatever is just, whatever is pure, whatever is lovely, whatever is gracious, if there is any excellence, if there is anything worthy of praise, think about these things. What you have learned and received and heard and seen in me, do; and the God of peace



Composers Tod Machover and Barry Vercoe in the Experimental Music Studio.

IRCAM to present concert

(continued from page 1)

Musique) and EIC (Ensemble InterContem-

At Symphony Hall the concerts will feature mainly "classical" contemporary works, including a "taste" of computer music. At MIT it will be just the reverse.

Considerable excitement was reported as Symphony Hall prepared for its computer music debut. To accommodate the computer equipment, several seats had to be removed from one of the Hall's most highly desirable center sections. "It has been amazing," a spokesman said.

Symphony Hall's concerts during the next three days are: tomorrow (Feb. 27) at 8pm, Friday at 2pm and Saturday at 8pm. Though these are part of the Boston Symphony Orchestra's regular subscription series, seats are still available. (For information, call 266-1492 and ask for the Box Office.)

While Mr. Boulez himself will not participate in either of the MIT events, the Friday concert features four compositions from IRCAM, focusing on music written for computer alone and in combination with solo instruments. The one "classical" exception, Mr. Boulez' First Piano Sonata, written in 1946 when the composer was 21, will be performed by Pierre-Laurent Aimard of EIC.

Mr. Aimard also will perform in Pyramids/ Prisms (1976-77), written by Stayley Haynes for piano, electronics and computer tape.

British soprano Rosemary Hardy, making her first Boston appearance, will be featured along with double bass soloist Frederic Stochl from EIC in Mr. Machover's Soft Morning, City, which takes its text from James Joyce's Finnegan's Wake.
Ms. Hardy has developed a flourishing

European career as a soloist, with a strong commitment to contemporary music. Mr. Stochl is also an active soloist who maintains a parallel career in dance and theater.

The two other works on the program, for computer only, are: Jardin Secret I (1984) by Kaija Saariaho and Mortuos Plango, Vivos

Voco (1980) by Jonathan Harvey. At this time IRCAM and the Experimental Music Studio are engaged in a special collaborative research project led by MIT's Barry L. Vercoe, professor of music and technology, director and founder of the MIT Studio. The goal of the research is to find ways to enable the computer to adjust flexibly in performance to the nuances of live performers, an advance which will make possible a complete rethinking of the relationship between live

performers and technology.

IRCAM and the MIT Studio are considered two of the leading computer music centers in the world, both dedicated to the symbiotic interaction of musical creativity and modern

technology.

In addition to his other connections to MIT, Mr. Boulez is a member of the Council for the Arts. One of the leading figures in 20th century music, the composer accepted a challenge in 1970 from French president Georges Pompidou to create and direct a national music research center. The resulting IRCAM was founded in 1974 and moved in 1977 to occupy extensive, specially-designed underground facilities at the newly-opened Centre Georges Pompidou

The near future will bring more new music events to Boston from the MIT Studio. Famine, a work for voices and computer-synthesized tape realized at the Studio by Mr. Machover, will be performed by the British vocal group, Electric Phoenix, at the Mobius Theatre on March 21 and 22. Mobius is located at 353 Congress Street in the Fort Point area, near the South Station T stop. (Information: 542-7416.) Prior to its Boston appearance, Famine will be premiered in New York City.

Mr. Machover also is collaborating with French video artist Catherine Ikam on Valis, a video opera commissioned by the Pompidou Center as part of its 10th anniversary celebrations scheduled next year and by the MIT Media Laboratory through a New Works grant from the Massachusetts Council on the Arts and Humanities.

Music for Valis is being coproduced at

IRCAM and the Media Laboratory.

Next month will bring two presentations of the MIT Studio's Music and Technology Forum: "Violins, Computers, and Physicists: A Three-Sided Interaction," on Tuesday, March 11, at 4:30pm and "Sonic Art: Music in the Computer Age," on Thursday, March 20, at 8pm. Both events are in the Bartos Theatre of the Wiesner Building. (Information: 3-7418).

SPRING 1986 MIT - RED CROSS BLOOD DRIVE

Wednesday, March 5 - Friday, March 14

Please fill out this form completely, giving all requested information. This will save you time when you come in to donate. Scheduled appointments will have priority over walk-ins if the drive is crowded. Call the Blood Drive at x3-7911 to check conditions. Please print.

Name Last, First, MI Permanent Address____ State Zlp Home Phone Institute Address Date of Birth

Please circle, on the reverse side, the blocks of times which your appointment can be scheduled to begin on each day. Be sure to allow at least one and one-half hours for the entire process. To be scheduled for the same time as someone else, please staple your forms together.

Donors must be at least 17 years old (17-year-olds must have written parental permission, given on forms supplied by the Red. Cross and TCA), sleep at least six hours the night before, eat within four hours before donating and weigh at least 110 pounds. You must wait eight weeks between donations.

Return this form to TCA, Room W20-450, as soon as possible. No envelope is necessary if it is sent through interdepartmental mail. You will be sent a card in the mail notifying you of your scheduled appointment time. If you would like to change your appointment, have any questions about medical requirements, or would like to help, please call TCA

SPRING 1986 MIT - RED CROSS BLOOD DRIVE

Wed.	Thurs.	Frl.	Sat.	Mon.	Tues.	Wed.	Thurs.	Frl.
March 5	March 6	March 7	March 8	March 10	March 11	March 12	March 13	March 14
						And the second second		
10:00a	2:00p	10:00a	noon	noon	2:00p	2:00p	10:00a	noon
10:15a	2:15p	10:15a	12:15p	12:15p	2:15p	2:15p	10:15a	12:15p
10:30a	2:30p	10:30a	12:30p	12:30p	2:30p	2:30p	10:30a	12:30p
10:45a	2:45p	10:45a	12:45p	12:45p	2:45p	2:45p	10:45a	12:45p
11:00a	3:00p	11:00a	1:00p	1:00p	3:00p	3:00p	11:00a	1:00p
11:15a	3:15p	11:15a	1:15p	1:15p	3:15p	3:15p	11:15a	1:15p
11:30a	3:30p	11:30a	1:30p	1:30p	3:30p	3:30p	11:30a	1:30p
11:45a	3:45p	11:45a	1:45p	1:45p	3:45p	3:45p	11:45a	1:45p
noon	4:00p	noon	2:00p	2:00p	4:00p	4:00p	noon	2:00p
12:15p	4:15p	12:15p	2:15p	2:15p	4:15p	4:15p	12:15p	2:15p
12:30p	4:30p	12:30p	2:3-,1	2:30p	4:30p	4:30p	12:30p	2:30p
12:45p	4:45p	12:45p	2:45p	2:45p	4:45p	4:45p	12:45p	2:45p
1:00p	5:00p	1:00p	3:00p	3:00p	5:00p	5:00p	1:00p	3:00p
1:15p	5:15p	1:15p	3:15p	3:15p	5:15p	5:15p	1:15p	
1:30p	5:30p	1:30p	3:30p	3:30p	5:30p	5:30p	1:30p	The drive
1:45p	5:45p	1:45p	3:45p	3:45p	5:45p	5:45p	1:15p	will be
2:00p	6:00p	2:00p	4:00p	4:00p	6:00p	6:00p	2:00p	open until
2:15p	6:15p	2:15p	4:15p	4:15p	6:15p	6:15p	2:15p	5:45p
2:30p	6:30p	2:30p	4:30p	4:30p	6:30p	6:30p	2:30p	but no
2:45p	6:45p	2:45p	4:45p	4:45p	6:45p	6:45p	2:45p	appointments -
3:00p	7:00p	3:00p	5:00p	5:00p	7:00p	7:00p	3:00p	will be
3:15p	7:15p	3:15p	5:15p	5:15p	7:15p	7:15p	3:15p	glven
3:30p	7:30p	3:30p	5:30p	5:30p	7:30p	7:30p	3:30p	after 3:00p
3:45p	7:45p	3;45p	5:45p	5:45p	7:45p	7:15p	- 3:15p	
	m.	P-4		Mon	Tues.	Wed.	Thurs.	Frl.
Wed.	Thurs.	Frl.	Sat.	Mon.	evening	evening	Thurs.	
	evening				evening	evening		