

## Faculty Meeting Today

(The revised notice below supersedes the Call to the Faculty Meeting dated February 12, 1976, and distributed in yesterday's mail.)

To Members of the Faculty:

A regular meeting of the Faculty will be held

Wednesday, February 18, 1976

3:15 p. m.

Room 10-250

### Business:

1. Report of the Committee on Graduate School Policy: Recommendation of candidates for Advanced Degrees -- Dean Wadleigh
2. Report of the Committee on Academic Performance: Recommendation of candidates for Bachelor's Degrees -- Professor Kaplan
3. Motion on the establishment of additional joint degrees with Woods Hole Oceanographic Institute -- Dean Wadleigh
4. Report on activities of the Committee on Educational Policy -- Professor Ross
5. Report on the transfer of the Linguistics program to Course 24 and of the Foreign Language and Literatures Program to Course 21 -- Dean Hanham

## Memorial Service Today For Dr. Albert O. Seeler

A memorial service for Dr. Albert O. Seeler, head of the Medical Department, will be held today (Wednesday, Feb. 18) at 11am in the MIT Chapel. Additional seating will be available in the Little Theatre.

Dr. Seeler, who was also professor of medicine and medical director at MIT, died Thursday, Feb. 12, at Massachusetts General Hospital following a brief illness. He was 60.

(The Medical Department will be closed Wednesday from 10:45am until noon, except for emergency service at the Infirmary, Bldg. W5.)

Dr. Seeler was responsible for the improvement of health care services at MIT during a period of unprecedented growth in the Medical Department. During his tenure, visits to the Medical Department rose from 30,000 in 1960-61 to nearly 110,000 in 1974-75.

Dr. Seeler led development of a wide range of innovations in health care delivery, including exemplary programs of student and employee health care, the environmental medical service, medical supervision of academic and research programs, and the MIT Health Plan. The Health Plan, a prepaid comprehensive program for MIT faculty, staff and employees, presently enrolls 1,700 members and their families as an

alternative to Blue Cross-Blue Shield medical insurance.

Dr. Seeler was born Christmas Day, 1915, in Derry, N.H. He received the AB degree in 1934 from Harvard and the MD degree in 1938 from Harvard Medical School. After internship at The Memorial Hospital

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Dr. Seeler



Workmen carefully lower one of the lights in Killian Court. The fixtures are to be restored and mounted on new poles. See story, page 8.

## Computer Facility Is Renamed

The internationally famous computer research laboratory of MIT—known since its inception by the intriguing name of Project MAC—will henceforth be called the Laboratory for Computer Science.

The change in name, effective February 2, 1976, was announced by Professor Walter A. Rosenblith, MIT provost, and by Professor Michael L. Dertouzos, director of the laboratory.

Dr. Rosenblith said the change was made "to reflect more accurately the current and planned activities of this large interdepartmental laboratory whose principal goal is research in computer science and engineering."

Project MAC was founded in 1963 and over the years developed one of the world's first time-shared computer systems, the Compatible Time Sharing System (CTSS), and its improved successor, MULTICS, which is now in use in the MIT Information Processing Center and in several other computer facilities throughout the world. Time sharing makes possible the sharing of information and computer resources by several persons, who communicate with a central computer installation through remote typewriter and display terminals.

"These two major developments in time sharing introduced new con-

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## AAAS Meeting Opens Today

Vice President Nelson Rockefeller will present one of the 10 public lectures at the 142nd annual meeting of the American Association for the Advancement of Science opening this week in Boston.

Vice President Rockefeller will speak at 8:30pm Monday (Feb. 23) in the Grand Ballroom of the Boston-Sheraton Hotel.

Gyorgy Kepes, MIT Institute Professor Emeritus and director emeritus of the MIT Center for Advanced Visual Studies, another of the AAAS public lecturers this year, will present his lecture, "Art of a New Scale," at 8:30pm Sunday (Feb. 22), also in the Sheraton Grand Ballroom. Professor Kepes originally was to have lectured Monday night, but that was moved to Sunday when Vice President Rockefeller's schedule permitted his attendance at the

AAAS sessions only on Monday evening.

Attendance at all public lectures during the week will be free of charge and open to the public.

The AAAS meeting itself opens today (Wednesday, Feb. 18) with a public lecture by Harvard President Derek Bok starting at 1:45pm in the

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## X-ray Bursts Provide Clue To Galaxy Inner Workings

By BARBARA BURKE  
Staff Writer

X-ray bursts that may provide a clue to spectacular things going on deep inside our galaxy have been discovered by astrophysicists at MIT.

The bursts are particularly interesting because they come from very near the center of our Milky Way galaxy.

"The central regions of galaxies, in general, are quite mysterious and very much a closed book," according to Professor Walter H.G. Lewin, who reported the bursts last week in an International Astronomical Union circular.

Visible light from the central region of our own galaxy is absorbed by dust and our only information about it comes from radio waves, in-

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## MIT Musical Heritage Goes Back to 'Boston Tech'

By KATHARINE C. JONES  
Staff Writer

Even when MIT was Boston Tech, there were graduates of the school who gained renown for their accomplishments in non-engineering, non-technological fields.

A recent Berkshire Symphony concert refocused attention on the many musical accomplishments of one such early alumnus of MIT, Arthur G. Farwell, Class of 1893.

Although he studied violin as a boy in St. Paul, Minn., it was not until he came to Boston and was exposed to its musical climate that Farwell grew excited about music. He received his SB in electrical engineering, thereby satisfying his parents' desire that he have a "useful" education, but music was his only career.

That career spanned 59 years as composer, publisher, editor, musical director and teacher, and his tireless work spurred the development of

distinctive American music and brought recognition to American composers. He constantly strove to build an American national art from

native folk themes, working particularly with Indian music and interpreting it in western modes.

After graduating from MIT, Farwell studied composition with Homer Norris at the New England Conservatory and then went abroad for further study in Berlin and Paris.

Returning to America at the beginning of the 20th century, Farwell was concerned there was no recognition of serious American composers. This prompted him to establish the Wa-Wan Press (so named for an important ceremony of the Omaha Indians—a ceremony of "peace, fellowship and song") in Newton Center, Mass., Dec., 1901.

The purpose of Wa-Wan was to publish seriously progressive American music, particularly works

based on Indian melodies and folklore. The Press was also concerned with the development of American musical folk-material. Both musical scores and introductory articles, as well as other articles promoting American music, were published in handsomely bound volumes. The Press publications contributed tremendously to giving the serious composer national stature in America.

Farwell is best known for his works based on American Indian themes. For many years he studied Indian songs, making hundreds of phonograph records of their tunes. He also gathered folk material of Californians of Spanish descent.

Although Farwell was mainly interested in American Indian tribal

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An example of Arthur Farwell's natural musical handwriting is shown above in the opening passage of his composition, Symbolistic Study, No. 6, Mountain Vision.

# Heinz Wins AIAA Prize

Val M. Heinz, a graduate student in MIT's Department of Aeronautics and Astronautics, has been awarded first prize for a paper presented at the American Institute of Aeronautics and Astronautics National Student Conference in Washington, D.C.

Heinz, whose paper was entitled, "Analysis of a Space-Based Fuel Station," was one of seven finalists. The award consists of a \$500 honorarium donated by the Thiokol Chemical Corporation and a certificate of honor.

Heinz previously had taken first place in the Northeast Regional Student Conference when he was an undergraduate at MIT last spring. He also represented AIAA as one of four American student delegates at the International Astronautical Congress in Lisbon, Portugal, in the fall.

Heinz, whose home is in Portage, Mich., received his SB in aeronautics and astronautics in June and is presently a research assistant at MIT's



Flight Transportation Laboratory. He received a commission as a second lieutenant through the Air Force ROTC program and will go on active duty when he completes his master's degree this year.

## Three Honored

Three men with MIT connections last week received Edward S. Noyes Awards for outstanding service at the annual meeting of the New England Regional Council of the College Entrance Examination Board. They are:

J. Samuel Jones, associate director of student financial aid,

B. Alden Thresher, professor emeritus and director of admissions, emeritus and

David Dudley, associate director of admissions from 1948-58.

They were among 15 persons so honored in the United States.

Those honored are selected by their colleagues in the College Board Regional Councils.

"The citation to 'Bat' Thresher is especially heartwarming to MIT and his old friends," Mr. Jones said. "He has been retired for nearly 15 years and yet his colleagues have reached back in time to show their appreciation and regard."

Inc: Exxon Corp & USA Affiliates; GTE Labs; Institute for Defense Analyses; Intel Corp; Naval Underwater Systems Center; Northrop Corp; The Procter & Gamble Co. Thursday, February 19—Exxon Corp & USA Affiliates; Aqua-Chem, Inc; Bell Helicopter Co; ESL Inc; Fairchild Camera & Instrument Corp; WR Grace & Co; Hughes Research Labs, div of Hughes Aircraft Co; National Semiconductor Corp; The Procter & Gamble Co, Intl div. Friday, February 20—Exxon Corp & USA Affiliates; Aqua-Chem, Inc; Fairchild Camera & Instrument Corp; Amoco Research Ctr, research & dev depts, Amoco Chemicals Corp, Amoco Oil Co, subsidiaries of Std Oil Co (Ind.); Colgate-Palmolive Co; Digital Equip Corp; GenRad; Inland Steel Co; Jaros, Baum & Bolles; Sandia Labs; US Steel Corp; Waters Assoc, Inc. Monday, February 23—Bechtel Power Corp; Computer Sciences Corp; Data General; DeBell & Richardson, Inc; Equitable Life Assurance Soc; MSB Systems, Inc; Manu Data Systems, Inc; Oak Ridge Intl Lab; Shared Medical Systems Corp. Tuesday, February 24—Oak Ridge Ntl Lab; Combustion Engineering, Inc; Deere & Co; Hughes Aircraft Co, Electro-Optical & Data systems Grp; Radar; IBM Corp; Ntl Security Agency; PRD Electronics; Sikorsky Aircraft, div of United Technologies Corp; RG Vanderweil Engineers, Inc. Wednesday, February 25—Hughes Aircraft Co, Electro-Optical; Data Sys Grp; Radar; Aeronutronic Ford Corp, Aeronutronic Div; The Bendix Corp, Research Labs; GE Co; Rockwell Intl; C-E Lummus Co; Motorola Inc; The Analytic Sciences Corp. Thursday, February 26—GE Co; Rockwell Intl; Armco Steel Corp; Carnegie-Mellon Univ, grad sch of bus; General Dynamics, Convair Div & Electronics, Electric Boat Div, Fort Worth Div, Stromberg-Carlson, subsidiary of General Dynamics & Pomona Div; Scientific-Atlanta, Inc; US Army Engineering Div, NE, Friday, February 27—Atlantic Richfield Co, N Amer Producing Div; Cummins Engine Co, Inc; Mobil Oil Corp; Naval Ship Engineering Ctr; Schlumberger Ltd (overseas); Tektronix, Inc; Watkins-Johnson Co, Calif & Md; Westvaco Corp; US Envelope Inc.

## New UROP Listings

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

### Boston Veterans Administration Hospital

Boston, Ma. There is an opportunity available in a research project on the mechanism of defense against injury and in particular against bacterial endotoxins which kill thousands of patients whose defenses are depleted, whether by advanced disease, massive injury, malignant disorders, etc. The project is now concerned with the role of the platelet in the chain reaction set going by the endotoxins which release vasoactive agents that act continuously instead of intermittently, and so destroy vital functions. There is room in the research group for one to two undergraduates to participate in the clinical as well as the experimental program.

### Optimal Control of Aircraft

Two or three openings exist for students who are interested in understanding aircraft dynamics and designing stability augmentation systems. Knowledge of vector and matrix manipulations is necessary as well as elements of probability theory and differential equations. The research will require intensive digital computer simulations, using available FORTRAN programs, and evaluation of alternate designs with respect to performance. Contact David Castagnon, Rm 35-312B, x3-6165 or Chris Greene, Rm 35-312A, x3-6165.

### Francis Bitter National Magnet Laboratory

The National Magnet Laboratory has an opportunity for one or possibly two undergraduates in the laser-plasma research project under the supervision of Professor Benjamin Lax. The student(s) would participate

in constructing and testing the plasmas and laser systems and in taking data during high field magnet runs. A student at the junior or senior level, with a strong physics background would be preferred. Credit only. Contact Mark Hacker, Rm NW14-5107, x3-5586 or D. Stevenson, Rm NW14-3218, x3-5543.

### Department of Civil Engineering

A student is invited to conduct research which combines data processing, fuzzy mathematics and semantic variables. The objective of the project would be to develop and test techniques for applying natural language and imprecise reasoning to complex problems which require qualitative judgment in addition to quantitative analysis. Knowledge of or interest in learning about statistics and multi-dimensional scaling, familiarity with local computer usage, and ability to work independently are all important personal qualifications. Pay or credit available. Contact Professor S. West, x3-3965, Rm 1-276.

### Raymond Precision Industries Inc.

The Safety Heater Division of Raymond Industries manufactures heaters for waterbeds. The firm is finding that there is a subtle opposition to waterbeds that has to do with the fact that the weight of a waterbed may represent a possible structural danger to a typical home dwelling. They are seeking someone to help evaluate the parameters for safe waterbed installation. Beyond the stress and loading calculations there might be some interest in looking at alternate types of dwelling construction as well as possible alterations in the basic waterbed frame design. Contact Jreome Schauffel, Rm 4-240, x3-6291.

### Research Consulting Associates

Watertown, Ma. Research Consulting Associates is conducting research on loadings of overhead transmission lines. Among these loadings are the deadweight of the lines and conductors, the structure itself, ice, the transverse loads of wind, and the unbalanced loads of unequal spans of ice and broken conductors. The project will involve construction of a scale model consisting of several designs. The model design is to be based between dead ends, and other factors. Pay or credit available for spring and summer terms.

### Cambridge Thermionics Cambridge, Ma.

Cambridge Thermionics is an electronics firm manufacturing electronic hardware, integrated circuits, and micro-processors. The firm would like an undergraduate to work with them on a mathematical model analysis of an infinite number of small magnets which are rigidly immobilized. Electronic applications for such an array of small magnets will also be studied.

## Graduate Studies

### Grumman Masters Fellowships

The Grumman Aerospace Corporation, Bethpage, Long Island, N.Y., will award in March, 1976 up to five fellowships leading to the masters degree in engineering. These fellowships are part of a work/study program which requires the fellow to become a Grumman employee and work a minimum of three days a week with up to two days off for study without pay. Benefits include full tuition, books, fees and a yearly stipend of \$1,200 plus \$600 for each dependent. The engineering student should have a strong interest in and considerable experience with hardware. A minimum of nine credits each semester at a local university will assure completion of the program in two years. Stop at the Placement Office for further information. The deadline for application is March 1, 1976.

## Other Opportunities

Rotary Foundation Undergraduate Scholarships for 1977-78—for outstanding young men and women who are interested in world affairs, and who can fulfill a dual role of student and "ambassador of good will." Qualifications are: 1) Candidates must have completed two years of university study by the beginning date of the award; 2) As of 15 March 1976 they must be between the ages of 18-24 inclusive; and 3) They may not be married. Awards cover the following: round-trip transportation, educational, living and miscellaneous related expenses for one academic year, plus in

# CABLE TV SCHEDULE

## Wednesday, Feb. 18

10am  
11am  
4pm

## Friday, Feb. 20

10am  
11am  
4pm to  
5:30  
8pm to  
9:30pm

## Monday, Feb. 23

10am  
11am

"Decision Analysis" Dr. Myron Tribus #1  
MIT The Institution #1—MIT Non-Narrowly Defined  
"Decision Analysis" Repeat #1

"Decision Analysis"—Dr. Myron Tribus #2  
MIT The Institution #2—MIT—Perspectives and Style  
Professor Rose, Course 3.091, Introduction to Solid-State Chemistry  
Professor Rose Repeat #1

"Decision Analysis"—Dr. Myron Tribus #2 Repeat  
MIT The Institution #3 MIT: Descriptive Indices

certain cases, a period of intensive language training in the study country prior to commencement of the regular academic year. Awards are made for study in most any field, and are assigned for study in countries in which there are Rotary Clubs. Application deadline is 15 March 1976. See the Foreign Study Office, Room 7-108 for further information.

International Honors Program—provides for a full year of college level work in cross-cultural studies pursued on location during an eight-month trip around the world. The theme will be "Reality as truth and construct: three great perspectives" (Hindu, Buddhist and Islamic). The eight months will be divided between East Asia, South Asia, and West Asia/North Africa. The civilizations will be approached from the angles of both the humanities and social sciences. The program is open to honor students from accredited North American colleges who will be juniors or seniors in 1976-77, and who are nominated by their home institution. Further information is available from the Foreign Study Office, Room 7-108, Ext. 3-5243.

## Foreign Studies

### Rotary Foundation Graduate Fellowships

The Rotary Foundation offers graduate fellowships for study abroad to outstanding young men and women who are interested in world affairs. An award covers round-trip transportation, educational, living and miscellaneous related expenses for one academic year. Awards are made for study in most any field and are assigned for study in countries where there are Rotary Clubs. To be eligible for a Rotary Foundation Graduate Award, a candidate must 1) not be a Rotarian or a relative or dependent of a Rotarian, 2) be both an outstanding student and a potential "ambassador of good will," 3) hold a bachelor's degree or its equivalent, and 4) be between the ages of 20-28 inclusive as of March 15, 1976. Application must be made and sponsored by a Rotary Club, and its district, not later than March 15, 1976 for a 1977-78 award. For further information contact the nearest Rotary Club.

## Club Notes

MIT Auto Club\*\*—Meetings third Sun of each month, 7:30pm, Stu Ctr Rm 491.

MIT Ballroom Dance Club\*—We will be very active this term. For info on workshops & dances call Sharon or Doug King, 536-1300.

MIT/DL Bridge Club\*\*—ACBL Duplicate Bridge. Tues, 6pm, Stu Ctr Rm 407.

MIT Chess Club\*—Meetings Sat, 12n-7pm, Stu Ctr 407.

Ecology Action—Organizational meeting for 2nd term. Bring new project ideas. Wed, Feb 18, 7:30pm, Stu Ctr Rm 002.

MIT Goju Karate Club\*\*—Mon, Wed & Fri, 7-9pm, Stu Ctr Rm 407. Info: 536-1830.

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

Math Club—Meetings Sun, 4pm, Rm 4-182.

MITHRAS—New MIT magazine of poetry, art, fiction and essays is looking for original material from members of MIT community. Contributions should be dropped off at Rm 14N-305 before Fri, Mar 5. Info: Jim Adams, x5-7369 Dorm or Marita Gargiulo, x5-6427 Dorm.

MIT Science Fiction Society\*—The Society insists that you visit its incredible library (Stu Ctr Rm 421, x5-9144 Dorm) and attend its unusual non-business meetings Fri, 5pm, Rm 1-236.

MIT Shim Gum Do Club—Instruction by 10th degree black in zen swordsmanship, karate and stick fighting techniques. Beginners always welcome. Mon-Fri, 5-7pm, Stu Ctr 4th fl or Sala. Jeff, x3-5934.

Shotokan Karate Club\*\*—Rigorous training for intercollegiate competition & self-defense, given by 6th degree black belt. Mon & Wed, 8pm, Fri, 6pm, duPont T Club lge.

MIT Soaring Association\*—Membership meeting with movie and presentation of plans for new sailplane purchase. Thurs, Feb 19,

7:30pm, Stu Ctr Rm 407. Refreshments.

MIT Space Habitat Study Group\*—Meetings Thurs, 7pm, Rm 37-252. Interdisciplinary studies on space colonization. Everyone interested is invited. Office: Rm 24-415. Info: B. Hazleton, x3-6625.

MITUHFRA\*—Meeting of MIT UHF Repeater Association Thurs, Feb 19, 9:30pm, MacGregor A Entry Lge. MITUHFRA operates a 450 MHz FM repeater. Projects & activities range from digital logic to antennas to high-power amplifiers and providing communications for MIT community (you saw us at the airport R/O Week). No amateur radio license necessary for membership.

Student Homophile League\*—Gay Lounge, Rm 50-306, open daily for lunch & random other hours. x5-6745 Dorm. Tom, Contact Line, x3-5440, provides info, referrals, counseling or just talking to gay persons. Meetings 1st & 3rd Sun every month, Gay Lge. Consult bulletin board, Bldg 3, for info.

MIT Tae Kwon Do\*\*—Workouts Mon & Thurs, 5-7pm, Stu Ctr West Lge.

MIT White Water Club\*\*—Pool sessions every 2 weeks, next session Feb 24. All 8pm, Alumni Pool.

## Religious Activities

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

Campus Crusade for Christ\*—Family Time Fri, 7:45pm, Rm 37-252.

Celebration of Holy Communion\*\*—MIT Lutheran & Episcopal Ministry. Wed, 5:05pm, Chapel. Supper following, 312 Memorial Dr.

Christian Worship Service\*—Sun, 10:45am, Chapel. Refreshments following service.

Hillel\*—Traditional services Fri, 5pm, Kosher Kitchen & Sat, 9am, Chapel.

Islamic Society\*\*—Prayers Fri, 1pm, Kresge rehearsal Rm B.

Prayer Time\*\*—Lunch hour Bible classes led by Miriam R. Eccles. Fri, 1-2pm, Rm 20E-226. All are welcome.

The Society of Friends (Quakers)\*—Luncheon meeting Thurs, 12n, Walker. For those interested in the Society of Friends and possible formation of worship group on campus.

Tech Catholic Community\*—Weekday masses: Tues & Thurs, 5:05pm; Fri, 12:05pm, Chapel. Sun masses: 9:15am, 12:15pm, 5:15pm, Chapel.

Vedanta Society\*—Meditation and Gita led by Swami Sarvagatananda. Fri, 5:15pm, Chapel.

# Echoes

## 50 Years Ago

Professor A. Joffe, head of the Department of Physics at the University of Leningrad, spoke on "The Elastic Properties of Crystal."

Completion of plans for an experimental ship model tank, to be built in connection with a new Hydraulics Lab, was announced. This tank will be the first of its kind in this country.

## 40 Years Ago

An All Technology Snow Train left for the Hinsdale Country Club in the Berkshires for a day of skiing, tobogganing, and snow shoeing. Dr. and Mrs. Compton were among those attending.

E.I. duPont de Nemours & Company donated funds for the establishment of a graduate fellowship in chemistry.

## 25 Years Ago

The first Annual Monster Rally was held by the Class of '51 at the Ritz Plaza Hotel. Entertainment was provided by the Logarithms and the Wellesley College Widows.

LSC presented Al Capp to lecture on the subject "Of Schmoos and Men." When asked, "Where do you get your ideas for such hideous characters?" Mr. Capp replied, "I come to places like this and look."

Prepared by Ethel I. Newell, MIT Historical Collections, x3-4444.

## TECH TALK Volume 20, Number 27 February 18, 1976

Tech Talk is published 45 times a year by the News Office, Massachusetts Institute of Technology. Director: Robert M. Byers; Assistant Directors: Charles H. Ball, Barbara Burke, Robert C. Di Iorio, Patricia M. Maroni, Joanne Miller, William T. Struble, and Calvin D. Campbell, photojournalist; Reporter: Katharine C. Jones; Institute Calendar, Institute Notices, Classified Ads: Susan E. Walker.

Address news and editorial comment to MIT News Office, Room 5-111, MIT, Cambridge, MA 02139. Telephone (617) 253-2701.

Mail subscriptions are \$6 per year. Checks should be made payable to MIT and mailed to the Business Manager, Room 5-111, MIT, Cambridge, MA 02139.

## Placement

The following companies will be interviewing during the time period covered by the current Institute Calendar. Those interested may sign up in the Career Planning and Placement Office, Mon-Fri, 9am-3pm, Rm 10-140, x3-4733.

Wednesday, February 18—Std Oil Co of Calif; Chevron Research Co; Amer Mgmt Systems,

# Sea Grant Site Visit Scheduled

The MIT Sea Grant Program's annual site visit and program review will take place Wednesday and Thursday, Feb. 25 and 26, and the Institute community is invited to hear Sea Grant's proposals for advancing society's wise uses of the oceans.

Held each year at this time, the Sea Grant site visit involves study by an expert panel from outside MIT of proposed and continuing projects for the coming year in marine-related research, education, and advisory services. This year's review is particularly important, as the Institute has requested for 1976-1977 designation as a Sea Grant College, the highest support award made by NOAA's Office of Sea Grant in the US Department of Commerce.

Site visit presentations will emphasize Sea Grant's research activities, which are organized for this next year around four major themes: development of technology for using the oceans, opportunities and problems with mineral resources in the sea, application of technology to improved harvesting and use of living marine resources, and the creation of technology and policy perspectives for coastal zone management. Sea Grant's strong programs in marine-oriented education and advisory services will also be discussed.

The site review sessions will be held in the Marlar Lounge, Room 37-252, on Wednesday from 8:00am to 5:30pm and on Thursday morning from 8:00am until 10:00am.

Dr. David B. Duane, associate program director for the Office of Sea Grant in Washington, D.C., will lead the 1976 site review panel; joining him from the national office will be Dr. Hugh J. McLellan, program director, Mr. Robert J. Shephard, NOAA Marine Advisory Service program manager, and Mr. Stephen Bingham, assistant program analyst.

Other site visit participants are: two members of the National Sea Grant Program's Advisory Panel, Dr. George S. Benton, vice president of the Homewood Division, Johns Hopkins University, and Dr. Bernard Lemehaute, vice president of Tetra Tech Corporation; Dr. B.J. Copeland, director of the University of North Carolina's Sea Grant Program; Dr. William R. James, with the Conservation Division, US Geological Survey, and Mr. John Peters of the National Marine Fisheries Service Laboratory in Gloucester.

For more information on scheduled site visit events, contact the Sea Grant Program, x3-7041.



Professor Feld, left, and Professor Lord

## Feld to Succeed Lord In Spectroscopy Lab

The appointment of Dr. Michael S. Feld, associate professor of physics, as Director of the Spectroscopy Laboratory at MIT has been announced by Dean of Science Robert A. Alberty. Dr. Feld will succeed Professor Richard C. Lord on his retirement June 30, 1976.

Professor Feld's research interests are in the field of laser physics and laser spectroscopy, especially the interaction of intense light fields with atomic and molecular systems. He and his students working in the Spectroscopy Laboratory in 1973 made the first experimental observation of superradiance in an extended optically thick medium. He has also done research in the biological applications of lasers and in the history of science. In February 1973 he received an Alfred P. Sloan Research Fellowship Award.

As the secretary to the International Symposium Committee, Professor Feld played an active role in organizing the Esfahan Symposium on Fundamental and Applied Laser Physics, a major conference held in Iran in 1971. In 1972 and again in 1975 the Soviet Academy of Sciences invited him to the Soviet Union for lectures and laboratory visits. He was on the Committee of the US National Academy of Sciences which organized the visit of the Chinese Laser Delegation to the United States in July of 1974. He was a member of the Organizing Committee for the IVth Vavilov Conference on Nonlinear Optics, Novosibirsk, 1975, and is presently a member of the North American Program Committee for the IXth International Quantum Electronics Conference, to be held at Amsterdam, June, 1976.

Professor Feld received both his undergraduate and graduate training at MIT, where he earned the PhD degree in physics in 1967. He studied at University College, London, in 1961-62, and was a postdoctoral fel-

low at MIT in 1967-68. He was appointed Assistant Professor of Physics in September, 1968, and Associate Professor in June, 1973.

Professor Lord has been Director of the Spectroscopy Laboratory since July, 1946. The first director of the Laboratory as an interdepartmental facility, he was responsible for extending its activities into the field of molecular spectroscopy, particularly infrared and Raman spectroscopy. He established the first summer school for postgraduate education in applied infrared spectroscopy in 1950, and during the next two decades was responsible for the training of more than two thousand research scientists in this area. He was a founder and first chairman of the Gordon Research Conferences on Infrared and Raman Spectroscopy in 1954. His recent interests have been in the applications of infrared and Raman spectroscopy to molecular biology.

Professor Lord was president of the Optical Society of America in 1964 and chairman of the Commission of Molecular Structure and Spectroscopy of the International Union of Pure and Applied Chemistry from 1961 to 1967. He received the Presidential Certificate of Merit in 1948, the Pittsburgh Spectroscopy Award in 1966, and a Guggenheim Fellowship in 1960. He is a fellow of the American Academy of Arts and Sciences, and of the Optical Society of America, and an honorary member of the Society of Applied Spectroscopy.

Two testimonial symposia on various aspects of molecular spectroscopy to which he has made significant contributions have been arranged by his colleagues and former students, one at MIT on May 26 and the other at the 31st annual Symposium on Molecular Structure and Spectroscopy at the Ohio State University on June 18, 1976.

## Killian Award Nominations

Nominations are now being solicited for the 1976-77 James R. Killian Faculty Achievement Award, honoring a full-time MIT faculty member for "extraordinary professional accomplishment."

The recipient of the Award, established in 1972 as a permanent tribute

Dr. Frank Press, this year's recipient of the Killian Faculty Achievement Award, will present two Killian Lectures this spring:

"Pattern Recognition, or Can a Computer Learn to Think Like a Geologist?" Thursday, April 29, and

"Whither the Research University?" Tuesday, May 11.

Both lectures will be held at 4pm in Rm 54-100.

Dr. Press is Robert R. Shrock Professor of Earth and Planetary Sciences and head of the Department of Earth and Planetary Sciences.

to MIT's tenth president, former chairman of the Corporation and

now honorary chairman of the Corporation, is customarily invited to present one or more lectures to the MIT community on his or her professional activities. The tenure of the title, Killian Award Lecturer, which carries with it an honorarium of \$5,000, is one academic year.

Previous recipients have been Professors Nevin S. Scrimshaw of the Department of Nutrition and Food Science, Victor F. Weisskopf of Physics, Morris Cohen of the Department of Materials Science and Engineering, and Frank Press of Earth & Planetary Sciences, the current holder of the award.

This year's selection committee includes:

Professors John M. Buchanan of Biology, Morris Cohen of Materials Science and Engineering, Philip Morrison of Physics, Robert M. Solow of Economics and Mildred S. Dresselhaus of Electrical Engineering and Computer Science, chairman of the selection committee.

All nominations from the MIT community should be forwarded to Professor Dresselhaus' office, Rm 13-3006, before March 15.

## Music Notes

# Concert Band to Give Benefit Performance

By JOANNE MILLER  
Staff Writer

The MIT Concert Band, widely known for its performances of modern works for symphonic bands, will play a benefit performance Sunday, March 7, at 4pm in MIT's Kresge Auditorium for the Technology Children's Center, Inc.

Billed as a "Family Concert," the program is designed especially to appeal to children. Eight works are planned. All are brief, allowing for a program that is unusually varied and colorful.

"It's a program of sandwiches—styles you seldom hear followed by familiar ones," John Corley, director of the band, said.

Tickets for the benefit performance are \$1.50 and will be available Monday-Friday, noon to 2pm in the Lobby of Building 10 at MIT, beginning Feb. 23. Tickets also will be available at the door. The Technology Children's Center provides preschool programs—both nursery and day care—for children of MIT families.

The MIT Concert Band, formed in 1948, devotes itself to original works for symphonic band and has performed music by 20th century composers such as Hindemith, Milhaud and Arnold Schonberg as well as works of earlier composers. Many works—including three on the Family Concert program—have been composed specifically for the band.

The band recently returned from its annual tour during which it performed at high schools and colleges in Akron, Cleveland and Dayton, Ohio and Chicago, Ill. The 70-member group presents two major public performances each year in Kresge Auditorium in addition to its tour.

John Corley, who holds numerous positions in the Boston area as conductor and trumpet instrumentalist, has been conductor of the MIT Concert Band since its inception. He has appeared as guest conductor of the Boston Pops Orchestra and the Cambridge Festival Orchestra and is conductor of the Hingham Symphony Orchestra and director of the Boston Conservatory Wind Ensemble.

Program for the Family Concert will include:

—Rondo from *Royce Hall* by Healy Willan, a short, fast and sparkling opener;

—*Prelude and Happy Dance* by Andrew Kazdin, a tune-filled prelude followed by a rustic, happy dance. The piece was composed for and dedicated to the MIT Concert Band while Mr. Kazdin, '63, was a student at MIT. He is now a producer of recordings at Columbia Masterworks;

—*Wilderness Road* by Elie Siegmeister, a tone picture of a journey along a country road. As the road approaches and passes through a boisterous western town, the music becomes excited and noisy, becoming quiet again as the town recedes in the distance;

—First Movement from *Festival Symphony* by John Bovicchi, music of tremendous energy and contrasts with unconventional harmonies and melodies. This symphony calls for two brass choirs to be positioned out in the audience. Mr. Bovicchi composed his Opus 51 for the MIT Concert Band in 1965;

—*Children's March* by Percy Grainger, a famous composition for band based on the tune "Over the Hills and Far Away." Audience participation will be encouraged during this work;

—*Werk* by Paul Earls, a research fellow at the MIT Center for Advanced Visual Study, a 1972 composition designed to take advantage of MIT research, Kresge Auditorium and the annual tour of the MIT Concert Band. The composition makes use of computer generated tapes as well as members of the band who produce their own scores. The title is the computer's phonetic spelling of "work";

—*Dragon Slayer* by George St. George, a junior in chemistry at MIT from Wilmette, Ill., composed in the style of his idol, John Philip Sousa, and

—*The Man Who Invented Music* by Don Gillis, narrated by George St. George, guiding the listeners' attention to the roles of various instruments and musical materials.

## MIT, Conservatory to Host Composers, Music Theorists

MIT and the New England Conservatory of Music will jointly extend a welcome to two groups of musicians and music teachers when they convene in Boston at the end of this month.

Members of the American Society of University Composers will meet Feb. 26-29 for their 11th national conference, which will include two evening concerts at the Conservatory and a special music program at MIT.

And MIT will be host to a national meeting of music theorists to be held Feb. 29-March 1.

In the first conference, about 200 composers active in universities throughout the country will come together to listen to each other's music, to discuss common problems, and to catch up on the latest compositional and electronic music techniques.

Two of the conference concerts, all of which will be free and open to the public, will be given in the Conservatory's Jordan Hall. On Thursday, Feb. 26, the New England Conservatory Wind Ensemble will present a program of new music prepared by conductor Frank Battisti. On Saturday, Feb. 28, Conservatory president Gunther Schuller will conduct the Contemporary Music Ensemble in a further program of compositions by members of the Society. Both Conservatory concerts will be at 8:30pm.

The conference will move to MIT on Friday, Feb. 27, for a special concert of electronic and computer music to be presented at 8pm in Kresge Auditorium.

This concert marks the official opening of the MIT Experimental Music Studio. The Studio has developed a new and revolutionary aid for

music composition through a computer-based system that has an organ keyboard input, an immediate cathode ray tube display of musical notation, digital synthesis of sound, and hard-copy printout.

The MIT program will include electronic works by Milton Babbitt, Ronald Perera, Edward Diemente, Edwin Dugger, and MIT composer Barry Vercoe. The concert will be followed by a panel discussion on "The Emerging Role of Technology in the Arts." Panelists will be MIT provost Walter A. Rosenblith; Dr. Schuller; Milton Babbitt; Robert Freeman, director of the Eastman School of Music and former member of the MIT music faculty; soprano Bethany Beardslee; and Professor Michael L. Dertouzos, director of Project MAC.

The second conference, to be held at MIT in Kresge Little Theatre, will bring together scholars working in the field of music-theoretic studies. Coming from leading US conservatories and music graduate schools, these teachers and researchers will hear papers on a variety of topics ranging from set theory in music to complex harmonic progressions.

The visitors will also hear a lecture by Professor Vercoe on "Music and Technology: Breaking the Language Barrier," concerning his work on computer display of musical scores.

MIT students are welcome to attend sessions of this conference, Professor Vercoe said. Details are available from the Music Office.

## Blood Drive Donors Needed

Donors are urgently needed for the MIT Spring Blood Drive to be held March 3-5 and 8-12 in the Student Center Sala de Puerto Rico.

Blood collected during the drive—the goal is 2,000 pints—will ease the critical blood shortage in Massachusetts.

Late afternoon and evening hours are scheduled to allow more flexibility. Blood can be given until 8:15pm on March 4, 8 and 10. On Friday, March 12, the last day of the drive, appointments will be scheduled until 2:30pm though facilities will remain open and functioning until 5:30pm.

Appointment forms have been mailed to all Institute offices and will be distributed in dormitories this week. Additional forms may be obtained from the TCA Office, Room W20-450, Ext. 3-7911.

People who gave blood during the IAP drive are reminded eight weeks must lapse between donations. IAP donors must wait until the second week of the spring drive before donating again.

# THE INSTITUTE CALENDAR

February 18  
through  
February 29

## Events of Special Interest

**Organization and Management of Major Projects\*** – John F. Lynch, vice president & director of Bechtel Incorporated; director of other Bechtel Group companies, manager of pipeline and production service division. Third Mathis Memorial Lecture, Department of Civil Engineering. Thurs, Feb 19, 4pm, Rm 3-270.

**Forum on Nuclear Reactor Safety: Are the Risks Merited?\*** – Panel: Norman Rasmussen, head of nuclear engineering, chairperson of AEC study on nuclear reactor safety; Henry Kendall, physics, steering committee of Union of Concerned Scientists; George Rathjens, political science, chairperson of Governor's Commission on Nuclear Safety; David Rose, nuclear engineering, consultant to Congressional Office of Technology Assessment; Joel Yellin, political science, Technology Studies Program; Barry Commoner, author of *The Closing Circle*, *Science and Survival* and *The Poverty of Power*; moderated by Joseph Coates, assistant director of OTA. Sponsored by SACC, Nuclear Engineering & Technology Studies Seminar. Fri, Feb 20, 7:30pm, Rm 10-250.

**Annual Sea Grant Program Review and Site Visit\*** – Wed, Feb 25: presentations by Sea Grant staff & principal investigators of proposed research projects and progress reports on existing projects, 8am-5:30pm. Thurs, Feb 26: site visit team led by David B. Duane, associate program director, Office of Sea Grant, NOAA, US Department of Commerce. Info: x3-7041.

## Seminars and Lectures

### Wednesday, February 18

**Efficient Energy Use and Well Being: The Swedish Example\*** – Lee Schipper, Energy and Resources Group, University of California, Berkeley. Technology Studies Seminar. 11am, Rm 20D-205.

**Models of Vertical Structure and the Calibration of Two Layer Models\*** – Glenn Flierl, Harvard University. Oceanography Sack Lunch Seminar. 12:30pm, Rm 54-311. Bring lunch, coffee available.

**The Function of the Sense of Taste\*** – Dr. Morley Kare, head of Monell Chemical Senses Institute, University of Pennsylvania. MIT-Harvard School of Public Health Joint Seminar. 3:30pm, Large Lecture Hall, Kresge Bldg, Harvard Medical School. Sherry hour to follow.

**Grain Boundary Anelasticity and its Influence in Creep Fracture Under Cyclic Loading\*** – R. Raj, materials science, Cornell University. Mechanical Engineering Seminar on Mechanics of Materials. 4pm, Rm 3-133. Coffee 3:30pm, Rm 1-114.

**Parametrically Stochastic Linear Differential Equations\*** – Roger W. Brockett, Harvard University. ESL Control & Communications Seminar. 4pm, Rm 39-500.

**Cooling Tower Drift Eliminator Evaluation\*** – Jo Chan, G. Nuclear Engineering Seminar. 4pm, Rm NW12-222.

### Thursday, February 19

**Photocounting Statistics for Two-Photon Radiation\*** – Jeffrey Shapiro, electrical engineering. Optics Seminar. 2pm, Rm 36-428.

**Energy Use and Conservation in the Materials Industry\*** – Merton Flemings, Ford Professor of Engineering, associate director of Center for Materials Science & Engineering. Seminar on Materials Resource Policy. 3pm, Rm 13-5101.

**Coagulation in Isotropic Turbulent Pipe Flow\*** – David Bigio, G. Mechanical Engineering Thermal-Fluids Seminar. 4pm, Rm 5-234. Coffee 3:45pm.

**An On-Line Debugging Facility for Microcomputer Systems\*** – Paul S. Schluter, G. Biomedical Engineering Center for Clinical Instrumentation Seminar. 4pm, Rm 36-428.

**Assessment of Fossil Fuel Possibilities\*** – Jack B. Howard, chemical engineering. Energy Assessment Group Seminar. 4pm, Rm 24-115.

**Digital Signal Processing and Control and Estimation Theory – Points of Tangency, Areas of Intersection, and Parallel Directions** – Alan S. Willsky, electrical engineering, assistant director of ESL. Control & Communications Seminar. 4pm, Rm 31-161.

**Neutrons, Gravity and Quantum Mechanics\*** – Albert Overhauser, Purdue University. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45pm, Rm 26-110.

**Kraft für Deutschland: Die Energiesituation der BRD nach der Energiekrise\*** – Gunter R. Haaf, science editor, Stern Magazine; Nieman Fellow, Harvard University. Modern Literatures & Linguistics Seminar (in German). 7:30pm, German Hse, 476 Memorial Dr.

### Friday, February 20

**Institution and Intellect – A Buddhist Approach to Learning** – Karl Springer, executive director of Naropa Institute, Boulder, Colo. MIT Buddhist Association Lecture. 11am, Rm 3-133.

**The Economic Implications of the Energy Crisis\*** – Barry Commoner, author of *The Closing Circle*, *Science and Survival*, and *The Poverty of Power*. SACC Lecture. 12n, Rm 1-390.

**Massachusetts Ride Sharing Program\*** – Daniel Brand, undersecretary, Mass Department of Transportation. Center for Transportation Studies Seminar. Buffet 12n (\$1), lecture 12:45pm (free), Stu Ctr Mezzanine Lge.

**An Interactive Computer System for Chemical Process Design\*** – M.S. Arab-Ismaïli, G. Chemical Engineering Seminar. 2pm, Rm 66-110.

**The Formation of Soot and Polycyclic Hydrocarbons in Combustion Systems\*** – J.D. Bittner, G. Chemical Engineering Seminar. 3pm, Rm 66-110.

**Sonar and Underwater Photography** – Harold E. Edgerton, Institute Professor and Professor of Electrical Measurement, Emeritus. Ocean Engineering Tankard Seminar. 3pm, Rm 3-446. Refreshments 4pm, Rm 5-314.

**The Bifurcation of Theories and Indeterminacy of Translation\*** – Donald J. Hockney, Yale University. Philosophy & Linguistics Colloquium. 4pm, Rm 14E-304.

**Ion Induced Pinching and Intense Ion Currents** – Shyke Goldstein, University of Maryland. RLE Plasma Dynamics Seminar. 4pm, Rm 36-261.

**Critical Scattering in Weakly Coupled One-Dimensional Systems: A One-Dimensional Problem?\*** – Paul M. Horn, University of Chicago. Materials Science Colloquium. 4pm, Rm 9-150. Refreshments 3:30pm.

**The World of Star Trek** – Gene Roddenberry, creator & producer of Star Trek. Sponsored by Student Center Committee. Fri, 8pm, Kresge. Sold out.

### Monday, February 23

**Present Status and Future Projections for the US LMFBR Program\*** – George W. Cunningham, deputy director for technology, ERDA. Nuclear Engineering Seminar. 3:30pm, Rm NW12-222. Refreshments 3pm.

**Simple Accommodation in Assembly Manipulators\*** – Adam C. Bell, visiting professor, mechanical engineering, State University of New York at Buffalo. Mechanical Engineering Seminar on Mechanics of Materials. 4pm, Rm 3-133. Coffee 3:30pm, Rm 1-114.

**Packet Switched Network Service\*** – Lawrence G. Roberts, Telenet Communications Corporation. RLE Control & Communications Seminar. 4pm, Rm 39-500.

**Numerical Solution of Navier-Stokes Equations\*** – Carlos Brebbia, visiting professor, civil engineering, Princeton University. Water Resources & Environmental Engineering Seminar. 4pm, Rm 48-316. Coffee 3:45pm, Rm 48-410.

**Meat – Who Needs It?** – Alex Hershaf, environmental scientist, Washington, DC. Sponsored by MIT Vegetarian Community. 8pm, Stu Ctr Rm 491.

### Tuesday, February 24

**Neutral Penetration in Tokamak Plasmas\*** – Kim Molvig, RLE. RLE Plasma Theory Seminar. 11am, Rm 36-261.

**A Conversation With Ivan Illich\*** – Ivan Illich, director of Center for Intercultural Documentation. Cuernavaca, Mexico. Seminar on Technology, Merit and Equality. 12n, Stu Ctr Mezzanine Lge.

**An Analysis of Alpha-Beta Pruning** – Donald E. Knuth, computer science, Stanford University. Laboratory for Computer Science (formerly Project MAC) Distinguished Lecturer Series. 3:30pm, Rm 9-150. Refreshments 4:30pm.

**Applications of Optical, X-Ray and Neutron Interferometry\*** – Richard D. Deslattes, Jr., optical physics div, National Bureau of Standards. Seminar in Physical Chemistry. 4pm, Rm 4-370. Coffee 3:45pm, Rm 6-321.

**Who Wants to Pay for a Ride in an Airship?** – Joseph F. Vittek, aero/astro. Aero/Astro General Seminar. 4pm, Rm 35-225. Coffee 3:30pm, Rm 33-222.

**The Internal Structure of Colorado Hail Storms as Observed by Penetrating Aircraft\*** – Paul L. Smith, meteorology, Institute for Atmospheric Science, S. Dakota School of Mines & Technology. Meteorology Seminar. 4pm, Rm 54-100. Refreshments 3:30pm, Rm 54-923.

**Neuromuscular Load Compensation and Implications for External Control or Replacement of Limbs\*** – Patrick E. Crago, postdoctoral fellow, physiology, Johns Hopkins University School of Medicine. Harvard-MIT Rehabilitation Engineering Center Seminar. 4pm, Rm 10-105. Refreshments 3:30pm.

### Wednesday, February 25

**Physical Oceanography of the Mid-Atlantic Bight\*** – Robert Beardsley, WHOI. Oceanography Sack Lunch Seminar. 12n, Rm 54-311. Bring lunch coffee available

**Nuclear Engineering Seminar\*** – Y.Y. Liu G. 4pm, Rm NW12-222.

**Medical Research and the Demise of the AMA\*** – D. Ozonoff, MD, research associate, history of science, Harvard University. Technology Studies Seminar. 4pm, Rm 20D-205. Coffee 3:30pm.

**Marine Magnetic Mythology: Thoughts on the International Program of Ocean Drilling (IPOD)\*** – Norman Watkins, graduate school of oceanography, University of Rhode Island. Earth & Planetary Sciences Colloquium. 4pm, Rm 54-915. Tea 3:30pm, Rm 54-923.

### Thursday February 26

**Goethe: Poetic and Scientific Sensibility\*** – Jerome Y. Lettvin, biology & electrical engineering. Seminar on Technology and Culture. 4pm, Rm 9-150.

**Assessment of Energy\*** – David Wood, program director, Energy Lab. Nuclear Engineering Energy Assessment Group Seminar 4pm, Rm 24-115.

**Microprocessor Instrumentation for Biotelemetric Monitoring of Spinal Orthosis (Scoliosis)\*** – Derek Rowell, mechanical engineer-

ing. Biomedical Engineering Center for Clinical Instrumentation Seminar. 4pm, Rm 36-428.

**Kinetics of Water Loss From Biomaterials at Subzero Temperatures\*** – Ronald L. Levin, G. Mechanical Engineering Thermal Fluids Seminar. 4pm, Rm 5-234. Coffee 3:45pm.

**Synchrotron Radiation – A Unique Photon Source for Physics Chemistry and Biology\*** – Peter Eisenberger, Bell Laboratories, Murray Hill, NJ. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45pm, Rm 26-100.

**Naked Lunch: Molecular Mastication by Metal Ions in the Gas Phase (Properties and Reactions of Metal Ions and Their Complexes by Ion Cyclotron Resonance Spectroscopy)\*** – Jack Beauchamp, chemistry, California Institute of Technology. Harvard-MIT Physical Chemistry Seminar. 8pm, Rm 4-370.

### Friday, February 27

**Preliminary Data on Synthetic Dolomite Formation and Construction of Pressurized Thermogravimetric Analyzer\*** – D.M. Camp G. Chemical Engineering Seminar. 2pm, Rm 66-110.

**Ocean Policy and Management\*** – Jerome H. Milgram, naval architecture. Ocean Engineering Tankard Seminar. 3pm, Rm 3-446. Refreshments 4pm, Rm 5-314.

**Regeneration of Carbonate Sulfur Acceptors from Fluidized Bed Combustors and Gasifiers\*** – J.W. Chrowstowski, G. Chemical Engineering Seminar. 3pm, Rm 66-110.

**Electron-Electron Scattering in TiS<sub>2</sub>\*** – A.H. Thompson Exxon Corporate Research Laboratory Materials Science Colloquium. 4pm, Rm 9-150. Refreshments 3:30pm.

**Kant's Idea That Beauty is the Symbol of Morality\*** – Ted Cohen, University of Chicago Philosophy Seminar. 4pm, Rm 14E-304.

## Community Meetings

**TWO Meeting** – Matting and framing will be the topic of Feb meeting. Wed, Feb 18, 7:30pm, Rm 10-340.

**Basic Pistol Marksmanship Course** – Begins Thurs, Feb 19, 6:30pm, duPont Pistol Range. Fee \$20, covers everything. Open to first 20 adults. Register: Tom McLennan, x3-3296 or Andy Platais, x8-1417 Draper.

**MIT Club of Boston Dinner Meeting** Dr. Robert C. Seamans, Jr., administrator, Energy Research and Development Administration (ERDA), will speak on "Energy R & D." Thurs, Feb 19, cocktails 6pm (cash bar), turkey dinner 7pm, Faculty Club. Cost: \$6.95/person. Guests welcome. Reservations: Ms. Kiriats, x3-3878.

**Minority Women's Discussion Group** – Lecture-demonstration by Helena McDonough, nurse practitioner, on "Women's Medical Concerns, Birth Control and Gynecological Exams." Fri, Feb 20, 12:30-2pm, Rm 3-310. Please bring sandwich, beverages & dessert provided.

**MIT Buddhist Association Lecture and Panel Discussion\*** – Shyh Jong Yue, MD, rehabilitation medicine, College of Physicians and Surgeons, Columbia University; director of Rehabilitation Medicine Services, St. Luke's Hospital Center, NYC; will speak on "A Physician's Look at Buddhism." Panel discussion on meditation will follow.

**An Evening with Abraham Kaplan** – Evening with Abraham Kaplan, scholar of Jewish philosophy sponsored by MIT Hillel. Wed, Feb 25, 8pm, Stu Ctr Mezzanine Lge.

**MIT Women's Forum\*\*** – Meetings Mon, 12n Rm 10-105 (Tues in case of holiday.) Mon, Feb 23: Tape of The Women's Show, IAP Cable TV program shown Jan 9.

**The Wives' Discussion Group\*\*** – Led by Myra Rodrigues, social worker; Charlotte Schwartz, sociologist; & Carol Hulsizer, faculty family in residence, Ashdown. Wed 2:15pm, Stu Ctr West Lge. Babysitting Stu Ctr Rm 473.

## Social Events

**Strat's Rat** – Sat, Feb 21, 8:30pm, Sala or Lobdell. Free, light & dark beer sold (\$3.35/16 oz glass). Bottles of wine & coke also available. WTBS providing live announcer & records. College ID required.

**Hillel Brunch\*** – Mattapan brunch Sun, Feb 22, 11am, Rm 10-105. Entertainment. Admission \$1.25 Hillel members, \$1.50 others.

**The Ebony Affair** – Semi-formal dance sponsored by MIT Minority Graduate Students. Sat, Feb 28, 10pm-2am, Lobdell. Music by Brown Sugar and Osceola, BYOB and food. Set-ups available. Admission: \$1 with ID, \$2.50 community. Tickets: Monica Oliver Rm 3-136; Bldg 10 Lobby, 12n-1pm.

**Hillel Coffeehouse** – Coffeehouse with live entertainment by Kol Sosson. Sat, Feb 28, 8:30pm, Hillel Lge (312 Memorial Dr). Hillel members \$1, non-members \$1.50.

**24 Hour Coffeehouse\*** – Enjoy relaxing conversation, piano playing, inexpensive food candy & drinks. Open 24 hours per day. 7 days per week, Stu Ctr 2nd fl lge.

## Movies

**Pressure Fields; Flow Visualization Channel Flow of a Compressible Fluid\*** – Fluid Mechanics Films. Thurs, Feb 19, 4pm, Rm 33-319.

**Harry and Tonto\*** – LSC. Fri, Feb 20, 7 & 9:30pm, Rm 26-100. Admission \$.75, Wellesley or MIT ID required.

**Shop on Main Street (Kedar & Kos)\*** – MIT Film Society. Fri, Feb 20, 7:30 & 9:45pm, Rm 6-120. Admission \$1.

**Lenin in Poland (Yutkevich)\*** – Soviet Cinema Today series sponsored by Russian House. Fri, Feb 20, 8pm, place to be announced. Free.

**Films on New China: National Palace Museum; Treasure of Taiwan\*** – MIT Chinese Students' Club. Sat, Feb 21, 2pm, Rm 10-250. Free.

**Big Man\*\*** - LSC. Sat, Feb 21, 7 & 10pm, Rm 26-100. Admission \$.75, MIT or Wellesley ID required.

**Little Adventurer; The Angry Guest\*** - Chinese Student Club. Sun, Feb 22, 1:30 & 3:30pm, Kresge. Admission \$2 adult, members & children.

**Light Parade\*\*** - LSC. Sun, Feb 22, 6:30 & 9pm, Rm 26-100. Admission \$.75, MIT or Wellesley ID required.

**Pressure Fields; Flow Visualization; Channel Flow of a Compressible Fluid\*** - Fluid Mechanics Films. Mon, Feb 23, 4pm, Rm 33-319.

**Fundamentals of Boundary Layers; Boundary Layer Control\*** - Fluid Mechanics Films. Thurs, Feb 26, 4pm, Rm 33-319.

**My Lady\*\*** - LSC. Fri, Feb 27, 7 & 10pm, Rm 26-100. Admission \$.75, MIT or Wellesley ID required.

**imate Lighting (Passer)\*** - MIT Film Society. Fri, Feb 27, 7:30-9:30pm, Rm 6-120. Admission \$1.

**cinatti Kid\*\*** - MidNite Movie. Fri, Feb 27, 12m, Sala or Udel. Free, bring blanket to sit on. MIT or Wellesley ID.

**ecrow\*\*** - LSC. Sat, Feb 28, 7 & 9:30pm, Rm 26-100. Admission \$.75, MIT or Wellesley ID required.

**Killing\*\*** - LSC. Sun, Feb 29, 6:30 & 9pm, Rm 26-100. Admission \$.75, MIT or Wellesley ID required.

## Lobby 7 Events

**concert of Indian Music\*** - Steve Gorn and Sandy Hirshman. Wed, Feb 18, 12n, Bldg 7 Lobby. Free.

**hibit of the History of Airships\*** - On exhibit in Bldg 7 Lobby. Feb 23-Fri, Feb 27.

## Music

**Aviv Quartet\*** - Program includes Schubert, Haydn, Brahms. Wed, Feb 18, 8pm, Kresge. Free.

**ncert\*** - Sandra Stuart, soprano, and John Cook, harpsichord. Thurs, Feb 19, 12n, Chapel. Free.

**Chamber Players\*** - Program will include Stravinsky's octet for strings. Tues, Feb 24, 8pm, Kresge. Free.

**Woodwind Quintet\*** - Directed by Carol Epple. Thurs, Feb 26, 8pm, Chapel. Free.

**Music Library Concert\*** - Vincent Ricento, baritone; Thomas Kowalski, pianist. Sun, Feb 29, 3:30pm, Music Library, Bldg 14E.

**Chamber Music Society Concerts\*** - Wed, 5:15pm, music library Bldg 14E. Free. Info: x3-4892.

## Theatre and Shows

**Hamlet\*** - MIT Community Players production. Fri-Sun, Feb 20-22 and Thurs-Sat, Feb 26-28, 8pm, Kresge Little Theatre. Tickets: \$3, \$2.50 with MIT or Wellesley student ID. Group rates: \$2/ea for groups of 10 or more. Reservations: x3-4720 or 491-7302.

**Shakespeare Ensemble\*** - *Henry the Fourth, Part I*, directed by Murray Biggs. Music composed and conducted by John Cook & Anne Hallmark. Performances Wed, Feb 25-Sun, Feb 29, 8pm, Sala, preceded by Medieval music. Tickets available in Bldg 10 Lobby, at door, reservations by calling x3-4420. Price: \$1.50 Wed & Thurs, \$3 & \$3.50 Fri-Sun, student & group discounts available.

## Dance

**Ballroom Dance Club Workshop\*** - Workshop on Latin American partner dances (tango, rumba, samba, etc) Sun, Feb 22, Sala. No experience necessary. Foxtrot & review workshop (swing, Latin Waltz, maybe polka) Sun, Feb 29, 2-5pm, Claflin dining hall, Wellesley. Info: Sharon Pastoriza, x5-8667 Dorm.

**MIT Folk Dance Club - International:** Sun, 7:30-11pm, Sala. **Balkan:** Tues, 7:30-11pm, Stu Ctr 491. **Israeli:** Thurs, 7:30-11pm, Sala.

## Exhibitions

**Center for Advanced Visual Studies\*** - Exhibit by Mark Faverman. Documentation on "World's Largest Portable Sundial" and "The Arch is a Sundial." Thru Fri, Feb 20, Mon-Fri, 9am-5pm, Bldg W11.

**Claes Oldenburg Exhibition** - Sponsored by Committee on the Visual Arts and Institute for Contemporary Art. Thru Wed, Feb 25, Hayden Gallery. Hours: 10am-4pm daily, 6-9pm, Tues.

**Amenoff Exhibition\*** - Drawings and paintings on paper by Gregory Amenoff. Thru Wed, Feb 25, Hayden Corridor Gallery.

**Exhibition of Drawings and Paintings by Stuart Morgan\*** - Thru Fri, Feb 27, Rotch Library, Rm 7-238. Free.

**Photographs of the Ozarks\*** - Works by Roger Minick. Thru Fri, Feb 27, 10am-10pm, Creative Photography Gallery.

**Oil Paintings by Marcia Blakemore\*** - Faculty Exhibit. During Feb, Faculty Club.

**Photographs by Scott Fischer\*** - Center for Advanced Visual Studies exhibits exhibitions. Tues, Feb 24-Fri, Mar 12, Mon-Fri, 9am-5pm, Bldg W11.

**MIT Historical Collections\*** - Permanent exhibition Mon-Fri, 9am-5pm, Bldg N52, 2nd floor. **Bicentennial Exhibits:** Katharine Dexter McCormick, '04; Vannevar Bush, '16; and Karl Taylor Compton, in Bldg 4 corridor.

**Music of the Celestial Diets\*** - Music Library exhibit of manuscript facsimiles & pictures. Daily, Bldg 14E.

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

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

## Athletics

**Home Schedule\* - Wednesday, February 18 - JV/F, V Basketball.** Suffolk, 6:15 & 8:15pm, Rockwell Cage. **V Fencing.** WPI, 7pm, duPont Fencing Rm. **JV/F Squash.** Milton Academy, 3pm, duPont Squash Courts. **Thursday, February 19 - JV Basketball.** Comm HS (scrimmage), 5pm, Rockwell Cage. **Saturday, February 21 - W Gymnastics.** Salem State, 2pm, Gym. **V Hockey.** Clark, 7pm, rink. **JV/F Hockey.** Governor Dummer, 2pm, rink. **V Pistol.** WPI, Navy 9am, duPont Pistol Range. **JV/F, V Squash.** Wesleyan, 2pm, duPont Squash Courts. **V Swimming.** Bowdoin, 2pm, Alumni Pool. **Monday, February 23 - V "B" Basketball.** Harvard (Classics), 6:30pm, Rockwell Cage. **Tuesday, February 24 - W V Basketball.** Bentley, 8pm, Rockwell Cage. **W JV Basketball.** Babson, 6:30pm, Rockwell Cage. **V Fencing.** Brandeis, 7pm, duPont Fencing Rm. **V Gymnastics.** Vermont, 7pm, Alumni Gym. **V Hockey.** Fitchburg State, 7pm, Rink. **JV/F, V Squash.** Trinity, 7pm, duPont Squash Courts. **JV/F V Wrestling.** Harvard, 6pm & 7:30pm, duPont Wrestling Rm. **Wednesday, February 25 - JV/F Squash.** Tabor Academy, 3pm, duPont Squash Courts. **Thursday, February 26 - JV/F, V Basketball.** WPI, 6:15 & 8:15pm, Rockwell Cage. **W Swimming.** Brandeis, 7pm, Alumni Pool. **Friday, February 27 - W Basketball.** Williams, 7:30pm, Rockwell Cage. **V Hockey.** Tufts, 7pm, Rink. **Saturday, February 28 - V Hockey.** Bunker Hill CC, 7pm, Rink. **V Gymnastics.** New Hampshire, 2pm, Alumni Gym. **V Pistol.** Coast Guard, 9am, duPont Pistol Range.

**Hillel Basketball\*** - Game between MIT & BU Hillel teams Sat, Feb 21, 7pm, duPont Gym. MIT Hillel game Sun, Feb 23, 7pm, duPont Gym.

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

\*Open to the Public  
\*\*Open to the MIT community only  
\*\*\*Open to members only

Send notices for Feb 25 thru Mar 7 to the Calendar Editor, Room 5-111, Ext. 3-3279, before noon Friday, Feb 20.

## Guatemalan Relief Events Set

The week of February 17-22 has been designated Guatemalan Relief Week by student representatives from MIT and six area colleges who gathered at Tufts University Feb. 11 to coordinate campus efforts to aid the people of earthquake ravaged Guatemala.

"Help is badly needed and the most useful form of aid is money," MIT graduate student Lionel Toriello of Guatemala City said. Fund raising efforts will be held at individual colleges, he added. "Unfortunately, the cost of shipping goods to Guatemala exceeds the goods' value."

At MIT money will be collected at lunch and dinner times at Walker

and Lobdell dining rooms on Wednesday and Thursday, Feb. 18 and 19. Checks payable to "CARE Guatemalan Relief Fund" may be sent or brought to the Foreign Student Office, Room 3-107. Cash donations may also be left at the Foreign Student Office.

Area students are invited to a party at Macphie Dining Hall, Talbott Ave., Tufts University, on Friday, Feb. 20, 9:30pm to benefit the Guatemalan people. Admission is \$1.00.

People willing to donate their time to the fund raising effort should contact Mr. Toriello at 494-9047.



MIT received one institutional award and five individual awards last week at the United Way Annual Awards Luncheon. MIT received the Spirit of '76 Award, held by John M. Wynne, vice president for administration and personnel (second from right, above). Individual certificates of appreciation were given to John E. Newcomb of the Center for Advanced Engineering Study, left, Michele Whitlow of the Quarter Century Club, and Dr. Irwin W. Sizer of the Health Sciences Fund, right, chairman of this year's drive at MIT. Robert J. Radocchia, also of the Quarter Century Club, received an award but was away when the picture was taken.

## Discoverers Say J Particle Still Little Understood

The J particle, whose discovery a year ago triggered the finding of a whole family of similar particles, is still not understood—a misfit in the world of subatomic particles—according to its discoverers.

In experiments conducted at Brookhaven National Laboratory in New York, a team of MIT physicists has found as yet no evidence that the J particle is composed—as many physicists had thought—of a hypothetical subparticle called a "charmed quark" and its antimatter equivalent, the "charmed antiquark."

In fact, some of the experimental results were essentially the opposite of what would be expected from that model of the J particle, according to Professors Ulrich J. Becker and Samuel C.C. Ting of the MIT Laboratory for Nuclear Science.

The two are members of a team of physicists from MIT and Brookhaven that discovered the J particle at Brookhaven in late 1974. The particle was independently and simultaneously discovered by physicists at the Stanford Linear Accelerator in California, who named it the "psi" particle.

### Modifications Needed

The recent MIT results leave physicists as puzzled as ever about the particle, which is too heavy and too long-lived to fit into existing theories. (The particle is about three times as heavy as a proton or neutron, and lives 1,000 times longer than

such a heavy particle would be expected to live.)

"In the past 12 months there have been more than 2,000 theoretical papers trying to explain the new phenomena," Professor Becker said.

"Excited physicists from all over the world often call the MIT control room at Brookhaven at 2 or 3 o'clock in the morning to ask Professor Ting or me for our latest results, instantly modifying their theories accordingly."

But the recent MIT experiments show, he said, that "the current theoretical attempts to explain the J particle probably need major modifications."

### Definitely a Hadron

Is there anything definite that we do now know about the particle?

There are certain facts that we do know, Professors Becker and Ting said.

First, the existence and the nature of the many excited states of the J particle that have been discovered recently indicate that it is a bound system of a particle and an anti-particle.

The pattern of the observed states is similar to that of the positronium, which is a kind of atom consisting of an electron and a positron, the anti-particle of the electron. (Positronium was discovered at MIT more than 20 years ago by Professor Martin Deutsch, now director of the Laboratory for Nuclear Science.)

Furthermore, the J particle is definitely a "hadron."

### Mathematical Property

(Subatomic particles are divided into hadrons, including the proton and neutron; and "leptons," including the electron. Hadrons and leptons differ by the way in which they respond to the fundamental forces in nature, namely, the electromagnetic force, the "weak interaction," and the nuclear force, which holds the nucleus of an atom together. Hadrons respond to all three forces, leptons only to the first two.)

"Unfortunately, this is all that can today be concluded from the experiments," Professor Ting said.

In particular, he emphasized that "it is still premature to identify the constituents of the new particle with the hypothetical charmed quark and its antiparticle."

"Charm" in a quark, of course, has nothing in common with charm in a person. The word "charm" is used here only to describe an alleged mathematical property of a particle. According to that theory, the total amount of charm (the sum of charms) would remain the same during interactions of particles, just like the electric charge or the spin angular momentum.

### Less Than One Percent

The MIT effort to study the new particles included the study of "more than 50

million examples of data," Professor Becker said.

"These experiments were by far the most comprehensive attempt to investigate the new particles," he said. "We had to cope with great difficulties, such as the very high radiation levels at the detectors, against which the instruments had to be protected. In spite of these difficulties, the experiments were a thousand times more sensitive than other work in Europe and in the US."

The search yielded "no trace of any indication of charmed particles," he said. "In fact, while the charmed model predicts that a collision of two protons would produce pairs of electrons-kaons and pairs of electron-pions in about equal numbers, we found that the number of electron-kaons was less than one percent of the number of electron-pions produced."

The MIT group, led by Professors Becker and Ting, also consists of Professor Min Chen, Dr. Joseph Burger, Dr. Glenn Everhart, Dr. Sau Lan Wu, and Dr. Peter J. Biggs, Dr. Joseph Leong, Dr. T. Lagerlund, and Dr. J.J. Aubert, a visiting scientist from Orsay, France.

Others include Dr. J.W. Glenn, Dr. D. Lowenstein and Dr. Y.Y. Lee, all of Brookhaven National Laboratory; MIT graduate student Walter H. Toki and MIT senior Michael B. Weimer.

# X-ray Bursts Provide Clue To Galaxy Inner Workings

(Continued from page 1)

frared radiation and x-rays.

Dr. Lewin, professor of physics and a member of the MIT Center for Space Research, said he and his associates over the past few days have detected several giant bursts. They are now trying to locate the source—or sources—more precisely and to determine whether the bursts repeat with any pattern. A dozen people, he said, are working night and day to unravel the mysteries about the bursts.

The studies are being conducted using data from SAS-3 (Small Astronomy Satellite 3), an x-ray astronomy satellite launched into earth orbit last May by the National Aeronautics and Space Administration, and built and operated by MIT researchers under the direction of Professor George W. Clark.

The bursts resemble other puzzling x-ray bursts reported recently by astrophysicists at Harvard University; the university in Utrecht, The Netherlands; and MIT. The latter bursts probably come from a "globular cluster" (a cluster of a million stars).

"Of course, it is conceivable," Professor Lewin said, "that the newly discovered bursts come from one or more unknown globular clusters hiding behind dust that obscures our vision of the galactic center. But I would not be surprised at all if there is no unique link between the burst sources and globular clusters."

"There is no doubt in my mind that many more burst sources will be discovered in the very near future," Professor Lewin said, "and SAS-3 is the ideal spacecraft to make such discoveries. We already have reasons to believe that the bursts originating near the center of our galaxy come from more than one object. It would be very important to find out whether burst sources always coincide with previously known x-ray sources."

Scientists at Smithsonian Observatory in Cambridge have already suggested that the bursts come from a black hole of about a thousand solar masses, buried in the globular cluster. (Black holes are objects with gravitational fields so strong that nothing, not even radiation, can escape them. Any matter or even light coming too close to a black hole would be sucked up and never seen again.)

"There have been speculations for decades that centers of galaxies might hold super-duper massive black holes, of maybe a million solar masses," Professor Lewin said. "So far, information about the bursts is too scant to be considered evidence, or even a hint, that they are produced by massive black holes."

Last year, scientists of the University of Rochester proposed a model to explain the existence of so-called "transient x-ray sources" (also called x-ray novae) involving the ignition of nuclear fuel (hydrogen) that has accreted onto a neutron star from a nearby companion (the two stars form a binary star system).

Dr. Laura Maraschi of the University of Milan who was at MIT when the new bursts were discovered, is now working out the "hydrogen-blast" model to see whether it can explain the bursts.

"If this model proves to be correct," Professor Lewin said, "one would not expect any unique relation between burst sources and globular clusters. However, one would expect that most x-ray burst sources are then associated with previously known x-ray binary star systems."

It is generally believed that in these systems hydrogen gas falls from a companion star onto a neutron star (or black hole or white dwarf); the emission of x-rays is then the result of the heating up of the gas when it is being accelerated (in the fall) up to very high speeds. This gas now piles up onto the neutron star and when a sufficient amount has been accumulated, the hydrogen explodes like an H-bomb, possibly causing the X-ray bursts.

The bursts discovered by Profes-

sor Lewin and his associates, Dr. Jeffrey Hoffman, Dr. David Hern and graduate student John Doty, last about 15 seconds. During that short period the "explosions" that produce the x-ray bursts radiate about a million times more energy than our sun does.

The bursts have a special "fingerprint," Professor Lewin said. The high-energy x-rays (8 to 18 kilo electron volts) show a double (sometimes triple) peak structure. The first peak lasts about two seconds, the second about four seconds.

"This is an incredible structure," he said. "There's no doubt in my mind that this peak structure will be instrumental in the understanding of these bursts."

X-ray bursts coming from a cluster of stars in the constellation Sagittarius were reported last September by Harvard University and Dutch astrophysicists working with a Dutch astronomy satellite.

In late January, Professor Clark and graduate student Jesse G. Jernigan, Jr., at MIT, reported that data from SAS-3 revealed a strange periodicity to the bursts.

The most recent findings came from Professor Walter Lewin and his associates when they were using SAS-3 to study a slow x-ray pulsar (about five degrees away from the galactic center). They detected huge bursts of x-rays but they couldn't tell where they came from.

"Call it intuition, luck, or whatever, but, according to our already existing schedule, we zeroed in on the galactic center," Professor Lewin said. "Within five hours we saw a giant burst appear in four independent detection systems which had only one area of the sky in common: the galactic center region!"

## Star Trek's Roddenberry To Speak

Gene Roddenberry, creator and producer of the television series *Star Trek*, will speak Friday, Feb. 20, 8pm in Kresge Auditorium sponsored by the MIT Student Center Committee.

The talk, "The World of *Star Trek*," will be open to members of the MIT community and other college students. Tickets are all sold out.

The *Star Trek* series, now out of production, enjoys a wide following and reruns are appearing on TV in 142 US markets and 54 foreign countries. The program received the Hugh Award for science fiction television programs, and is the only television series to have an episode preserved by the Smithsonian Institution.

Mr. Roddenberry also produced the TV movies *Genesis II*, *Planet Earth* and *The Qwestor Tapes*. Future projects include a theatrical release version of *Star Trek* and two television programs, *The Tribunes*, a police series, and *Spectre*, a series dealing with the supernatural.

Writing is Mr. Roddenberry's third career. He was a pilot during World War II, flying B-17s in the South Pacific. He worked for Pan American Airlines after the war and received a Civil Aeronautics commendation for his handling of a plane crash in the Syrian desert.

Mr. Roddenberry decided he would like to write for television and moved to the West Coast when the medium was still young. To support himself and gain writing experience, he joined the Los Angeles Police Department and retired when his scripts began to sell.

Mr. Roddenberry won a Writers' Guild Award for his *Have Gun, Will Travel* script, a series for which he was head writer. He is director of the Writers' Guild Foundation and a former member of the Writers' Guild Executive Council. He has also served as a member of the Board of Governors of the Television Academy of Arts and Sciences. In 1973 he received an Honorary Doctor of Letters degree from Emerson College.

## CLASSIFIED ADS

Ads are limited to one per person per issue and may not be repeated in successive issues. All ads must be accompanied by full name and Institute extension. Only Institute extensions may be listed. Members of the community who have no extensions may submit ads by coming in person to the Tech Talk office, Room 5-111, and presenting Institute identification. Ads may be telephoned to Ext. 3-3270 or mailed to Room 5-111. Please submit all ads before noon, Friday, Feb 20. They will be printed on a first come, first served basis as space permits.

### For Sale, Etc.

Minolta SRT-101 w/f.7, \$150; Rokkor 135 f3.5, \$50; Vivitar 35 f2.8, nw, \$45; compl w/ftrs, etc, \$250, x3-6208.

Gemeinhardt M35 flute, strl slvr, open hole, \$285, x5-6285 Dorm.

Lg GE refig. U move from Bos apt, \$15, Ed, x3-7787.

Teac 350 cassette deck w/wrnty cards, best, x5-7444 Dorm.

Wlnt crib, \$35, Hari Rau, 890-0909.

Natural ranch mink stole, origin USA, value \$350, \$150, Pauline, x3-2765.

Fischer skis, \$15, Betsy, x3-6603.

'71 Ski Doo, Olympic 335 cc, canvas cover, runs exc, \$400, Lynne, x658 Linc.

Hotpoint washer, 2 spd, 3 temp, gd cond, \$100 or best, Lee Linsky, x3-1782.

Wedding dress by Priscillas, sz 9, long sleeves, pink sash, short train, \$100, Kathy, x3-4271.

Set of 2 twn beds w/box spr & matt, \$85/ea or \$150/pr; office desk, \$50, Call, 494-8482, evgs.

Guitar amp, Rickenbacker, 100 W RMS, reverb, 4-10" spkrs, v gd cond, \$200 or best, Mark, 266-2968.

Fresh SX-70 Polaroid film, sold camera, 10 packs left, \$3.50/ea, Don, x8-1425 Draper.

Ski boots: La Dolomite Sintesi, m sz 9M, run small, used 1 1/2 seas, \$160 nw, \$60; Le Trappeur f sz 10N, used 3 seas, gd for beg, \$10, Linda, x3-2030.

Sofabed, nds reuphol, great for lounging, \$30, x3-3720.

Chrome K set, formica top, 6 chrs, used 1 yr, orig \$200, ask \$50, Pat, x8-1425 Draper.

Conv sofased, dbl bed sz, \$50, Dave, x5893 Linc.

Sea view guage w/rubber protective cover, 2 mos, nw \$45, now \$40, Bill, x3-2503.

Ski rack, \$10, x3-7329.

F 5 spd bike, v gd cond, nds 1 repair, exc for enthusiastic mech, \$45 or best, Kiki, x3-7121.

Sgl bed w/spring mat & matt, \$10; attractive light wt wd desk, \$25; dresser w/mirror, \$40; dumpy couch, \$20 or best; tbl & chr, \$30, Jean, x3-3213, evgs.

Nw 6'3" Franklin Dynalite skis w/Marker M3 bndgs, used 2X, best, Joe, x3-6746.

Marker Rotomat bndgs, \$15, x5-9865 Dorm.

Ski boots: f Nordica sz 7 1/2, blu, exc cond, used 6X, \$25; m Raichle leath, bckl, sz 9 1/2, \$15, Chuck, x3-7508.

Pr Zenith Allegra 2000 spkrs, w/8" woofers & 3 1/2" horn tweeters, \$50/ea, Nivin, x5-8379 Dorm.

Gas range, '71 Sears, self-cln oven, brnr w/brain, exc cond, \$225, Darryl, x7529 Linc.

Partly assembled CRT computer terminal, TV display, exc keybrd, \$250 or best, Call, 489-1634, evgs.

Pr BEC 106B 12" 3 way spkrs, \$100; Teac A-1230, mint cond w/box, \$300, Call, 267-2199.

F ski boots, Grmn made, sz 8, \$20; fm stereo 8 trk for car, \$50, Karen, x3-4905.

Twn bed, box spr & matt, exc cond, \$20, Call, 494-0299, evgs.

Sew cab & chr, \$35; clock radio, \$20; sgl bed, gd cond, \$20; coffee perc, \$15; toaster, \$15; 3 sets dishes, \$8-\$15; crtns, sz 9 skates; jewel box; other misc items, Call 494-8580.

HP 45 w/application pac, \$145 or best, Call, 628-0476, af's & evgs.

Cab, 26", for full sz pick-up truck, full insulated, lg wndws, Ron, x5477 Linc.

Sgl box spr & matt, gd cond, \$40, x3-5017.

Whls, 14" x6" Pont-Olds, \$10/3; tire chains, sev szes, \$4/pr; port phono, \$8, Bob Kirmes, x8-4181 Draper.

Nw 10 spd Columbia 21" frame, Suntour, dual brakes, cost \$110, sell \$60, Call, 646-9561, aft 6pm.

Boats: exc sloop day sailor, well found, Snipe class, w/trlr, \$776; radio controlled Grand Banks 42 mdl cruiser,

superstructure to be built, \$168; Details: Carol, x3-1332.

Skis: Fischer "Alu" w/Tirolia step-in bndgs, 5 yrs, gd cond, \$45 or best, Tom Schwartz, x3-6894.

Sz 7 1/2 f ski boots, \$10; compl set dishes, \$5; pressure fit bkcke for 8'ceil, \$20; pink/red dbl bdspr, \$10; 106x94" nw, drapes, \$100; nw shwr crtn, \$8, x8-3605 Draper.

Navy boy sz 32-34 sport jckt, \$3; BR lamp base, no shade, \$1; handmade 37" Dulcimer, 4 str, fish shaped gd sound, \$25 nego; Lisa 396-5311.

Used tape, 1,800": Scotch 203, \$25/12; Memorex, \$30/12; BASF, \$30/12; Advent Advocate 101 dolby, \$75; Luxo lamp, \$30, Martin, x3-2411.

Physics texts: Alonzo Finn, vol II & III, 1/2 Coop price, Alan, 646-6527, evgs best.

Cannon FT w/1.4 lenses, gd cond, \$190, Roger, 494-0367.

Super 8 movie camera, zoom 1.8 lens, Shinkor, make offer, Call, 395-7265, 2-30-7pm.

Scott S-15 spkrs, \$50; Phillips 308 trmtbl w/AT14S crtrd, \$50, x5-6430 Dorm, 11pm-12m best.

Nw Irish woof f cardigan, sz 40, was \$65, \$40, x3-5376.

Russian balalaika; 2 bikes, f 3 spd w/kryptonite lock & bskts, \$50; m 3 spd, \$30, Eduardo, 354-3182, evgs & wknds.

C78x13 stud snws on '63 Valiant whls, \$10/ea; '63 Valiant whl covers, \$2/ea, x3-4301.

Wedding gown, sz 10, crown incl, best, Carolyn, x3-7101.

Samsonite attache case, v gd cond, \$25 or best; APF scientific calc w/adaptor nvr used, \$45, Mark, 738-7450, evgs.

Soligor auto-200 M lens, Minolta mnt, 90-230mm, f4.5, \$100, x3-5809.

Used equip: Sony TC 20 car cassette player w/4 spkrs, \$65; 2 Carello quartz haolgen hi intensity hdlites, \$30; CD car ignition sys, \$20, Bob, x3-7305.

Pr stud ww snws, C78x13, mtd Ford Pinto whls, lk nw, \$45, Don, x8-2593 Draper.

Sony TC640 stereo r-to-t tape deck, solenoid cntrls, VO mtrs, pause, echo, s-on-s, list \$450, \$230 nego; 1 KLH 31 spkr, \$50nw, \$25; Lafayette 10W stereo amp, \$50, Bill, x5-7403 Dorm, 5-7pm.

Tele-zoom lens, Asanuma 80-250 mm/f4.5 for Pentax, nw, nvr used, nd cash, \$110, no st tax to support, Alex, x3-5831.

### Vehicles

'63 Valiant, gd run cond, nw gen, muff, water pump, batt & 2 tires, ask \$299, Rabu, 492-4873, aft 6pm.

'64 Volvo 122S, orig ownr, cheap, reliable transp, \$350, Bill Beebee, x8-3624 Draper.

'65 VW bug, gd cond, \$300, Louis, x3-6849, evgs.

'65 Chevelle Malibu SS, cstm tear drop hood scoop, nw metallic brndy paint, batt & exh sys, 3 spd stick, 6 cyl, exc mpg, snws, \$700, Steve, x3-1691.

'66 Dodge Coronet wgn, nw exh, body gd, nds work on slant 6 eng, \$175 or best, Lou, x8-1240 Draper.

'67 MGB, ovrhd Dec, nw exh, elec systems, batt, \$700, Craig, 227-3547.

'68 Pont cat wgn, gd all rnd cond, \$450, Ken, x108 Linc.

'68 Volvo 142S, 76 K, recent brake ovrl, nw muff, U joints, water pump, exc run cond, \$975, R. Taylor, x3-5142.

'69 Volvo 142, 4 spd, nw carb, shocks, muff, snws, ask \$700, Fischer, x3-1446.

'69 Ford Frln, 4 dr sed, wht, p st, radio, gd tires & batt, runs well, \$500 or best, x3-3706.

'70 Mustang, hdtpp, 6 cyl, std, 20 mpg, reg gas, \$750, Steve, x7367 Linc.

'70 Toyota Corona, auto, 2 dr, radials, nw snws, gd cond, exc car around city, \$850 or best, Kita, x3-1835.

'71 Volvo 142S, gd cond, 62 K, nw batt & exh stereo fm, \$2,200 or best, John, x8-3955 Draper.

'72 Olds 442, 350 V8, 4 spd, fbrglas hood, ram air, turbo mags, alarm, \$2,500, Paul, 825-4183, evgs.

'72 Buick Cent, full power, AC, amfm stereo, best reas, x3-2772.

'72 Vega, 4 spd, snws, 46 K, \$1,295, x5755 Linc.

'73 Chevy Malibu wgn, nw tires, auto, AC, 44 K, exc cond, \$2,450 or best, Rick, x5845 Linc.

'73 Maverick, wht, lime grn vinly roof, 33 K, auto p st, 4 nw tires, \$2,295 or best, Call, 256-5477.

### Housing

Belmont, sub 5 rm apt 3/15-6/30 or part, partly furn, \$200/mo, Ray Jackendoff, x3-3221.

Bkline, furn rm 4 mi MIT, nice qt nbrhd, \$25/wk incl ht & util, Call, 738-4685, 6-10pm.

Burl, tri-lvl hse, 3 BR, 1 1/2 B, frpl, \$39,000, x8-4212 Draper.

Camb, Cent Sq, sunny 2 BR, 6 rm apt, 3 min T, avail 4/1, \$264 incl ht. Dick or Joel, 492-7085, evgs best.

Camb, furn Westgate studio, 5 min MIT, avail now, rent nego, Call, 494-9093, evgs.

Chelsea, exc Wdawn sect, 4 rm apt, no pets, patio yard, sec dept & refs reqd, \$200 incl elec, util, Angelo, x5437 Linc.

Lex contemp 5 BR, 2 B, LR, DR, K, fam rm, perf cond, spectacular setting, Estabrook Sch district, hi 70's, Call, 861-9491.

Melrose, 115 yr old colonial hse, 6 BR, barnwd paneled mod K, pantry, DR w/btlr pantry, LR, fam rm, main & back stairs, 2 fnshd 3rd fl rms, attic, July/Aug closing, low 50's, Don, x241 Linc.

N Andover, 2 BR twnhse, AC, pool, ww, pkg, full bsment, nr 495, ht, gas & wtr incl, Vicky, x7764 Linc.

Newton, 3 BR hse to rent, 1 1/2 B, LR & DR, lg K, pkg, Boylston St, Rte 9, Call, 494-8869.

Winthrop, beaut mod 2 BR apt, d&d, ww, on T & bus, conv to MIT, pool, clubhse, avail immed or 3/1, walk to ocean, \$310, x3-6212.

Attractive rm in v qt priv home, K priv, ample pkg, 1 rm \$25/wk, larger rm \$27/wk, Call, 484-6833, morn or evg.

Nantucket, pleasant cottage, slps 6, walk to beach, avail Aug, \$1,300, Call, 547-9331, evgs.

Lg converted barn to rent, Oxford, Eng, avail for yr beg 8/1, cent heating, refig, nr gd schools. Details: Janet Norman, x3-7365.

### Animals

Free: 2 adorable male guinea pigs. Gladys, x3-5656.

AKC beagle pup, born 12/23, f. Bruce, x3-2297.

Free big friendly rabbit. Dennis, x8-1585 Draper.

### Lost and Found

Lost: Multicl 6' scarf, 2/6, 20 Chimneys, reward, Monica, x5-8549 Dorm.

Found: med sz blk dog, East Campus area, Feb 8. Ruth Cross, x5-6691 Dorm.

Found: greeting card outside Coop, pls identify, x3-3321.

Found: Parker pen & pencil set, Bldg 4, 3rd fl, 2/11, describe, Call, 494-0090.

### Wanted

Use of Xerox copy mach to produce approx 1,000 copies/mo for remainder of next 2 mos, wl pay for paper, supply own manpower, Dick, x3-1708.

Someone to live in lovely Wellesley home 1st 2 weeks in Apr, nd to prepare dinner for 16 yr old boy each nite, food, spending \$, compensation provided, Joan, x3-1989.

Tekt for Arthur Rubenstein concert Feb 28, Hans, x3-1833.

Hard sided guitar case, cond not important, Paul H, 267-2199.

Gas dryer, gd cond, Pam, x3-4977.

Used waffle iron, Bob, x3-7220.

Apt for visiting scholar cpl, 3/1-5/30, Lve nmbur w/Prof Berger, x3-6640.

DR set; wall to wall carpet; desk lamp, Call, 926-2129.

Garage nded for 2nd car, on T line, outside city pref, car not used often, we won't intrude, x3-5276.

Sojourner nds advertizing manager, 25% commission on ads sold, Allison, x3-5856.

Thesis typing by prof typist, some tech, Peter, x3-3441.

Want to borrow Urdu books & mags for elderly gentlemnt facing long recuperation. Pls call Raj, x3-6018.

Beginning masseur nds people to massage, Roland, x5-9648 Dorm.

Fidelio tckt(s), Th, Feb 19, Ellen, x3-7106.

Rear end differential for '72 BMW 2002ti, short neck w/3.64:1 ratio, Dove, 641-0680, aft 6pm.

Refig. Mark or Jordan, x5-7101 Dorm.

### Roommates

Share Winchester mansion, 20 min Camb, w/2 easy going prof working people, mod K, pkg, nr T, 8 lg rms, \$108 + util. Robin or Mike, 729-9114, evgs.

M or f rmmate for lg sunny Bri apt, pr f grad stu or working prsn, a rare find, Call, 254-3283, evgs.

M rmmate, 8 rm colonial Arl Hts hse, 2 B, garage, ww all rms, x3-6903.

### Carpools

Ride nded Som-MIT & back if psbl, wl share exp, come to the aid of Alice-of-the-broken leg, Call, 776-0638.

### Miscellaneous

Typing w/editing done, anything, effie MIT wife, Mike, x3-6275.

Typing, anything, Nancy, x3-2850.

Expert typist wl type tech & non-tech, reports, theses, etc, IBM Selec, lg & sm jobs welcome, Call, 277-1581, evgs.

Cello lessons in Camb, \$10, x3-3425.

Expert typist, non-tech work transcribing, term papers, etc, wl edit foreign stu papers, x3-1752.

Volunteer wl teach Eng as 2nd language some lunch hours, x3-4105.

Wl work (eg, cln hse) in exch for rm &/or brd, pref qt nbrhd w/access to T, Emden, x3-7

# POSITIONS AVAILABLE

This list includes all non-academic jobs currently available on the MIT campus. Duplicate lists are posted on the women's kiosk in Building 7, outside the offices of Special Assistants for Women and Work (10-215), and Minority Affairs (10-211), and in the Personnel Office (E19-239). Personnel interviewers will refer any qualified applicants on all biweekly jobs Grades II-IV as soon as possible after their receipt in Personnel. 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                       | 3-4278 |
| Pat Williams                      | 3-1594 |
| Carolyn Scheer                    | 3-1595 |
| <i>(secretary — Dixie Chin)</i>   |        |
| Virginia Bishop                   | 3-1591 |
| Mike Parr                         | 3-4266 |
| Ken Hewitt                        | 3-4267 |
| <i>(secretary — Joy Dukowitz)</i> |        |
| Sally Hansen                      | 3-4275 |
| Lewis Redding                     | 3-2928 |
| Richard Cerrato                   | 3-4269 |
| <i>(secretary — Susan Bracht)</i> |        |

Spons. Res. Staff, Asst. Plant Engineer in National Magnet Lab (which includes 10 megawatt dc power supply, river water cooling and auxiliary systems). Will help direct plant operation; supervise all maintenance operations; prepare modification plans. Requires BS in Electrical Engineering plus experience in installation, maintenance of electrical equipment and associated control devices. D76-16 (2/18).

Spons. Res. Staff, biochemist in the Research Laboratory of Electronics to do postdoctoral research in enzymology. Will collaborate with physicists and biologists in exploratory application of a new technique based on immobilized enzymes in combination with mass spectrometry to allow rapid, continuous and sensitive assays of a wide range of biochemicals. Ph.D. in Biology, Chemistry or Biochemistry, the ability to immobilize and assay enzymes, and to communicate with professionals in various disciplines required. D76-17 (2/18).

Admin. Staff, Systems Programmer, in the Information Processing Center to assist with program and data maintenance, documentation, consulting, dealing primarily with the IBM 370 batch processing and time-sharing system, and partly, with the Multics time-sharing system. The group maintains special-purpose language processors and libraries of programs for numerical and statistical analysis, simulation and data processing and, occasionally, performs programming on contract. An associates degree or the equivalent in education and experience is required. Acquaintance with a programming language and the IBM 360/370 operating system is essential. Position description can be adjusted to accommodate part time candidate. A76-4 (2/18).

Admin. Staff, Programming analyst, in Information Processing Center User Services Group will provide programming information and debugging help to users; produce user documentation, conduct seminars, workshops, short courses; implement and maintain software such as debugging compilers, utility tools, plotting packages. Bachelor's degree, or equivalent, strong experience with large time-sharing systems, PL/1, Fortran and system control languages required. Communications and documentation skills also necessary. A76-2 (2/11).

Admin. Staff, Industrial Liaison Officer, to provide interface among MIT faculty and staff and representatives of Program member companies (major industrial firms). Will also solicit new member companies. Masters degree and a minimum of 3 years industrial experience of PhD in computer science required. Applicants should be able to communicate effectively with corporate executives and technical staff. Management experience/education helpful. A76-3 (2/11).

Spons. Res. Staff, temporary in National Magnet Lab to do postdoctoral research in solid state physics in high magnetic fields using Raman scattering and other optical techniques from the visible to the infrared. PhD in experimental solid state physics required. Appointment is for two years. D76-12 (2/11).

Spons. Res. Staff, Tech Asst., in the Arteriosclerosis Center to participate in clinical work and medical research in the areas of lipid and lipoprotein, biochemistry and quantitative measurements. Clinical background familiarity with analyzer techniques for cholesterol and triglycerides required. Associates degree in Biology or Chemistry, related work experience required. Bachelors degree preferred. D76-14 (2/11).

Tech. Asst. V, temporary, part time in the Medical Dept. Radioactivity Center to assist in radioactivity measurements (radon, thron, gamma) on radium cases and measurements on potassium-40 cases. Applicants must be able to measure radioactivity using various detectors and multichannel analyzers; a

sensitive manner in dealing with patients, and the physical ability to lift patients. BA in radiation physics or biophysics or Associates Degree and equivalent related experience required. B76-69 (2/18).

Tech. Asst. IV, temporary, in Earth and Planetary Sciences to search data library to select seismic events suitable for analysis for regional studies; will also be involved in digitizing of seismograms and computer analysis of these seismograms with current existing programs. Knowledge of computer programming and familiarity with seismic data required. Temp. through May, 1976. B76-67 (2/18).

Secretary IV, part time to several Mechanical Engineering faculty members to handle correspondence; arrange appointments, travel, coffee seminars. High school graduate or equivalent, formal training or experience in secretarial duties including shorthand and technical typing required. 25 hrs./wk. B76-61 (2/18).

Secretary IV to Materials Science and Engineering faculty member to type correspondence, manuscripts, class materials from machine and/or shorthand dictation; maintain class files; monitor research accounts; arrange travel, appointments; handle some library research. Excellent typing, command of English language, proof-reading skills required. MIT experience, shorthand/speedwriting desirable. B76-63 (2/18).

Secretary IV to group of 3 Personnel Officers in Personnel Services. Duties include scheduling meetings, checking references, answering questions on job availability, personnel policies and procedures. Will also type and compose some correspondence, assemble and maintain files, perform varied duties related to hiring process. Applicants should have previous secretarial experience, good typing and organizational skills, sensitivity and tact in dealing with people. Institute experience desirable. B76-54 (2/11).

Secretary IV, part time, in the School of Humanities and Social Science to a co-director of the Cambridge Humanities Seminar (Boston area inter-university humanities program); type and distribute manuscripts; arrange meetings, participant transportation; coordinate catalogue description preparation; maintain research account expenditures. Excellent typing ability to relate well to people required. 15 hrs/wk. B76-53 (2/11).

Secretary IV to 2 Nutrition and Food Science faculty members to type manuscripts, correspondence, course material; arrange appointments and travel; handle library research, seminar announcements; prepare material for publication. Good typing, secretarial skills and preferably secretarial school training required. Knowledge of biological/chemical terminology helpful. B76-56 (2/11).

Secretary III-IV, temporary, part time in Psychology; transcribe neurologic patient interviews; type manuscripts and other materials; answer phones; arrange appointments and travel; tabulate data; keypunch. Ability to deal with patients sensitively, excellent typing skill required. Temp. for 4 months, 20 hrs./wk. (mornings). B76-59 (2/11).

Secretary III to Head, Catalogue Dept., Libraries: type correspondence and other material; arrange for maintenance and equipment; order supplies; prepare various library forms. Excellent typing, organizational skills, capacity for detailed work required. Secretarial experience also necessary. B76-58 (2/11).

Secretary III to Laboratory for Computer Science Automatic Programming Division: type course material, correspondence; arrange travel; file; answer phones. May assist other secretary in peak periods. Good typing, familiarity with office procedures required. B76-60 (2/11).

Admin. Asst. V in the Libraries to prepare commitment and financial reports for distribution to Library department heads; handle all aspects of biweekly and voucher payrolls including resolving problems with Payroll Office and Student Employment Office; act as liaison with Physical Plant on various matters; maintain personnel records. Formal education in business and/or accounting, accurate typing, ability to work under pressure required. Familiarity with MIT payroll and accounting procedures preferred. B76-66 (2/18).

Acctg. Asst. V in Comptroller's Acctg. Office to perform internal cost audits on research programs; prepare monthly invoices, fiscal reports; assist in cash flow and forecast function. 2 years of college/business school, 2-3 years applied accounting experience required. Responsibilities may be expanded to those of an Exempt position (to include coordination of above functions with activities of other Institute departments and independent preparation of billings and various fiscal reports) for an individual with 3-5 years accounting or equivalent combination of education and experience. B76-57 (2/11).

Sr. Accounting Clerk IV, Electrical Engineering and Computer Science to prepare purchase requisitions, coordinate purchase orders; insure accuracy of monthly statements; maintain internal account ledger; handle hourly payroll. Will also file, do light typing. Accuracy with detail plus typing ability necessary. B76-50 (2/11).

Sr. Clerk III-IV to provide accounting/clerical support for Energy Laboratory staff: post information from requisitions, purchase orders, invoices; monitor monthly account statements; maintain files, answer phone. Requires high school graduation, or its equivalent, plus 2 yrs. business experience. Must be accurate with figures and detailed work, able to type and work independently. B76-64 (2/18).

Clerk/Keypuncher III in Physical Plant to keypunch on Inforex data input machines or IBM 129 Keypunchers

from varied sources. Will also provide clerical back-up: type purchase orders, process invoices, batch source documents, answer phones. Requires 1-2 yrs. experience in keypunching and office work and excellent typing skills. B76-65 (2/18).

Tech. Typist III, part time in the Electronic Systems Laboratory to type a variety of technical/statistical material and assist with clerical duties. Excellent technical typing skill, and the ability to work occasionally under pressure with a diverse group of people required. B76-70 (2/18).

Sr. Clerk III for the MIT Health Plan, Medical Dept. to type enrollment applications, correspondence, payment requests; use microfiche files to obtain information on Plan members; prepare physician assignment lists; maintain and update relevant files; answer phones. Excellent typing skill and demonstrated capacity to handle detailed work required. Insurance experience preferred. B76-55 (2/11).

Keypunch Operator III in Comptroller's Accounting Office to keypunch data on an Inforex Key-to-Disk data entry system. Will also verify and balance all data. Required two years experience. Ability to create magnetic tape helpful. B76-43.

Clerk Typist II, temporary in the Admission Office to open and process a large quantity of mail; handle volume filing; type; answer phones. Previous office experience, typing skill, ability to handle detailed work quickly and accurately required. Temp. through April, 1976. B76-68 (2/18).

Cook at Endicott House, Dedham, Mass., will cook breakfast 6 days a week and assist in luncheon, dinner preparation; prepare dinner 1 night per week; assist in preparation and serving of large function; wash utensils used in cooking and clean kitchen. Expertise in preparing and presenting attractively a variety of breakfast foods and in baking, preparing desserts and hors d'oeuvres required. Must be punctual, reliable; will begin work at 6 am when preparing breakfast. Own transportation required. 40 hr/wk., irregular schedule. H76-20 (2/18).

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

- ADMINISTRATIVE STAFF:
- A75-56, Sr. Consul/Trainer, Personnel Development (10/8)
  - A75-60, Systems Analyst, Off. of Admin. Inf. Syst. (10/8)
  - A75-65, Acquisitions Editor, MIT Press (12/3)
  - A75-67, Acquisitions Editor, MIT Press (12/10)
  - A75-71, Documentation Mng., Off. of Admin. Inf. Syst. (1/7)
  - A75-72, Project Planner, Planning Office (1/7)
  - A76-1, Admin. Staff, Treasurer's Office (1/21)

- BIWEEKLY:
- B75-543, Sec. IV, Chem. Eng. (10/15)
  - B75-590, Sec. III-IV, Res. Lab. of Elec. (2/4)
  - B75-671, Sec. III-IV, Off. of Pres. & Chan. (1/7)
  - B75-685, Sec. IV, Medical Dept. (1/14)
  - B76-4, Sec. IV, Center for Internat. St. (1/21)
  - B76-19, Edit. Sec. IV, Graphic Arts (1/28)
  - B76-27, Sec. III, Earth & Pl. Sc. (2/4)
  - B76-30, Sec. IV, Elec. Eng. & Comp. Sc. (2/4)
  - B76-39, Sr. Clk-Typist III, Neuroscience Res. Prog. (2/4)
  - B76-49, Sec. III, Undergrad. Office (2/11)

- ACADEMIC STAFF:
- C75-34, Admin. Officer, Materials Sci. & Eng. (1/14)
  - C75-35, Tech Asst., Biology (1/14)

- SPONS. RES' STAFF:
- D75-48, Economist, Energy Lab., (6/25)
  - D75-107, postdoc. res., Lab. for Nuc. Sci. (6/25)
  - D75-120, Systems Programmer, Lab. for Nuc. Sci. (11/26)
  - D76-125, energy modeling, Energy Lab. (8/6)
  - D75-161, Economist/Policy Analyst, Energy Lab. (9/10)
  - D75-167, end-use technology Energy Lab. (9/17)
  - D75-210, machine vision research, Artificial Intell. Lab. (10/29)
  - D75-219, continuing education, Chemical Eng. (11/5)
  - D75-220, Executive Director, continuing education, Chemical Eng. (11/5)
  - D75-229, Research Engineer, Energy Lab. (11/19)
  - D75-232, Programmer, Center for Space Res. (11/26)
  - D75-243, postdoc. res., computer science, Artificial Intell. Lab. (1/7)
  - D75-244, postdoc. res., computer science, Artificial Intell. Lab. (1/7)
  - D75-249, postdoc. res., physics, Lab. for Nuclear Sci. (1/14)
  - D75-250, postdoc. res., physics, Lab. for Nuclear Sci. (1/14)
  - D75-253, Mathematical model development, Energy Lab. (1/14)
  - D76-4, Programmer, Project MAC (1/28)
  - D76-7, Project Coordinator, Energy Lab. (1/28)
  - D76-9, Implementation Mng., Lab. for Computer Science (2/4)
- EXEMPT:
- E76-2, Nurse, MIT Infirmary (1/14)
- HOURLY:
- H75-55, Tech. B., Lab. for Nuclear Sci. (6/25)
  - H75-117, Tech B., Radioactivity Center (10/15)
  - H75-120, Campus Patrol Officer (10/1)
  - H75-143, 2nd Cl. Eng. (10/15)
  - H75-172, Tech A., Environmental Medical Service (1/14)

# AAAS Meeting Opens

(Continued from page 1)

Sheraton Grand Ballroom. The meetings will run through Tuesday (Feb. 24) and all told over the seven day period, there will be 180 different symposia, 1,500 formal papers and scores of films and exhibits dealing with virtually all aspects of physical and social science.

Attendance at symposia, films and exhibits is not limited to members of the AAAS. Anyone may register and attend at \$20 for the full week and \$10 for a single day. Moreover, students with proper identification may register for the entire week for \$10.

MIT people have been prominent in arranging the meeting and in arranging the individual symposia. Howard W. Johnson, chairman of the MIT Corporation, is serving as co-chairman of the Boston Advisory Committee for the meeting and will preside at the opening session at 1:45pm today (Wednesday) where President Bok will speak.

In addition, more than 50 formal papers will be presented by MIT faculty, staff and students and several others from MIT will participate in

panel programs.

Other free public lectures during the week include:

James G. Moore of the US Geological Survey, Menlo Park, Calif., speaking on the exploration of the Mid-Atlantic rift at 8:30pm today (Wednesday, Feb. 18) in the Sheraton Grand Ballroom.

Francoise Giroud, secretary of state to the premiere of France for women's affairs, speaking at 1:45pm tomorrow (Thursday, Feb. 19) also in the Sheraton Grand Ballroom.

Bradford Washburn, director of the Boston Museum of Science, speaking on the mapping of the Grand Canyon at 8:30pm tomorrow (Thursday, Feb. 19) in the Sheraton Grand Ballroom.

Gerald Holton, Harvard professor of physics, speaking on the scientific imagination at 1:45pm Friday (Feb. 20) in the Sheraton Grand Ballroom.

Margaret Mead, curator emeritus of the American Museum of Natural History and retiring AAAS president, speaking at 7:30pm Saturday (Feb. 21) in the John B. Hynes Auditorium Assembly Hall.

Joseph S. Fruton, noted Yale biochemist, speaking on the emergence of biochemistry at 1:45pm Sunday (Feb. 22) in the Sheraton Grand Ballroom.

Andrew F. Brimmer, visiting professor at the Harvard Business School, speaking on income distribution and economic equity in the US at 1:45pm Monday (Feb. 23) in the Sheraton Grand Ballroom.

## AAAS Concert Tickets on Sale

Tickets for two concerts to be held during the annual meeting of the American Association for the Advancement of Science, Feb. 18-24, are available at the TCA Student Center Office, Rm 450, x3-4885.

—Boston Pops Concert, Arthur Fiedler conducting, Friday, Feb. 20, 8:30pm, Symphony Hall. Floor and first balcony, \$6.50; second balcony, \$4.50.

—New England Conservatory Ragtime Ensemble, playing music of Scott Joplin, Sunday, Feb. 22, 2:15pm, John Hancock Hall. All seats \$3. Free parking.

There is a 25-cent handling charge for TCA ticket orders.

# Dr. Albert O. Seeler

(Continued from page 1)

in Worcester, Mass., he was a pharmacologist at the Merck Institute for Therapeutic Research in Rahway, N.J. from 1940-1944, and assistant director there from 1944-45.

From 1945-50 Dr. Seeler was associated with Boston City Hospital as assistant in medicine and resident in medicine (II and IV, Harvard Medical Service). He was also assistant in medicine at Harvard Medical School and later assistant professor of industrial medicine at the Harvard School of Public Health, where he did extensive studies on beryllium disease. He was assistant physician at the Thorndike Memorial Laboratory of Boston City Hospital from 1950-73.

Before joining the MIT Medical Department as a physician, Dr. Seeler was engaged in private practice from 1949 to 1956 and also held appointments at Mount Auburn Hospital, Harvard Medical School, Boston City Hospital and the Boston Veteran's Administration Hospital.

He joined MIT in 1956, became physician-in-chief in 1959, and was appointed professor of medicine and head of the Medical Department in

1960. In addition, from 1959-73 he was also physician-in-chief of the II Medical Service at Boston City Hospital.

Since 1963 Dr. Seeler had also been lecturer on medicine at Harvard Medical School and, since 1966, medical consultant at Cambridge Hospital.

A diplomate of the American Board of Internal Medicine, Dr. Seeler was a Fellow of the American College of Physicians and a member of the American Medical Association and the Massachusetts Medical Society, and served as trustee of the Boston Medical Library from 1971-75.

In 1963-64 Dr. Seeler was president of the Middlesex South District Medical Society, serving in 1965-66 as president of the medical staff at Mount Auburn Hospital, and in 1973-74 as president of the medical and dental staff at Boston City Hospital.

Dr. Seeler is survived by his widow, the former Edwina Dusenberry; three sons, Alan Seeler of Bristol, N.H., Karl Seeler and John Seeler, both of Waban; two daughters, Marcia Seeler of Newtonville and Joan Seeler of Waban; and two grandchildren.

# Professor Emeritus Wilkes

Private services will be held for Gordon Ball Wilkes of East Orleans, MIT professor emeritus who was an authority on heat engineering. He died Monday (Feb. 16) at Cape Cod Hospital, Hyannis, at the age of 86. Burial will be in Orleans Cemetery.

Professor Wilkes, a native of Buffalo, N.Y., received an SB in mechanical engineering from MIT in 1911. He joined the staff of the Department of Physics after his graduation and was a professor in the department until 1934. He transferred then to the Department of Mechanical Engineering, where he was professor of heat engineering until his retirement in 1954.

He was the author of many papers

and of the book, *Heat Insulation*.

He was a member of the American Ceramics Society, American Society of Refrigeration Engineers, American Society of Heating, Ventilating and Air Conditioning Engineers, American Association for the Advancement of Science and the Sigma Chi and Phi Beta Epsilon fraternities.

He leaves his wife, Eloise; two sons, Gordon B. Wilkes Jr. of Lynnfield and Lynn B. Wilkes of Glen Ellyn, Ill.; two brothers, Warren B. Wilkes and Loran B. Wilkes, both of Buffalo, and a sister, Mrs. Samuel D. Bell of Gwynedd, Pa.

# Ruth McG. Lane

Mrs. Ruth McG. Lane, an employee of the MIT Libraries from 1936 until 1958, died Thursday, Feb. 12, in a Needham nursing home. She was 88.

Mrs. Lane was Vail Librarian at MIT for many years, specializing in electrical engineering. Before coming to MIT she worked with Melvil Dewey, originator of the Dewey Classification System. After her official retirement in 1953, Mrs. Lane continued working part time in the MIT Libraries until 1958.

Mrs. Lane is survived by a daughter, Mrs. Margaret Packard.

The following positions have been FILLED since the last issue of Tech Talk:

- |         |                            |
|---------|----------------------------|
| B76-40  | Sec. III                   |
| D75-169 | Spons. Res. Staff (CANCEL) |
| B76-36  | Sec. IV                    |
| B76-35  | Sec. III                   |
| B76-26  | Sec. IV                    |
| B76-26  | Sec. III                   |
| B76-16  | Sec. IV                    |
| A76-68  | Proj. Planner (CANCEL)     |
| B76-37  | Sec. III                   |
| B76-1   | Lib. Asst. IV              |
| B76-52  | Sec. IV                    |
| B76-45  | Sr. Clk. III               |
| B76-15  | Asst. Animal Tech.         |

The following positions are on HOLD pending final decision:

B76-28	Bookchecker II
B76-18	Admin. Asst. V
B76-48	Sr. Clk. IV
B76-16	Lab. Asst.
B75-691	Sec. III

# Hennie to Succeed Newton As Course VI Executive Officer

Dr. Frederick C. Hennie III, professor of computer science and engineering, has been appointed executive officer of the Department of Electrical Engineering and Computer Science, effective July 1. Dr. Wilbur B. Davenport, Jr., head of the department, has announced.

Dr. Hennie will succeed Dr. George C. Newton Jr., professor of electrical engineering, who will resume his teaching and research activities after three years as executive officer.

The department, with 1,277 students, is the largest at MIT.

The executive officer handles a variety of important tasks, including teaching assignments, statistics gathering, the processing of academic appointments and the preparation of catalog copy.

"We are grateful to Professor Newton for the loyalty and devotion he has displayed while executive officer and wish him well as he resumes teaching and research activities," Professor Davenport said.

Professor Hennie, one of the prime movers behind the move to establish separate electrical engineering and computer science curricula, has for several years helped coordinate faculty teaching assignments and assisted in the development of the computer science curriculum, Professor Davenport said.

An MIT alumnus—he received the SB in 1955, the SM in 1958 and the ScD in 1961—Professor Hennie joined the faculty as an assistant professor in 1961 and became a full professor seven years later. His books include *Iterative Arrays of Logical Circuits and Finite State Models for*



## Logical Machines.

He has taught 6.043, Introduction to Modern Algebra, and 6.044, Computability, Formal Systems and Logic, two vital subjects in the curriculum, for several terms.

Professor Newton, a member of the faculty since 1949, is the author of a number of technical papers and a book in the field of control. He has more than a dozen issued and pending patents on control systems and devices and has taught both undergraduate and graduate courses in electrical engineering. Prior to his appointment as executive officer he served as associate director of the Electronic Systems Laboratory. He has acted as a consultant for a large number of industrial organizations.

His current research interests include control, innovation and energy. Professor Newton has supervised several projects concerned with servomechanisms, radar systems and computers. He was among those active in planning the sixth world congress of the International Federation of Automatic Control held at MIT last August. Professor Newton's energy research includes work on the energy aspects of consumer appliances and energy utilization in transportation.

Professor Newton lives in Lincoln, Mass. Professor Hennie's home is in Boston.



# Cable Television and Conversation Trial Set

The Department of Civil Engineering and the Center for Advanced Engineering Study will launch today (Wednesday, Feb. 18) an experiment in teaching via Cable TV. Mini Seminar 1.964 "Statistical Inference in Science and Engineering" will be presented as a series of ten lectures on videotape on the cable, followed

by seminar discussions. Dr. Myron Tribus, Professor of Engineering and Director of CAES will conduct the seminar, based on his book "Rational Descriptions, Decisions and Designs."

"I don't like to lecture to students. I'd rather discuss and argue with them," Dr. Tribus said. "The tapes

will be shown twice on the cable before each meeting and will be available at Barker Library for individual viewing. At the seminar we can talk about what the students want to know."

The mini seminar develops the theme that all inference, from statistical quality control to statistical mechanics has a common basis in information theory. "Since some people think these ideas are controversial I'd like to reserve as much time to argue as possible," Professor Tribus said.

The detailed outline of topics and times of cablecasting will be fixed at the first class meeting. The initial showings will be as listed below, and the first seminar will be held from 1-2:30pm on Thursday (Feb. 19) in Room 9-253.

An evaluation team from CAES will try to determine the effectiveness of this approach.

Wednesday, Feb. 18	10am #1	4pm Repeat
Friday, Feb. 20	10am #2	
Monday, Feb. 23	10am Repeat	
Friday, Feb. 27	10am #3	
Monday, March 1	10am Repeat	
Friday, March 5	10am #4	
Monday, March 8	10am Repeat	
Friday, March 12	10am #5	
Monday, March 15	10am Repeat	

# Long Musical Heritage

(Continued from page 1)

music, his statements about the character of American musical composition indicate he wanted the national factor to be as "broad and all embracing" as possible. To be termed "national musical art" a composition must not only be produced in America or by an American, but should also have an American flavor.

Throughout his life Farwell championed and nurtured musical expression in America. He lectured widely in the US during the Wa-Wan era and stimulated the growth and organization of music clubs and societies.

From 1910-13 he was supervisor of municipal music in the parks and recreation piers of New York City, directing many city concerts. He was director of the Music School Settlement in New York from 1915-18.

During and after World War I he stimulated a movement of popular community singing. In 1919 Farwell founded the Santa Barbara Community Chorus which he conducted until 1921.

Farwell held several teaching appointments in his long and varied career. He was lecturer on music history at Cornell University from 1899-1901 and acting head of the music department of the University of California, Berkeley, 1918-19. From 1927-39 he taught music theory at Michigan State College, East Lan-

sing, Mich.

Disillusioned about commercial opportunities for American music, including his own, he founded a lithographic hand press in East Lansing in April 1936. There he printed his own compositions, doing all the work, even the cover design, himself.

Farwell's compositions cover a wide field, in large and small forms. His compositions include Symbolistic Study No. 3 (named for the Symbolistic movement in literature), after Walt Whitman (1922); the *Hako*, a string quartet based on a Pawnee ceremony (1922); *The Gods of the Mountain*, suite (1927); *Dawn*, a fantasy on Omaha Indian themes; and *Mountain Song*, a symphonic song suite in five movements (1931). He won the piano-orchestra award of the state-national competition of the National Federation of Music Clubs in 1939 with Symbolistic Study No. 6, *Mountain Vision*, a one movement piano concerto.

In his later years he set many of Emily Dickinson's poems to music and completed a systematic series of polytonal studies.

His works were performed by a number of orchestras, including the New York Philharmonic and the Philadelphia and Minneapolis symphony orchestras.

Arthur Farwell died in 1952 at the age of 79.

# MAC Now Laboratory for Computer Science

(Continued from page 1)

cepts and techniques now widely used in the development of computer systems," says Professor Michael L. Dertouzos, director of the Laboratory. "They also stimulated several applications, such as automated design, text editing, and sophisticated information acquisition and retrieval."

Besides time-shared systems, Laboratory members developed theories underlying the growing field of computer science and became involved in artificial intelligence. In recognition of the growing importance of the latter field, several laboratory members in 1969 founded the Artificial Intelligence Laboratory, which is housed in the same building with the Laboratory for Computer Science at 545 Technology Square, Cambridge. Members of the two laboratories cooperate in research projects of common interest.

Today the Laboratory for Computer Science has grown to 270 members and associates, including 30 faculty, 80 professional staff, and 130 graduate and undergraduate students who are organized in 13 research groups and whose work is funded by several governmental and industrial organizations. The academic affiliation of most faculty and staff is with the MIT Department of Electrical Engineering and Computer Science. Other fields represented in Laboratory work are mathematics, architecture, music, and management.

"The Laboratory is fortunate in having computer resources that foster experimentation," Professor Dertouzos says. These resources consist of three PDP-10 computers, including a powerful PDP-10/80 system, and several smaller machines comprising a total of seven million bytes of primary memory and almost one billion bytes of secondary memory. (A byte is a unit of information that corresponds to a single character or symbol.)

These machines are accessed by terminals within the laboratory and elsewhere at MIT and throughout the world through direct telephone lines and through a worldwide data communications network. In addition, Laboratory members have access to the MULTICS time-sharing system based on a Honeywell 6180 computer

with one billion bytes of secondary memory, which is managed by the MIT Information Processing Center.

First director of Project MAC was Dr. Robert M. Fano, now Ford Pro-

fessor of Engineering, who served from 1963 to 1968. He was succeeded by Dr. J.C.R. Licklider, now professor of electrical engineering, who was director from 1968-1971. Profes-

or Edward Fredkin, professor of computer science and engineering, was director from 1971 to September, 1974, when Professor Dertouzos was appointed head of the laboratory.

# Relighting Killian Court

Killian Court is about to undergo a face-lifting this spring.

In a program more extensive than it might appear, Physical Plant plans to restore and replace the lights along the walks. The lighting fixtures—designed by Welles Bosworth, '89, architect of the main complex—are being removed now.

Replacement of the lights was made necessary because of the corrosion of their poles, William H. Combs, Physical Plant superintendent of buildings, said. One of the 250-pound lighting fixtures was removed last summer to ascertain whether it would be possible to restore them or if they would have to be replaced.

Restoration will involve dipping the distinctive fixtures to remove corrosion, installing new sockets for more efficient lighting, reglazing and repainting.

The other part of the project involves digging up the present poles and installing new underground cable where the lights are to be relocated closer to the walks.

"When the lights were originally installed, there were no trees and bushes in the Court," Mr. Combs said. "Now we need to move them closer to the walks"

While the lights are gone, Killian, duPont and Lowell Courts and all their entrances to buildings will be lit by floodlights from the roof of the main complex.

Excavation in the court is scheduled for late March, with the entire restoration completed by Commencement.

# Gardner to Speak

Richard Gardner, professor at Columbia University Law School and former Deputy Assistant Secretary of State, will speak on "Restructuring the United Nations," Monday, Feb. 23, from 12-2pm in Room E52-461. The talk is sponsored by the Center for International Studies.

# Research Program Focuses on Three Areas

The present research program at MIT's Laboratory for Computer Science, formerly known as Project MAC, focusses in three principal areas.

One of these is an effort "to make computer programs more intelligent by capturing, representing and using specific knowledge," Professor Dertouzos says. For one example, the Clinical Decision Making Research Group, in cooperation with physicians at the New England Medical Center, explores the use of computers to manipulate medical knowledge for drug administration and diagnosis. In another instance, the Mathlab Group uses expert mathematical knowledge in the MACSYMA system—an automated mathematical assistant that can integrate, differentiate and in general manipulate expressions symbolically. Physicists associated with the Energy Research and Development Administration (ERDA), among others, use this system as an aid in plasma research, according to the laboratory director, Professor Dertouzos.

The Programming Technology Research Group explores the detection of messages in a noisy environment, in a manner analogous to discerning one discussion in a noisy cocktail party. "Another research activity with possible far-reaching implications is the study and development of programs that comprehend and carry out typed natural-language commands—English, for example—in a specific context," Professor Dertouzos says.

A second main focus of the Laboratory is making improvements in both the ease of utilization and the cost effectiveness of computing systems. "Recent and ongoing improvements in solid-state technology act as an important driving force that has reduced and promises to continue to reduce the cost of a given computation by approximately 40 percent a year," Professor Dertouzos says. But, he adds, "these hardware trends are not paralleled by corresponding software developments, especially since the complexity of computer programs has risen and continues to rise. As a result, the use of computers remains a costly and complicated task and accordingly, a good deal of the Laboratory's effort is aimed at easing the task of programming."

One approach taken by the Automatic Programming Research Group makes possible the generation of programs by other programs. Another effort involves structured programming—imposing restrictions on a human programmer to insure orderly development of large, complex programs. Other research includes automatic programming of inexpensive micro-computers to serve as specialized devices for localized tasks. And the Computer System Research Group is concerned with the organization and simplification of

complex computing aggregates that may consist of a geographically distributed network of computers and data bases where issues of privacy, security, reliability and efficiency are important.

The Laboratory's third principal area of research—the exploration and development of appropriate theories—includes work by the Theory of Computation Research Group, which strives to understand ultimate limits in storage space and computing time associated with classes of problems, and the Computation Structures Group, which searches for a combination of appropriate programming languages and machine organizations that insure trouble-free computation. Yet another research group explores novel programming languages and their associated semantic theory.

"The long-term evolution of the computer field is also of major importance to the Laboratory," Professor Dertouzos says. To better forecast, analyze and participate in future developments, the Laboratory has organized a "Study on the Future Impact of Computers and Information Processing." This study is examining both the societal and technical aspects of future computer developments through 20 essays contributed by eminent social scientists and computer technologists. Results of the study are expected to be published early in 1977.

"While information is not as fundamental to survival as food, energy and health," Professor Dertouzos says, "it is nevertheless becoming progressively more essential as the complexity of our world continues to increase."

"According to one view, increasing use of computers will dehumanize the world. This need not be the case any more or any less than the corresponding misuse of any other important resource. On the contrary, judicious use of these machines could prove beneficial to society."

"Consider for example some of the de-humanizing consequences of the industrial revolution that we have already accepted, namely the replacement of craftsmanship and individual attention by the mass production of homogeneous yet impersonal products and services."

Computers could re-instate some of the lost individualization through tailor-fitting of products and services to individual needs, while preserving the low-cost and wide availability benefits of mass production.

"They could also relieve us from boring and repetitive tasks, help us in dealing with complexity and could be useful to our education. It is challenges such as these that make research in computer science an exciting adventure."