Massachusetts Institute of Technology TECH TALK
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April 9, 1975 Volume 19 Number 39

Sloan Forms Information Research Unit

By ROBERT C. Di IORIO Staff Writer

How can managers best deal with the complex questions surrounding information system effectiveness?

That is the particular concern of the recently established Center for Information Systems Research, part of MIT's Sloan School of Management, which conducted its first major conference last week (April 3-5) on "The Implementation of Computer-Based Decision Aids."

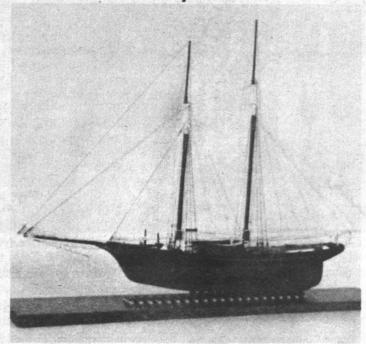
The conference brought together a select group of academic and business practitioners and researchers—attendance was limited to 100—in a workshop environment. Both recent research finding and case studies of successful implementations were presented.

Chairman of the conference, held at the Hotel Sonesta in Cambridge, was Peter G. Keen, assistant professor of organizational psychology and management. His main research interest has been in the effect on the design of systems of the psychological differences between managers and computer specialists.

"There is a real problem in sharing information," Professor Keen said, "both from its theoretical and practical viewpoints, and there's been an increasingly arbitrary dichotomy between research and practice in the computer field. The main aim of the conference and of the CISR has been to get a middle ground. What the practitioner has to offer us is, first of all, his experience, and secondly, to force us to be much more aware of just how managers have to operate. What we obviously bring is theory, a wider frame of reference and, perhaps, some sort of ideal of how systems

(Continued on page 8)

New Ship in Port



A replica of one of the outstanding fishing schooners of the 1890's the *Fredonia*, recently joined MIT's fleet of model fishing vessels in the Hart Nautical Museum.

The original *Fredonia*, built in 1889, was designed by Edward Burgess and constructed in Essex, Mass., where many fishermen for the Boston fleet were constructed.

The Fredonia's features were copied widely by other fishing schooner designers as she represented an improvement over the then prevalent shallow hulled clipper type schooner, responsible for loss of life and vessels in the New England fishing fleet of the 1870's and 1880's.

Some of the schooner's design improvements are a pronounced v-shape bottom and a long rockered keel with a cutaway forefoot (where the stem of the ship meets the keel) for easy turning.

The MIT model was built by Erik A.R. Ronnberg, Jr., of Rockport, Mass.

MIT History Journal Plans US Revolution Conference

The Journal of Interdisciplinary History, edited and published at MIT, has received a grant from the Rockefeller Foundation to sponsor a conference on new ways of understanding the American Revolution.

Robert I. Rotberg, professor of history and political science in the MIT Department of Humanities, is the editor of the journal, a quarterly publication of the School of Humanities and Social Science.

The conference, to be held May 16 and 17 in Cambridge at a site to be announced, will explore three controversial aspects of the Revolution:

-The redistribution of wealth (Continued on page 11)

Ten from Institute Elected to NAE

MIT Chancellor Paul E. Gray and nine others from MIT have been elected to the National Academy of Engineering.

They are among 86 American engineers whose election to the Academy was announced by W.E. Shoupp, acting president. The total membership is now 597.

Election to the Academy is the highest professional distinction that can be conferred on an American engineer and honors those who have made important contributions to engineering theory and practice or who have demonstrated unusual accomplishments in the pioneering of new and developing fields of technology.

Dr. Gray was cited for his "contributions to engineering education and to the management of educational institutions."

The others elected to membership from MIT and their citations: Dr. Wilbur B. Davenport Jr.,

Dr. Wilbur B. Davenport Jr., professor of engineering and edu-

Two Receive Guggenheims

Professor Bernard J. Frieden, professor of city planning and director of the Harvard-MIT Joint Center for Urban Studies and Professor Isadore M. Singer, Norbert Wiener Professor of mathematics were recently named recipients of 1975 Guggenheim Fellowship awards.

Professors Frieden and Singer are among 306 scholars, scientists and artists chosen by the selection committee of the John Simon Guggenheim Memorial Foundation to receive awards this year for their research and work.

The grant to Professor Frieden will support his work in drawing up an analysis of future national housing policy. Professor Singer's grant is for his studies on geometric and spectral invariants.

cation and head of the Department of Electrical Engineering and Computer Science: "Contributions to communications engineering and education and for leadership in continuing engineering education."

Dr. Jacob P. Den Hartog, professor of mechanical engineering, emeritus, and senior lecturer: "Contributions to engineering education and to the technical literature in the field of mechanical vibrations."

Dr. Gerald P. Dineen, director of Lincoln Laboratory and professor of electrical engineering: "Contributions to the design of digital computers and satellite communications systems."

Dr. John F. Elliottt, professor of metallurgy: "Contributions as a teacher, engineer and scientist, whose publications serve as basic references for process metallurgy students and researchers."

Dr. W. David Kingery, professor (Continued on page 8)

Lectures

Compton: Smith

The third and last 1975 Compton lecture, "Art, Technology and History," will be given by Institute Professor Cyril Smith in Rm. 10-250, Thursday, April 10 at 4:00pm.

Killian: Cohen

Dr. Morris Cohen, Institute Professor and Ford Professor of Materials Science and Engineering at MIT, will give his second James R. Killian Lecture, "Toward a Materials Ethic in National Policies," Tuesday, April 15.

The lecture will be given in Rm. 9-150 at 5:30pm.

Sexism Travels Success Ladder, Sloan Applicants Told

(A panel of Sloan School alumnae from business and government spoke at the graduate school's annual Women's Day pro gram about some of the vital career decisions they faced in reaching the important management posts they currently hold. Their audience included women who have been accepted for the graduate program that begins this year, women students currently at Sloan and other alumnae and faculty. Leslie Clift Hruby, director of placement and assistant to the Dean of the Sloan School, was the coordinator for the day's program. The following account by Susan Trausch of the Boston Globe's financial news staff, appeared in the April 5 edition of that newspaper.)

By SUSAN TRAUSCH Globe Staff

Prejudice follows a woman up the corporate ladder and she has to deal with it realistically.

That was the word from six women managers speaking yesterday at MIT's Alfred P. Sloan School of Management. The panel was part of the graduate school's "Women's Day" open house for about 50 students, applicants and alumnae. There are now 42 women enrolled in the management program that has a total of 200 students.

"A client will look at me as if to say, 'Oh, isn't this cute, a woman consultant,' " said Margaret Herrick, consultant at Arthur D. Little Inc., Cambridge. She has a master's degree in mathematics from University of Hartford.

"I don't get upset and yell and scream," she continued. "I just very coolly and calmly blitz them. I give them technical jargon until they are snowed and they figure maybe I know what I'm talking about. It works. I haven't yet been in a situation where I haven't been able to turn negative attitudes around. Once the ice is broken, I come back down and start talking

(Continued on page 5)



WOMEN'S DAY AT SLOAN—A group of Sloan School alumnae discussed some of the critical career choices they have had to make on their climb to the important corporate and government positions they

now hold. Their audience included women students accepted for the graduate program starting this year at Sloan. The program was held in the Schell Room at E-52.

—Photo by Calvin Campbell

Art Notes Goro Photographs Included in 'Food' Show

By WILLIAM T. STRUBLE Staff Writer

Photographs taken around the globe by LIFE science photographer Fritz Goro will be shown as a feature of a large, mixed-media exhibition, "Food," scheduled to be staged in the lobby of MIT's Building 7 today, Wednesday, April 9, through Friday, April 18.

Mr. Goro, whose work appears regularly in Scientific American and Smithsonian, has prepared an exhibition, "Food: Directly and Indirectly," consisting of 160 slides accompanied by a narration by Ernest R. Pariser; MIT Sea Grant Services advisory officer and senior research scientist in the MIT Department of Nutrition and Food Science.

The color slides, selected by Mr. Goro from his work over the last 30 years, are in two groups. The first deals with scientific aspects of food such as photosynthesis, plant genetics, cholesterol, and experiments in tissue culture. The second "anthropological" group on humans' quest for food is made up of pictures taken "on expeditions all over the world, from Antarctica to the Arctic," Mr. Goro said. In addition, some of Mr. Goro's exhibition prints will be shown

Mr. Goro studied sculpture and design at the Bauhaus in Germany. He came to the United States with his family in 1936 and later that year began to work for LIFE as its first science photographer. Since then, he has worked on photographic problems in virtually all scientific disciplines. Mr. Goro is also a research associate in marine biology at the Scripps Institution of Oceanography at the University of California at La Jolla and for several semesters he has been a visiting lecturer at Yale University. Mr. Goro is a fellow of

Begin Exhibition At Faculty Club

Artist Nancy Begin, of Topsfield, Mass., is having an exhibition of her oils, watercolors and etchings in the MIT Faculty Club this month. The paintings-mostly wildlife studies, are located in the Club bar and corridor leading to the private dining rooms.

A selection of recent drawings

by the Boston area artist Andrew

Tavarelli, will be on view in the

The exhibition of drawings will

be held concurrently with the

exhibition Visual Dharma: The

Buddhist Art of Tibet in Hayden

Gallery. Both exhibitions are

sponsored by the MIT Committee

Tavarelli's drawings result from

his recent interest in textural

possibilities of media such a

graphite, chalk and conte crayon.

on the Visual Arts.

Hayden Corridor Gallery at MIT

from April 4 through May 4.

the Biological Photographers Association.

The walk-through "Food" exhibition will include more than 20 displays executed in many media -film and video, "hard" and "soft" sculpture, graphics, sound programs, and photography. The exhibition was designed and directed by Otto Piene, director of the MIT Center for Advanced Visual Studies, Suzanne Weinberg, Lobby 7 coordinator, and by Dr. Pariser. It will also feature special performances, including an appearance by "French Chef" Julia

Scholl Reviewed

A review of Changing Faces, a collection of poetry by Betsy Sholl, appeared in the New York Times Book Review on March 16, 1975. Ms. Sholl is an instructor in the Department of Humanities, and teaches in the Writing Program.

Jazz Ensemble to Play at Festival

The MIT Festival Jazz Ensemble will perform in the eighth annual Quinnipiac Intercollegiate Jazz Festival at Quinnipiac College in Hamden, Conn., this weekend, April 11-13.

The Quinnipiac festival will be highlighted by a competition among jazz ensembles from Towson State College in Maryland, New Jersey State Collge, the Philadelphia Musical Academy as well as MIT. The festival will also feature appearances by guest musicians Charles McPhearson, Don Elliot, Chico O'Farrell and Jimmy Heath.

In July, the MIT jazzmen hope to attend the Montreux International Jazz Festival in Switzerland as one of two college jazz groups invited to the prestigious festival held every four years and devoted almost exclusively to performances by leading professional jazz ensembles. If funds for the group's travelling expenses are found, as they were four years ago when the group was first invited to Montreux, the group will perform on three occasions during the July festival.

Some of the drawings have a

dense, rich surface but are care-

fully controlled in their geometric

structure. In other drawings, the

flat, gray-hued planes suggest a

more distant and indeterminate

space. As in his recent paintings, the interruptions of plane by

regular and ordered lines are

important to the establishment of

Recently, in collaboration with

poet Russell Banks, Tavarelli has

been carrying on a dialogue

between printed word and pictori-

spatial relationships.

Tavarelli Drawings in Hayden



looking at "Cakrasamvara" a gilded copper

"Visual Dharma: the Buddhist Art of Tibet."

Chamber Players to Feature Bartok Sonata

Two prominent concert pianists of the MIT music community will join the MIT Chamber Players in the ensemble's final concert of the season at 8pm Wednesday, April 16, in Kresge Auditorium.

John Buttrick, director of music at MIT, and Beatrice Erdely will participate in a performance of Bartok's Sonata for Two Pianos and Percussion. Mrs. Erdely, who is the wife of violinist Stephen Erdely, MIT associate professor of music, was soloist with the MIT Symphony Orchestra in its March 15 concert and will appear with the orchestra also during its spring concert tour.

Percussionists for the Bartok work will be David Stork, Leslie Markman, and Richard Horn.

The program for the concert will include Hummel's Quartet for Clarinet and Strings, Irving Fine's Quintet for Winds, and Introduction and Allegro by Maurice

Violist Marcus Thompson, director of the MIT Chamber Music

al image. Banks and Tavarelli

exchange poetry and drawings,

each improvising and interpreting

imagery stimulated by the work of

Tavarelli's recent exhibitions

include participation in the Whit-

ney Biennial, the Whitney Muse-

um of American Art, New York,

1973; and one-man exhbitions at

the Rose Art Museum, Brandeis

University, Waltham, Mass., 1973;

Fischbach Gallery, New York,

1973; and Harcus Krakow Rosen

Sonnabend Gallery, Boston, 1974.

Corridor

the other.

Society and organizer of the MIT Chamber Players, will also participate in the concert. Professor Thompson recently gave recitals at Princeton University and Ramapo College and this Saturday will give a recital in the new orchestra hall in Minneapolis.

Mrs. Erdely is currently a member of the piano faculty of the New England Conservatory of Music and also teaches at Brandeis University.

UPI VP to Give Newspaper Seminar

United Press International's vice president for communications, James F. Darr, will discuss the worldwide computerized newsgathering, editing and distribution system of the news service at an April 15 MIT seminar to be held at 4pm in Rm. 9-150. The system which is now in operation is the culmination of several years of effort by UPI to upgrade the quality and speed of the UPI global news service through use of computers, digital communications, and video-display terminals.

The seminar, which is open to the public, is the fourth in a series to be offered over a three-year period at MIT under a grant from the Frank E. Gannett newspaper foundation.

Cumming Reading

Patricia Cumming, assistant professor in the Department of Humanities and co-oordinator of the Writing Program, gave a reading of her poetry at Focus II Coffeehouse in New York City on

of Connecticut on April 22.

During its 1975 spring tour, the

MIT Symphony Orchestra, under

the direction of conductor David

Epstein, will play concerts at

Wellesley College on April 17, at

Brown University on April 19, at

the University of New Hampshire

on April 21, and at the University

Echoes

50 Years Ago

Advances in the technology of airplane engines was reported in Tech Engineering News.

The Dippy Davy Duo was featured at the Spring Concert.

40 Years Ago

An anti-war strike was held in the Great Court to protest the increasing militarization of youth and the preparation for a new imperialistic world slaughter.

Tech fencers ended one of their most successful seasons, having won 6 out of 7 matches.

25 Years Ago

Pulitzer Prize-winning poet, Peter Viereck, talked on "Mid-Century Revolt in American Poetry."

Warren K. Lewis, '05, was chosen by the Engineering Societies of New England as recipient of New England Award for 1950. (Prepared by Ethel Newell of the MIT Historical Collections,

be Colloquium Topic Humanities State of the Art to

Steven Marcus, director of planning for the National Humanities Center in Washington, D.C., and professor of English literature at Columbia University, will talk on "Humanities, the State of the Art, Implications for Curriculum at MIT," on Tuesday, April 15, at 3pm in the Mezzanine Lounge at the Student Center.

The lecture is the second in a series of three collloquia-on history, humanities and literature

-sponsored by the Department of Humanities.

The colloquia are open to the MIT community. Refreshments are served.

Professor Marcus has recently written: "There is an undercurrent of expectation that the humanities are or should go into the business of creating values, new or old, for society. The expectation in question envisages striking resemblances to what is known in the social sciences as a 'technological fix.' A 'value fix' accordingly would assume that the present social and cultural crises can be met by finding a short-cut route of somehow providing or promoting new values. This veiw regards the humanities as being in the business of supplying a valuetechnology for society.

"A 'value fix' in effect assumes that the 'solution' of cultural and social problems does not consist in real solutions of such problems in their proper realms and by the actual people involved, but that such solutions can, as it were, be applied from the outside. Apart from the question of whether this

should be the proper role for the humanities now or in the future, one should recall that this was in general the path that the established social sciences chose to pursue, and that their way has been increasingly strewn with boulders."

Professor Marcus is the author of Engels, Manchester and the Working Class, The Other Victorians, and From Pickwich to Dombey, and editor of The Life and Work of Sigmund Freud by Ernest Jones and The Continental Op by Dashiell Hammett.

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Bernstein





Johnson



Lipsky



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Studies.



RajBhandary



Roesset











Uhlmann



Twenty-two associate professors from/11 academic departments and the Alfred P. Sloan School of Management have been promoted to the rank of full professor at MIT, effective July 1.

They are:

David Adler, Department of Electrical Engineering and Computer Science. Professor Adler began teaching at MIT in 1967 as assistant professor and was appointed associate professor in 1969. He holds the BS degree ('56) from Rensselaer Polytechnic Institute and the AM ('58) and PhD ('64) degrees from Harvard. A member of the Basic Research Committee of the National Research Council, he has taught six introductory electrical engineering subjects over the past 10 years. Areas of particular interest to him are amorphous semi-conductor materials and devices, correlations in narrow energy bands, insulator-metal transitions, and electronic phase transitions. Professor Adler is a Fellow of the American Physical Society, and a member of the editorial board of the Journal of Nonmetals.

Jonathan Allen, Electrical Engineering and Computer Science. After graduation from Dartmouth in 1956 and receipt of the MS degree in 1957 from Dartmouth's Thayer School of Engineering, Professor Allen came to MIT in 1958 to begin work on his PhD. He left in 1962 to become a member of the human factors research department at Bell Telephone Laboratories, where he remained until the fall of 1967. He subsequently returned to MIT and received his PhD degree in June, 1968. Widely known for his work in natural language processing, including speech synthesis and recognition, he was appointed assistant professor in 1968 and associate professor in 1972. The text-to-speech system developed under his leadership in cooperation with MIT's Research Laboratory of Electronics formed the basis for his talking computer model of the human vocal tract which "speaks" human-sounding sentences.

Suzanne Berger, Department of Political Science. Professor Berger, who held the Edward Kenan Chair at MIT from 1972-74, is a graduate of the University of Chicago (BA '60) and Harvard University (MA '63, PhD '67), where she was an instructor at Harvard from 1966 to 1968. She was appointed assistant professor at

MIT in 1968. A member of Phi Beta Kappa and past recipient of the Woodrow Wilson Fellowship, Frederick Sheldon Traveling Fellowship and a Radcliffe fellowship, Professor Berger is the author of Peasants Against Politics: Rural Organization in Brittany, 1911-67 (Harvard University Press, 1972) and The French Political System (Random House, 1974). She is a trustee of the World Peace Foundation and a member of the executive committee of Harvard's Center for International Affairs, and of the committee of the Center for West European

Aron M. Bernstein, Department of Physics, Professor Bernstein holds a BS degree (1953) from Union College and a PhD (1958) from the University of Pennsylvania. He was a research associate at Princeton University from 1957-61 and was appointed assistant professor of physics at MIT in 1961. He has held the rank of associate professor since 1966, during which time he spent a year's sabbatical at the Center for Nuclear Study in Saclay, France, on a Guggenheim Memorial Foundation Fellowship.

Jack B. Howard, Department of Chemical Engineering. After graduation from the University of Kentucky (BS '60; MS '61) and Pennsylvania State University (PhD '65), Professor Howard came to MIT in 1965 as assistant professor and Ford Foundation postdoctoral fellow for the twoyear period from 1965-67. He was appointed associate professor in 1972. Professor Howard's experience in industry includes jobs with the United Technology Center of United Aircraft Corp. in Sunnyvale, Calif., and Esso Research and Engineering in Baytown, Tex. Professor Howard is the co-author of the book, New Energy Technology-Some Facts and Assessments (MIT Press, 1971).

Keith H. Johnson, Department of Materials Science and Engineering. Professor Johnson came to MIT as assistant professor in 1967, after two years of postdoctoral research at the University of Florida and an assistant professorship of physics at Drexel Institute of Technology ('64-65). He received the AB degree from Princeton University and the MA and PhD degrees from Temple University. Theoretical chemical physics and theoretical solid-state physics are the fields of research to which he has devoted the major part of his writings.

Michael Lipsky, Department of Political Science. Educated at Oberlin College (BA '61), the Woodrow Wilson School of Public

and International Affairs at Princeton (MPA '64) and the Department of Politics at Princeton (MA'64; PhD '67), Professor Lipsky was assistant professor of political science at the University of Wisconsin from 1966-69. He has been a member of the executive committee of the Joint Center for Urban Studies at MIT since 1971, and prior to that, was a staff associate at the Institute for Research on Poverty at the University of Wisconsin. A forthcoming book of which he is co-author is entitled Riot Commission Politics: The 'Processing' of Racial Crisis in America (Transaction Books). In 1970 he published Protest in City Politics: Rent Strikes, Housing and the Power of the Poor (Rand McNally).

22 Are Appointed Full Professors

James D. Litster, Department of Physics. Professor Litster graduated from McMaster University in 1961 (BEng) and received his PhD degree from MIT in 1965. After a year as instructor at MIT from 1965-66, he joined the research staff of the IBM Thomas J. Watson Research Center, where he later became a consultant to the liquid crystal group in 1969. Professor Litster was appointed assistant professor of physics at MIT in 1966 and associate professor in 1971. He has also been a visiting professor at the University of Paris in Orsay.

Robert D. Logcher, Department of Civil Engineering. Born in The Netherlands, Professor Logcher received all his degrees at MIT (SB '58; SM '60; ScD '62). Concentrating his recent research interests in management information systems, management of construction facility projects and decision methods in construction, he joined MIT's teaching staff as a part-time instructor in 1960, was 1966. His earlier research involved the development of computer systems for engineering design. His several government committee assignments include the national committee for the CIB National Research Council, and the American Society of Civil Engineers.

Albert R. Meyer, Department of Electrical Engineering and Computer Science. Professor Meyer received all his degrees from Harvard between the years 1963, when he received the BA, and 1972, when he received the PhD. Before his appointment to MIT's faculty in 1969, he was assistant professor of computer science at Carnegie-Mellon University (1967-69). He was appointed associate professor at MIT in 1972. At the present time he is visiting scientist at IBM Research Labs in Yorktown Heights, N.Y. where his research includes automata, computational complexity, recursive functions and decision procedures in logic. A major topic he will discuss in conferences in Germany and Czechoslovakia this summer is combinatory algorithms.

D. Quinn Mills, Sloan School of Management. Professor Mills, former special assistant to the director of the Cost of Living Council, received the BA degree from Ohio Wesleyan University in 1963 and the MA and PhD degrees from Harvard in 1965 and 1968 respectively. Before joining the faculty of the Sloan School as assistant professor in 1968 he was assistant professor of economics at Harvard for a year. Between 1968 and 1972, when he was appointed associate professor at the Sloan School, he was a consultant to the US Department of Labor, a member of the Building Research Advisory Board of the National Academy of Sciences, and chairman of the Construction Industry Stabilization Committee. Professor Mills is the author of Industrial Relations and Manpower in Construction (MIT Press, 1972).

Michael S. Scott Morton, Sloan School of Management. A former engineer for Rolls-Royce Ltd, in Glasgow, Scotland, and director of data processing for the City of Pittsburgh, Professor Morton holds a DBA ('67) degree from the Harvard Business School and a BS ('61) degree from Carnegie Institute of Technology. He was appointed assistant professor at the Sloan School in 1966 and associate professor of management in 1969. Interested mainly in developing and describing the new field of computer-based decision support systems for managers, Professor Morton is the co-author with John appointed assistant professor in F. Rockart, MIT senior lecturer, 1962 and associate professor in of Computers and The Learning Process in Higher Education (McGraw-Hill) to be published next month. He has been on sabbatical in Scotland for the past year working on two other books in computer and information sys-

> Michael J. Piore, Department of Economics. An economist noted for his research in labor, Professor Piore is a consultant on labor, manpower, and income maintenance for the Commonwealth of Puerto Rico, which he has served in the past as research coordinator. He is a graduate of Harvard (BA '62, PhD '66), where he was a Woodrow Wilson Fellow and a member of Phi Beta Kappa. He was appointed assistant professor of labor economics at MIT in 1966 and associate professor in 1970. Between those years he was a



Yamamoto

consultant to the US Department of Labor, and the Boston Model Cities Administration. Professor Piore is the author of Internal Labor Markets and Manpower Adjustment (D.C. Heath and Co., 1971). He is now in Paris conducting research on economic dualism in France-the theory that there are two separate labor markets, the primary and secon-

Uttam Lal RajBhandary, Department of Biology. Born in Nepal, Professor RajBhandary was educated at the University of Patna, India, (BSc '52), the University of Calcutta (MSc '55) and the University of Durham in England (PhD '62). From 1962-64 he was a senior project associate at the University of Wisconsin's Institute for Enzyme Research, after which he was appointed assistant professor at the University of Wisconsin-a post he held until 1969, when he was appointed associate professor at MIT.

Jose M. Roesset, Department of Civil Engineering. Professor Roesset received the ScD degree from MIT and was appointed assistant professor in 1964, after serving as research assistant and teaching assistant. He completed his CE degree at Escuela Especial de Ingenieros de Caminos Canales y Puertos in Madrid. Recognized for his research in structural mechanics and earthquake engineering, he became an associate professor in 1969, after serving a parallel visiting professorship at the University of Chile and Catholic University in Santiago,

Fred C. Schweppe, Electrical Engineering and Computer Science. An alumnus of the University of Arizona (BS '55; MS '57) and the University of Wisconsin (PhD '59), Professor Schweppe was a member of the professional staff of Lincoln Laboratory from 1959-68, when he was appointed associate professor at MIT. He held a visiting professorship here from 1966-68 and has taught courses in power and dynamic systems. At present he is conducting research on the analysis and planning of large electric systems, economic environmental tradeoff in electric power systems, and

(Continued on page 12)

Employment Q&A

By CLAUDIA LIEBESNY Office of Personnel Services

Are there any rules governing leaves of absence? Is there a time limit? Does it vary for Biweekly, Exempt and Staff?

The policy with regard to leaves of absence without pay is the same for Biweekly, Exempt and Staff personnel. A request should be made in writing to the immediate supervisor well in advance of the planned date of departure in order to allow sufficient time for consideration, and payroll purposes and whatever benefit arrangements are to be made. Such requests will be evaluated on an individual basis and must state the reason for the leave and the date when the person will return to work. The approvals of the immediate supervisor, department head, Dean or Vice President and the Personnel Office are required. Except under extraordinary circumstances, approval will not be given for a period exceeding one year. Some of the factors to be considered in the evaluation of a leave request are the following: reason for the leave, previous leave history, length of service, period of time requested, and the department's ability to handle work demands in the person's absence.

the person's absence. The granting of such a leave of absence without pay does not necessarily assume reemployment upon termination of leave unless the letter granting the leave expressly makes that commitment. In that event, the employee's job or a job of equivalent classification and pay will be restored by the department or laboratory at the completion of the leave unless the position has been eliminated by reduction in force or operational change under circumstances applying equally to other similar jobs in the department. If the former position has been so affected, efforts will be made to find other suitable employment, first in the department concerned and, secondly, within the Institute as a whole.

Has the Working Group on Office Clerical Issues completed its work?

The members of the Working Group are continuing their study of their long-range goals in the areas of performance evaluation, communications, compensation, and career paths. The recommendations to John Wynne concerning this years Biweekly Salary Review (see *Tech Talk* supplement, March 5, 1975) were the result of the first phase of the discussions by the group. At the same time there is an Evaluation Subgroup at work, responsible for an evaluation of the review this year, to assess whether it was effective in rewarding individual performance and fostering better communication between employees and supervisors. Their results will be an important input into the Working Group's final recommendations. No timetable has been set by the Group or Mr. Wynne for these recommendations. Some of the issues are complex, and careful and sustained work will be required to develop good long-term solutions.

In light of the fact that Hourly, Biweekly and Exempt percentage increases are published, why hasn't the percentage for the Staff increases been published?

The percentage annual increase given to the Hourly union employees is now and has been by the nature of contractual obligation, public record. This year the members of the Working Group on Office Clerical Issues recommended that the review percentage be published. This recommendation was accepted with the understanding that the pros and cons of publication would be evaluated as part of the overall evaluation of the Working Group recommendations as they pertain to Biweekly employees. The principal concern was that publication would inhibit a true merit review. The review percentage for Exempt personnel was not published, as you indicated, nor was the DSR Staff percentage, and there are no current plans to publish the Administrative Staff percentage.

Is there going to be a Summer Employment Program in 1975? Will it be funded?

Plans to develop summer job opportunities on campus for the youth of Cambridge have already begun. Mr. Herbert Lee, coordinator of this year's program, has met with Personnel Officers and will soon contact individual departments concerning likely summer job opportunities.

Because funding is expected to be scarce this summer, departments are encouraged to consider alleviating staffing problems by reserving any such positions for Cambridge students.

Please contact Mr. Lee at x3-4941, Rm. 20C-232, with further questions or to list job opportunities.

What is the policy about being able to take a break? I work part-time, 9-2 and have been taking a ten minute break.

There is no all-Institute policy concerning the establishment of breaks for part-time employees. However, a short break is certainly reasonable for those working a sustained block of time in one day and should be worked out either formally or informally between each supervisor and employee.

Three Black Students Cited

Three MIT students were included in a list of top black college students listed in the March issue of *Black Enterprise* magazine.

They are: Rudolph Miller, III, of Washington, D.C., a senior in mechanical engineering, president of Black Mechanical Engineers and a member of the Black Pre-Medical Society, Tau Beta Pi and Pi Tau Sigma; Bernard Hugh Robinson, of the Bronx, N.Y., a senior

in electrical engineering, co-chairman of MIT's Black Student Union and a member of the Search and Charter Committee for the Office of Minority Education; and Karen Ann Scott, from Buffalo, N.Y., a senior in applied mathematics and coordinator of the Black Student Union tutorial program.

The 75 "top black college students" chosen by Black Enterprise were selected from hundreds of college seniors who had excellent academic records as well as outstanding community or school service.



CBS NEWS REPORTER Charles Osgood (second from left) came to MIT Innovation Center last week to interview Director Yao T. Li and student inventors for a TV essay to be aired on the CBS Morning News within the next week. Here, graduate student Jake Moscowitz of Watertown, Mass. (left) demonstrates his wide-band electric guitar—one of the projects closest to completion at the Center—and one of the most different pick-up systems of any available

commercially. Assisted by electrical engineering major Ernest Perevoski of New York (right), Moscowitz shows how the system simulates sounds of other guitars and produces a number of special effects due to the complete separation of signals emanating from the individual strings. Standing to the left of Boston cameraman Dave Marlin is Lamar Washington, Jr., of the Innovation Education Council.

—Photo by Calvin Campbell

Ensemble to Present 'Twelfth Night'

In its premiere production, the newly formed Shakespeare Ensemble at MIT will toast the 411th anniversary of Shakespeare's birth with five performances of Twelfth Night.

Performances will be staged in the Sala de Puerto Rico at the MIT

Senturia, Wedlock Publish Text

Electronic Circuit and Applications, by Stephen D. Senturia, associate professor of electrical engineering, and Bruce D. Wedlock, director of the Lowell Institute School and lecturer in electrical engineering, was recently published by John Wiley & Sons, Inc.

A survey for beginning electrical engineering students, the text ranges from simple to complex circuits, demonstrating practical applications and offering design problems.

Three Win NSF Research Grants

Three assistant professors at MIT, Robert Armstrong, Nils Sandell and Ronald Yeung have received 1975 National Science Foundation research grants for young engineering faculty.

Dr. Armstrong is duPont Assistant Professor of chemical engineering, Dr. Sandell is assistant professor of systems science and engineering and Dr. Yeung is assistant professor of ocean engineering.

The awards, designed to assist young engineering faculty members in their research, were given to a total of 82 young engineering faculty across the country. They were selected on a competitive basis from 258 proposals.

Bond Information Being Distributed

Information on the payroll purchasing of Savings Bonds plus an authorization card will be inserted in MIT pay envelopes this month.

The interest rate of 6% makes this an advantageous time to begin using the Institute's longstanding payroll plan for purchase of US Savings Bonds.

The MIT Payroll Office accepts authorization for payroll deductions for bonds at any time. Campus contact is Edward Matheson, x3-3346; at Lincoln Laboratory, Thomas Saxon, x665.

Student Center, Saturday through Wednesday, April 19-23, curtain time 8pm. Champagne will be served to audience and cast at the final performance on Wednesday, April 23, the date of Shakespeare's birthday.

Tickets for the Wednesday performance are \$3.50, all others are \$2.50 with a \$1 discount for Wellesley and MIT students. Tickets can be purchased in the lobby of Bldg. 10 or at the door to the Sala the evening of the performance. For reservations call 742-0681. Group rates are available for parties of 10 or more for all performances except the last.

Twelfth Night is one of Shakespeare's most festive plays, embodying several schools of comedy —as well as a subtle romantic line —as unpredictable as the humor.

"It is an intimate play," according to director Professor Murray J.K. Biggs. "All the scenes have a small group of characters who are engaged in getting to know each other—discovering things they were unaware of before."

To enhance the chamber atmosphere of the play and the relaxed, informal quality of the dialogue, the company has chosen to stage it in the Sala de Puerto Rico which will be fitted with an Elizabethan thrust-stage. No member of the audience will be seated further than 40 feet from the edge of the stage.

The world of the play, set in Illyria in the northwest corner of Yugoslavia, will be simply defined with backdrops and costumes. There will be a special musical complement for the production, composed and arranged by John Cook, Institute organist and humanities instructor, who has written music for several of the Olivier-Richardson Shakespeare seasons at London's Old Vic and more than a dozen scores to accompany Shakespeare productions at the Stratford Festival in Ontario.

Leads for the play are: Blanche Garfein, a Wellesley freshman from Rome, Italy, Viola; Paul Bradford, an MIT junior from Bedford, Mass., Sir Toby Belch; Hope Costin, a Wellesley sophomore from Bennington, Vt., Olivia; Mitchell Rothstein, an MIT sophomore from Nyack, N.Y., Feste The Jester; Scott Roby, an MIT junior from Shrub Oak, N.Y., Sir Andrew Aguecheek; and John Shelton, an MIT senior from Washington, D.C., Malvolio.

The company was formed last fall by Professor Biggs, assistant professor in humanities, who has had considerable directing experience in England and has also taught a Shakespeare seminar at Oxford University.

The ensemble of 16—with one exception all MIT and Wellesley students—is the newest campus dramatic group and the first at MIT to use a repertory approach. It is also believed to be the only company in Boston dedicated to the extensive performance of Shakespeare's plays.



Scott Roby (top) as Sir Andrew Aguecheek and Paul Bradford as Sir Toby Belch in rehearsal for Shakespeare Ensemble's production of Twelfth Night.

—Photo by Joe Schuyler

Silva Spreads Beauty of Upper Volta Worldwide

Folk Art Becomes Cultural Landmark









By ELLEN HOFFMAN

Staff Writer

If Julio Silva, South American architect and MIT alumnus, had never gone to Upper Volta, the world might never have seen the beauty of the West African tribal culture-now colorfully represented in Upper Volta's postage

The series of nine Upper Voltan stamps depicting everyday scenes and costumes of Upper Volta-facsimiles of sketches by Silva (M. Arch, '62)—not only capture the simple beauty of the country's daily life, but they also represent a cultural landmark for the small West African nation.

Before the Silva stamps were issued in 1972, most of the country's stamps were reproductions of paintings from the Louvre, reflecting the predominance of French culture in Upper

When Silva went to Upper

Volta in 1967 as a United Nations advisor on lowcost housing, he was immediately impressed by the diversity of customs, the folk art and the beauty of the native

Reporting that "every house is a work of art,' Silva quickly dismissed the idea of advising major change in the

basic construction of the native mud huts with adobe walls, rounded corners, sunny courts and cone-shaped roofs of handwoven thatch. He did not feel that it was his mission to replace the adobe huts with look-alike prefabircated structures, but rather suggested improving these unique homes with better sanitation, lighting and ventila-

Traveling through the underdeveloped districts of the three Volta rivers in his small car-

DE HAUTE-VOLTA



complete with an MIT decal in the rear window-Silva would meet with members of many of Upper Volta's tribes. After observing their life style and learning the values of their culture, Silva suggested architectural improvements while developing rapport with the tribesmen.

When breaks in his busy work schedule allowed, Silva would return to his headquarters in the capital city of Ouagadougou and would sit in the open-air cafes,

sketching the busy life that surrounded him. Africans in gaily colored costumes making their way through open markets in streets lined with sheep, camels and bicyles proved exciting subject matter for the Uruguayan architect.

Enthralled with Silva's sketching and encouraged by Silva, many

young Upper Voltans began imitating him and soon Silva's followers were sufficiently accomplished to sell many of their sketches to tourists.

This art, which reflected African rather than French values, received nation-wide and eventually world recognition for both Silva and Upper Volta. After an exhibit in the French Embassy in Ouagadougou, Silva's paintings were sent to New York, where they were shown at the U.N. headquarters. One painting was retained by the UN

and now hangs in the David Owens Library.

Since his successes in Upper Volta, Silva was transferred by the U.N. to Togoland for a short-term project and then, in 1974, to the Ivory Coast, where he is a U.N. project manager, supervising the construction of public facilities for rural communities and advising the Minister of Planning on construction.

Julio Silva has decided to make West Africa his permanent home. Having grown to think of the migrant tribesmen of Western Africa as "his people," he will continue to work at bridging the gap between the modern cities of Africa and the rural communities-while still preserving and promoting the West African culture.

Despite all he has done, there is always more for a person like Julio Silva to accomplish-after all, some of the Ivory Coast stamps still picture reproductions of paintings from the Louvre.



Mr. Cahill with the new ambulance and its emergency equipment.

Patrol Inaugurates New Ambulance

Campus Patrol, in conjunction with the Medical Department, has purchased a new "Vanguard" ambulance and hired a Harvardtrained emergency medical technician to operate it.

The new ambulance and attendant comply with 1975 Department of Public Health regulations which specify that anyone providing ambulance service must use a properly equipped vehicle accompanied by specially-trained individuals.

The multi-purpose "ambulette" Campus Patrol has used until now does not provide the required

Book Review

Irma Johnson, Science Librarian, has written a review of a new book, Educating the Library User by John Lubin, published in the March issue of American Libraries.

space for administering emergency aid to its patients. Also, the new laws require 81 hours of Emergency Medical Training (EMT) in addition to the standard and advanced first-aid and cardiopulmonary training which all Campus Patrolmen receive.

William Cahill, the new attendant, is a certified EMT and American Red Cross instructor, and will be useful in preparing other Campus Patrol personnel to man the ambulance.

Mr. Cahill will serve as a liaison between the medical department and campus patrol. He will work daily from 8am-4pm, when 87 percent of emergency calls are received, thus relieving patrolmen and vehicles for other duties.

Dr. Albert O. Seeler, head of the Medical Department, said there was no question that developing

Campus Patrol's emergency services was preferable to hiring a commercial ambulance service. 'It would be difficult to match the exceptionally efficient job Campus Patrol has done so far," he said. "Their familiarity with the Institute, their interest in the patients, their instant response to callsthese qualities cannot be bought."

Henderson Wins Research Grant

Dr. Ellen J. Henderson, assistant professor of chemistry at MIT, has been awarded a grant from the Cottrell Research Grants Program of the Research Corporation. She will study the mechanism by which the binding of cyclic-AMP to a protein on the surface of cellular slime mold alters intracellular metabolism and overall cell behavior.

Sloan Applicants Conference

(Continued from page 1) English again and we get along

Kathy Bishop, assistant to the president at Glass Container Corp., New York, said it takes a while for the ice to break. She is a 1971 graduate of the Sloan School.

"There had never been an assistant to the president before," Ms. Bishop said, "and so there were some problems. I was working as a manager with men in their 50s and 60s and was the age of most of their daughters. There was a certain amount of headpatting and 'Now, dear, let me tell you about business.' I handled it by working hard. I had to earn their respect as a fellow worker. The trust and rapport began to build and now I'm one of the

Judy Lewent, assistant treasurer, strategic planning at Bankers Trust Company, New York, said it is important to know when to fight and when to quit. Prior to working in the bank she was in the brokerage business on Wall Street and found she had to get out.

"There are two types of men on Wall Street," said Ms. Lewent, a 1972 Sloan graduate. "There is the kind who will absolutely refuse to deal with a woman manager. And there is the kind that assumes she is there to go to bed with the men.

"I had a choice of staying and sacrificing my life to a fight or getting on with my career. I decided I'd rather be working than wasting a lot of time and money on law suits."

Phyllis Fishman Lantos said an interviewer deliberately provoked her with a prejudiced attitude and then hired her when she lost her temper. She is a budget planner with the New York City Bureau of the Budget and is a 1969 Sloan

"He said he was testing me, and that anybody working with the New York City budget had to be a

fighter. He hired me on the spot," Mrs. Lantos said.

Emily Leonard, 1969 Sloan graduate, said it was a plus being a woman in a budget job. She is a budget examiner with the US Government Office of Management and Budget in Washington, D.C.

"You are at lunch with a man who wants \$25 million," Ms. Leonard said. "You smile very nicely and say he can't have \$25 million. He smiles and thinks you don't know what you're talking about. If you were a man there'd be a fight. But this way everything is pleasant. By the way, he never gets the \$25 million.'

Gudrun Zoeller talked about the problems of a woman being in charge of other women.

"At first I noticed secretaries would get projects done on time for the men managers while they let mine slide," said the assistant product manager at Pfizer Inc.,

"It was 'Yes, Mr. Smith,' and 'Hey, Gudrun.' I just sat down and talked over the problem with the secretaries. I explained my work and tried to include them in on it. From then on things got better. I think it all boils down to treating people as people."

New Book Out

A new book, Population Dynamics and International Violence: Propositions, Insights and Evidence, by Nazli Choucri, associate professor of political science, was recently published by D.C. Heath

Using specific areas of international conflict as illustrations, Professor Choucri's book reveals how population variables play a significant part in political disputes and acts of violence between

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April 9 through April 20

Events of Special Interest

TWO Bake Sale – Thurs, Apr 10 8am, Bldg 10 Lobby. Note: There is free babysitting, so if you would like to participate, bake, help sell, etc, call Camille Flores, 494-8989.

Pre-Retirement Seminars* - Sponsored by the Benefits Office. Thurs, Apr 10: Health - Dr. Edward Rendall, medical department; Wills & Trusts - Harold E. Dreyer, Draper Lab. Thurs, Apr 17: AARP (American Assocation of Retired Persons) - Albert Sise, MIT retiree, Vermont Regional Representative of AARP. 3pm, Rm 14-0615. Info: x3-4271.

Art, Technology and History* - Cyril S. Smith, Institute Professor, Professor of Metallurgy, and Professor of the History of Science and Technology, Emeritus. Compton Lecture. Thurs, Apr 10, 4-6pm, Rm 10-205.

Electrical Engineering & Computer Science Orientation Program — Thurs, Apr 10, 7:30-9pm, Rm 9-150. Information & discussion about Course VI for freshmen & undesignated students, including aspects of EE, computer science, the cooperative program, in which a student receives academic credit for industrial experience. Info: x3-2592.

Physics Department Open House – For freshmen & sophomores interested in learning about opportunities in physics for a major &/or career. Department faculty and students will be available. Mon, Apr 14, 7-9pm, Stu Ctr Mezzanine Lge. Refreshments.

Towards a Materials Ethic in National Policies* – Morris Cohen, Institute Professor and Ford Professor of Materials Science and Engineering. James R. Killian, Jr. Faculty Achievement Award Lecture: Materials in the Scheme of Things. Tues, Apr 15, 5:30pm, Rm 9-150.

Seminars and Lectures

Wednesday, April 9

Observations of Currents and Temperature in Shallow Water off the New Jersey Coast: Part II – Bruce Magnell, EG&G Environmental Consultants. Oceanography Sack Lunch Seminar. 12n, Rm 54-311. Coffee, bring lunch.

Where Africa and the Middle East Meet: Consequences of the Ethiopian Crisis* - Colim Legum, African & Middle Eastern correspondent for the London Observer; noted author. CIS Seminar. 12n, Rm E53-482.

Boundary Conditions to Replace the Reflector in Transient Reactor Calculations* - Panos Kalambokas, G. Nuclear Engineering Doctoral Seminar. 3pm, Rm NW12-222.

Nonlinear Rotational Instabilities of Inertial Tokamak Equilibrium*
- Paul Chrisman, G. Nuclear Engineering Doctoral Seminar 3pm, Rm 38-136.

The Role of the Comptroller in the Defense Decision Process and the FY 1976 Budget* — Hon. Terence E. McClary, assistant secretary of defense. CIS Seminar. 3pm, Rm E53-482.

Reflood Heat Transfer Following a PWR Loca* – W. Kirchner, G. Nuclear Engineering Doctoral Seminar. 4pm, Rm NW12-222.

Uniaxial Stress Waves in Finite Elastic Bars* – Jacob Y. Kazakia, Center for the Application of Mathematics, Lehigh University. Mechanical Engineering Seminar. 4pm, Rm 5-134. Coffee 3:30pm, Rm 1-114.

Dynamic Formation of Twin in a BCC Crystal* – Toshiya Ishioka, Research Institute for Iron, Steel and Other Metals. Mechanical Engineering & Materials Science Special Seminar. 4pm, Rm 13-2101.

Laser Graphic Process for Newspapers of the Future* - Harold I. Becker, Laser Graphic Systems Corp. Laser Applications Seminar. 4pm, Rm 35-225. Coffee 3:30pm.

Cosmic Evolution* - Kenneth Brecher, physics. Undergraduate Physics Colloquium. 4:15pm, Rm 4-339. Social hour 5pm.

Discussion Group on Agriculture: Storage of Food Grains* - S.M. Ahmed, G. Seminar for Foreign Students & Participation in Development. 6pm, Int'l Students Lge. Info: x0650 Dorm.

Thursday, April 10

Report on a Recent Trip to Moscow* - Lincoln Bloomfield, political science. CIS Seminar. 11:30am, Rm E53-482.

Silhouette Photography of Bullets and Shock Waves* - Harold E. Edgerton Institute Professor & Professor of Electrical Measurements, Emeritus. Stroboscopic Light Laboratory Seminar. 12n, Rm 4-402.

Optical Fibers for Transmission* - E.A.J. Marcatili, Bell Telephone Laboratories. Eletrical Engineering Optics Seminar. 3pm, Rm 39-400.

Computing System Reliability – Brian Randell, computing science, The University of Newcastle upon Tyne, England. Computer Systems Research Division Seminar. 3pm, NE43-512A. Refreshments 2:30pm.

Laser Application in Environmental Energy and Fluid Mechanics

Research* - C. Forbes Dewey, mechanical engineering. Thermal-Fluids Seminar. 4pm, Rm 3-343. Coffee.

Deformation Mechanisms in Crystalline Polymers* - Robert J. Young, engineering, University of Cambridge, Interdepartmental Polymer Seminar, 4pm, Rm 13-2101.

Drawings of the Abstract Experessionists** – Juan Navarro Baldeweg, CAVS. Student Art Association Lecture with slides. 5:30pm, Stu Ctr Rm 427, Refreshments.

Friday, April 11

Kinetics and Interactions of Simultaneous Hydro-Sulfurization and Hydrodenitrogenation Reactions* – J. Wilkins, G. Chemical Engineering Doctoral Seminar. 2pm, Rm 10-105.

A Fundamental Study of Carbon Monoxide Oxidation on Platinum*

- H. Wood, G. Chemical Engineering Doctoral Seminar. 3pm, Rm 10-105.

Design of Para-Transit Systems in an Urban Experiment Station* – Dwight M. Baumann engineering design, Carnegie-Mellon University. Mechanical Engineering Seminar. 3pm, Rm 3-133. Coffee 4pm, Rm 1-114.

Blocking Pairs of Polyhedra* – D. R. Fulkerson, Operations research, Cornell University, Operations Research Center Seminar. 3pm Rm 24-121. Refreshments after, Rm 24-223.

Engineering in Radiation Therapy* – Bengt Bjarngard, Joint Center Radiation Therapy, Harvard Medical School, Biomedical Applications of Radiation Seminar. 3:45pm, Rm NW12-222. Coffee 3:30pm.

Defect Chemistry and Catalysis in Redox Reactions on Perovskite Oxides* — Rudolph Voorhoeve, Bell Laboratories, NJ. Materials Science Colloquium. 4pm, Rm 9-150. Refreshments 3:30pm.

MHD Power Generation - R.J. Rosa, AVCO-Everett Research Laboratory, Inc. Plasma Dynamics Seminar. 4pm, Rm 36-216. Refreshments before.

Monday, April 14

Art in the MIT Environment: Achievements and Purposes** – Wayne V. Andersen, architecture, chairman of CAVS. Technology Matrons Seminar. 10am, Rm 10-342.

Summer Employment Seminar – Sponsored by the Foreign Student Office for all foreign students interested in acquiring jobs this summer. 3pm, Rm 10-340.

Light Water Reactor Safety Research* – L.S. Tong, assistant director, for water safety research, Nuclear Regulatory Commission. Nuclear Engineering ANS Student Branch Seminar. 3:30pm, Rm NW12-222. Coffe & donuts 3pm.

Mathematical Modeling of Air/Gas Dynamics for a Large Utility Furnace* - V. Sumaria, Stone & Webster Engineering Corp. Electrical Engineering & Computer Science Decision & Control Goup Seminar. 4pm, Rm 39-500.

Water Clean-up — Technical or Political Problem* — Gen. F.J. Clarke, executive director, National Commission on Water Quality, Washington, DC. Civil Engineering & Parsons Laboratory, Water Resources & Hydrodynamics Seminar. 4pm, Rm 48-316. Coffee 3:45pm, Rm 48-410.

Nonlinear Evolution Equations* – Alan C. Newell, mathematics, Clarkson College of Technology. Applied Mathematics Colloquium. 4pm, Rm 2-338. Coffee 3:30pm, Rm 2-349.

Anarchism and Revolution in Spain* – William Watson, history (absent). SACC Studies on the Left Lecture & Discussion. 7:30pm, Stu Ctr West Lge. Readings on reserve in Dewey.

Tuesday, April 15

Tracer Concentration Gradients for Diffusion Coefficients Exponentially Dependent Upon Concentration** – George Wei, G. Materials Science & Engineering, Ceramic & Glass Seminar. 9am, Rm 16-310.

Multi-Attribute Utility Functions* - Alan Sicherman, G. Mechanical Engineering Systems & Design Division Seminar. 12n, Rm 3-465. Bring lunch, drink provided.

Humanities, the State of the Art, Implications for Curriculum at MIT* – Steven Marcus, director of planning, National Humanities Center, Washington, DC; English literature, Columbia University. Humanities Lecture. 3pm, Stu Ctr Mezzanine Lge. Refreshments.

UPI's Worldwide News Gathering, Editing and Distribution System*

– James F. Darr, vice president for communications, United Press International. ESL & Electrical Engineering Newspaper Technology Seminar. 4pm, Rm 9-150.

Hazards in Molecular Biology: A Report on the Asilomar Conference** - David Baltimore, American Cancer Society Professor of Microbiology. Technology Studies Seminar. 4pm, 3-370. Coffee.

Presumptions and Alternatives in the Regulation of Communications* – Henry Geller, Rand Corporation; Bruce Owen, Stanford University; Clay T. Whitehead, CIS. Research Program on Communication Policy Seminar. 4pm, Rm 9-450. Refreshments.

Stereographic Approach to Plate Tectonics* – John F. Dewey, geological sciences, State University of New York at Albany. Earth & Planetary Sciences Colloquium. 4pm, Rm 54-100. Tea 3:30pm, Rm 54-923.

Medical Studies in Manned Space Flight: Mercury through Skylab – Dr. Sherman Vinograd, director of biomedical research, NASA. Aero/Astro Seminar with Skylab Movie. 4pm, Rm 35-225. Coffee 3:30pm, Rm 33-222.

The Future of Non-Proliferation* – William Epstein, former director of disarmament division, UN Secretariat. New Technologies & International Security Seminar. 4pm, Rm E53-482.

The Birth and Growth of Operations Research* — Philip M. Morse, physics, director of Operations Research Center, emeritus. Operations Research Center Seminar. 4pm, Rm 24-121. Refreshments after, Rm 24-223.

Wednesday, April 16

An Analysis of Ocean Floor Topography and Heat Flow - Barry Parsons, earth and planetary sciences. Oceanography Sack Lunch Seminar. 1n, Rm 54-311. Coffee, bring lunch.

Energy-Saving Improvements to Domestic Heating Systems* – Student presentations of mechanical engineering design projects. Mechanical Engineering Seminar. 1pm, Rm 3-270.

Impurity Particle Instabilities* - Hark C. Chan, G. Nuclear Engineering Doctoral Seminar. 3pm, RM 38-136.

The Einstein-Podolsky-Rosen Paradox: Measurement and Probability in Quantum Mechanics* – O. Costa de Beauregard, Institute Henri Poincare, University de Paris. Mechanical Engineering Thermodynamics Seminar. 3pm, Rm 3-133.

Urban Emergency Services: A New Computer Implemented Model*

— Richard C. Larson, electrical engineering & urban studies.

Innovative Resource Planning Project, Operations Research Center Seminar. 3:30pm, Rm 24-121.

Renaissance* – Dirk J. Struik, mathematics, emeritus. Mathematics Department & Concourse Forum, History of Mathematics Lecture. 3:30pm, Rm 10-105.

Rotational and Vibrational Quantum Transitions of H₂ in Collisions with Li⁺: Experiment Versus Theory* – J. Peter Toennies, Max-Planck-Instutut fur Stromungsforschung, Gottingen, Germany. Physical Chemistry Special Seminar. 4pm, Rm 6-233.

Multiple Diffractions of Elastic Waves by a Rigid Obstacle* – Marijan Dravinski, Illinois Institute of Technology. Applied Mechanics Seminar. 4pm, Rm 5-134. Coffee 3:30pm, Rm 1-114.

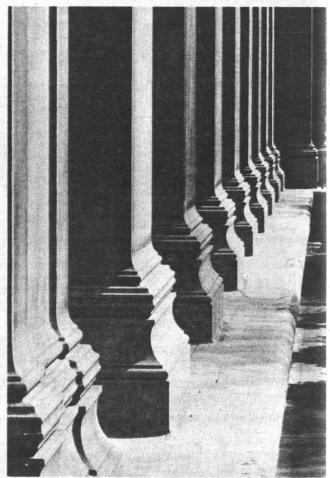
Research in Physics at MIT* – Bernard Burke, Thomas Greytak, Lawrence Rosenson, physics; Francis Low, Karl Taylor Compton Professor of Physics & director of Center for Theoretical Physics. Undergraduate Physics Colloquium. 4:15pm, Rm 4-339. Social hr 5pm.

Gogol and his Relation to Other European Writers* — Panel discussion in English and Russian. Foreign Lliteratures & Linguistics Seminar. 7:15pm, Rm 8-105.

Thursday, April 17

Computer Experiments in Plastic Anisotrophy in BCC Single Crystals* - Shin Takeuchi, mechanical engineering, visiting. Mechanical Engineering & Materials Science Special Seminar. 2pm, Rm 13-2101.

The Politics of Genetic Engineering: Who Decides Who is Defective?* - Jonathan Beckwith, MD, microbiology & molecular



Afternoon sunlight etches the columns of the Maclaurin Building in Killian Court...

genetics. Harvard Medical School. Technology & Culture Seminar. 4pm, Rm 9-150.

The Middle East at the Crossroads* - Nadav Safran, Harvard Center for Middle Eastern Studies. MIT-Harvard Arms Control Seminar. 4-6pm, Faculty Club Penthouse.

Physical Irreversibility Problems* - O. Costa de Beauregard, Institute Henri Poincare, University de Paris. 4pm, Rm 3-343.

Review of Spectral Lowering Techniques for the Hearing Impaired*
- Louis Braida, electrical engineering. Interdepartmental Acoustics Seminar. 4pm, Rm 5-134. Coffee 3:30pm, Rm 1-114.

Fusion Power by 1995* - Robert Taylor, physics. Physics Colloquium. 4:15pm, Rm 26-100. Refreshments 3:45pm, Rm 26-110.

Surrealist Painting: The Landscape of the Mind* – Whitney Chadwick, architecture. Humanities Crossroads Lecture. 4:30pm, Pm 3.133

Socalist Education in the German Democratic Republic* – Waldemar Damp and Dr. Heinz Fischer, 1st Secretaries of the Embassy of the GDR. Foreign Literature & Linguistics Seminar (in English). 8pm, Rm 3-370.

Preliminary Study of the Applications of Magnetic Separation to the Coal Liquefaction* - I. Akoto, G. Chemical Engineering Doctoral Seminar. 2pm, Rm 10-105.

onversion of Fuel Nitrogen to Nitrogen Oxides to Flames* - B. aylor, G. Chemical Engineering Doctoral Seminar. 3pm, Rm 0-105.

eneration and Detection of Subnanosecond Pulses at 10.6 um – J. Alcock, National Research Council of Canada. Plasma vnamics Seminar. 4pm, Rm 36-261. Refreshments before.

ngular Momentum Diffusion and the Initiation of Natural ortices* – Angus McEwan, Woods Hole Oceanographic Instituon. GFD Seminar. 4pm, Harvard University Pierce Hall, Rm 110. offee 3:30pm, Pierce Hall faculty coffee rm.

Community Meetings

he Wives' Discussion Group** - Wed, 2:15-4pm, Stu Ctr West ge. Babysitting in Stu Ctr Rm 473.

ambridge Business & Professional Women's Club*** – Jack B. loward, chemical engineering, will speak on "US Energy Problems The Search for Solutions", at dinner meeting Wed, Apr 9. Social 5:30pm, dinner 6:30pm, Faculty Club. Price: \$7, guests relcome. Reservations: x3-6279.

IIT Club of Boston* — Monthly luncheon meeting. Thurs, Apr 10, uest will be Edward King, former director of Mass Port Authority. 2:15-1:30pm, Aquarium Restaurant, 100 Atlantic Ave, Bos. Cost: 4, payable at door. Reservations: Ms. Kiirats, x3-3878.

odel Railroad Open House* – come and see the trains Sat, Apr 2, 2-5pm, and 7:30-11pm, Rm 20E-214. Sponsored by Tech Model gailroad Club Free.

fomen's Forum** — Meetings Mon, 12n, Rm 10-105. (Tues in case of Mon holiday). Mon, Apr 14: Alice Jeghelian, special assistant to the president & director of Affirmative Action at Boston College, will speak on her career, which began at MIT as a secretary. Note: tu Ctr West Lge.

ssociation for Women Students** - Laya Wiesner will speak on Women in China" and show slides from her trip to China with resident Wiesner. Mon, Apr 14, 5:30pm, Rm 37-212. Men & romen welcome.

Men's (People?) Consciousness Group* – Sponsored by MIT SACC. Discussion of men's relations with others as people. Tues, 5pm, Rm 5-361.

WO Meeting – Maureen and Adam Yagodka, co-directors of ersonnel Development, will speak on job sharing at final General feeting of the year. Wed, Apr 16, 8pm, President's house, 111 femorial Drive. Husbands welcome.

Wellesley Events

hotography Within the Humanities* — Exhibition of 100 hotographs chosen by the participants, accompanied by daily ecture by one of the photographers or a critic. Exhibit thru Fri, Apr 25, Mon-Fri 8:30am-5pm; Sat 8:30am-12n & 1-5pm; Sun 2-5pm; Wellesley College Museum, Jewett Arts Center. Lectures: pm; Wed, Apr 9: Paul Taylor, economist, husband of the late Dorothea Lange, Rm 112E Pendleton Hall. Fri, Apr 11: Gjon Mili, ife photographer & teacher, Jewett Auditorium. Mon, Apr 14: Robert Frank, photographer, filmmaker, author of The Americans, ewett Auditorium. Tues, Apr 15, Frederick Wiseman, filmmaker, attest film "Primate," Jewett Auditorium. Wed, Apr 16: John Zarkowski, curator of photography, Museum of Modern Art, ewett Auditorium. Fri, Apr 18: W. Eugene Smith, Life thotographer, inventor of "picture story," Jewett Auditorium.

Social Events

trat's Rat — Sat, Apr 12, 8:30pm, Sala. Light & dark beer 25/16oz cup (\$1 for 5)Music by WTBS, requests until 1am. ollege ID required.

ala Israel Independence Celebration** — Sponsored by Hillel & staeli Student organization, Falafel, dancing & entertainment 8pm, asset Lge, East Campus, "A Wall in Jerusalem," Israeli movie, will e shown 12n, 2 & 4pm, Rm 1-390. Free, Tues, Apr 15

4 Hour Coffeehouse* — Enjoy relaxing conversation, piano laying, games, inexpensive food, candy & drinks. Open 24 hours or day, 7 days per week, Stu Ctr 2nd fl lge.

d-Hoc Over 30's Singles Chowder and Marching Society—unchtime meeting in Stu Ctr East Lge (small dining room off obdell), Fri, 12:30-1:30pm. New members always invited. Look or the table with the red balloon. Suzanne, x3-3131 or Marty 8-1206 Draper.

Movies

Gitizen Kane (Wells); Red Desert (Antonioni)* - Film Section. Wed, Apr 9, 7pm, Rm E21-010. Free.

he Heiress* – Humanities film. Wed, Apr 9, 8pm, Rm 14N-0615.

Surface Tension; Low Reynolds Number Flow – Fluid Mechanics ilm. Thurs, Apr 10, 4pm, Rm 33-319. Free.

pare Parts for People* — Barker Library Film. Thurs, Apr 10, 5pm, m 10-500. Free, coffee served.

pare Parts for People* — Barker Library Film. Fri, Apr 11, 12n, m 10-500, Free, coffee served.

lang the Drum Slowly** - LSC. Fri, Apr 11, 7 & 9:30pm, Rm 6-100. Admission \$.50, ID required.

he Target (Satyajit Ray) - Film Society. Fri, Apr 11, 7:30 & 35pm, Rm 6-120. Admission \$1.

Tyth of Naro A; Myth of Naro B* - Humanities film. Fri, Apr 11, 30pm, Rm 4-370. Free.

straw Dogs - SCC MidNite Movie. Fri, Apr 11, 9:30pm & 12m, Sala. Free admission with college ID.

M*A*S*H* - LSC. Sat, Apr 12, 7 & 10pm, Rm 26-100. Admission \$.50, ID required.

Premshastra* - Sangam. Indian movie with English subtitles. Sun, Apr 13, 2:30pm, Rm 26-100. Admission \$.50 with ID.

Fists of Fury* - CSC. Sun, Apr 13, 2 & 4pm, Kresge. Admission \$1.

What's Up, Tiger Lily?** - LSC. Sun, Apr 13, 6:30 & 9pm, Rm 26-100. Admission \$.50, ID required.

An Interview with G. I. Taylor; Rheological Behavior of Fluids* - Fluids Mechanics Films. Mon, Apr 14, 4pm, Rm 33-319. Free.

Crisis (Leacock); Jane (Pennebaker & Ryden)* - Film Section. Tues, Apr 15, 7pm, Rm E21-010. Free.

Eddy; Chiefs; Queen of Apollo (Leacock)* - Film Section. Wed, Apr 16, 7pm, Rm E21-010. Free.

An Interview with G. I. Taylor; Rheological Behavior of Fluids* – Fluid Mechanics Films. Thurs, Apr 17, 4pm, Rm 33-319. Free.

Is There Life Out There?* - Barker Library Film. Thurs, Apr 17, 5pm, Rm 10-500. Free, coffee served.

Rocco and his Brothers* - Humanities Film. Thurs, Apr 17, 7pm, Rm 10-250. Free.

The Life and Times of Judge Roy Bean** - LSC. Fri, Apr 18, 7 & 10pm, Rm 26-100. Admission \$.50, ID required.

Variety Lights (Fellini, Lattuada) - Film Society. Fri, Apr 18, 7:30

& 9:30pm, Rm 6-120. Admission \$1.

The Lavender Hill Mob – SCC MidNite Movie. Fri, Apr 18, 12m,

Sala. Admission free w/college ID.

2001: A Space Odyssey** - LSC. Sat, Apr 19, 7 & 10pm, Kresge.

Professor* - Sangam. Indian movie with English subtitles. Sun, Apr 20, 2:30pm, Rm 26-100. Admission \$.50 with ID.

Dr. Strangelove** - LSC. Sun, Apr 20, 6:30 & 9pm, Rm 26-100. Admission \$.50, ID required.

Lobby 7 Events

Admission \$.50, ID required.

Food: Mixed Media Show* – Lobby 7 transformed into a multi-media gallery of more than 20 "pocket" participatory displays. Designed & directed by Otto Piene, director of CAVS. Individual displays created by members of the community. Free. Highlights 12n: Thurs, Apr 10: "Words on Food," readings from literature by Shakespeare Ensemble. Fri, Apr 11: Egg Roll, performing ensemble, Paul Earles, fellow, CAVS. Mon, Apr 14: MIT Dance Workshop. Tues, Apr 15: "Out to Lunch" & "The Artist," Kenyon Martin & the National Mime Theatre. Thurs, Apr 17: National Food Day, Friday, Apr 18, Julia Child, author & TV personality.

Music

Noon Hour Concert* - Janet Packer, violin. Thurs, Apr 10, 12n, Chapel. Free.

Guarneri String Quartet* - Humanities Department Abramowitz Memorial Lecture. Concert of Mozart, Beethoven and Mendelssohn. Thurs, Apr 10, 8pm, Kresge. Free, no tickets required.

MIT Chamber Players* - With John Buttrick & Beafrice Erdely. Program of Hummel, Bartok, Janacek, Martinu. Wed, Apr 16, 8pm, Kresge. Free.

Noon Hour Concert* - Rufus Hallmark, tenor. Thurs, Apr 17, 12n, Chapel. Free.

MIT Chamber Music Society Concert* - Wed, 5:15pm, Music library Free.

Theatre and Shows

1776* - MIT Musical Theatre Guild production. Fri, Apr 11 & Sat, Apr 12, 8pm, Kresge. Admission: \$3.50, \$1 discount with ID. Reservations: x3-6294.

Twelfth Night* - Shakespeare Ensemble production. Sat, Apr 19-Wed, Apr 23, 8pm, Sala. Admission \$2.50; except Shakespeare's birthday (Apr 23), \$3.50 (champagne will be served). \$1 off all. performances with MIT or Wellesley student ID.

Dance

Folkdancing – International: Sun, 7:30-11pm, Sala. Balkan: Tues, 7:30-11pm, Stu Ctr Rm 491. Israeli: Thurs, 7:30-11pm Sala. Noon dancing: Fri, 12n-1:30pm, Kresge Oval in good weather, otherwise Bldg 7 lobby. Learn & practice more difficult dances Fri, 1:30-3 or 4pm, Stu Ctr 491.

Scottish Country Dancing* - Wed, 8pm, Rm 3-343. Free. Info: Yuval Peduel, x3-7860.

Exhibitions

Photography Exhibition* - Photographs by Roger N. Goldstein, graduate student in architecture. Thru Fri, Apr 18, Rotch Library, Rm 7-238.

Transportable Solar Laboratory* – Sponsored by the Energy Research & Development Administration and Honeywell, Inc. The exhibit will be in the back of Kresge parking lot thru Mon, Apr 21. Hours: 11am-2pm, Mon-Fri; 11am-4pm, weekends.

Photographs by Bob Lyon* - Former special student at the Creative Photography Gallery. Thru Thurs, Apr 24, Lounge Creative Photography Laboratory Bldg W31.

Boston Celebrations: Part I* - Scale models, drawings & conceptual pieces for temporary visual celebrations on specific Boston sites, by

fellows at CAVS. Thur Fri, Apr 25, CAVS.

Geo-Astral Formulations 1969-1972* - Lowry Burgess, CAVS fellow. Weekdays during April 9am-5pm, Center for Advanced Visual Studies (Bldg W11). Free.

Faculty Club Exhibit* - Water color and oil paintings by Nancy Begin. Thurs, Apr 3-Wed, Apr 30, Faculty Club. Free.

Kinetic and Mural Sculpture* - Robin Parkinson, Center for Advanced Visual Studies. 9am-5pm, Wed-Fri only, Apr 11-Apr 30, Bldg W11. Free.

Drawings: Andrew Tavarelli* - Fri, Apr 4-Sun, May 4, Hayden Corridor Gallery. Open daily. Free.

Visual Dharma* — The Buddhist art of Tibet. Sponsored by the Committee on the Visual Arts. Fri, Apr 4-Wed, May 7, daily 10am-4pm, Tues 6-9pm; Hayden Gallery. Public Preview Fri, Apr 4, 8-10pm. Gallery closed Apr 8 & 9.

The Look of Music in the Middle Ages* – Facsimiles of manuscripts and transcriptions into modern notation; pictures of life in the Middle Ages. Open daily, Music Library, 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.

MIT Historical Collection* - Permanent exhibition, open Mon-Fri, 9am-5pm, Bldg N52, 2nd floor.

Photographs* - Showing the original 19th century MIT buildings in downtown Boston and step-by-step views of contruction in Cambridge. Bldg 4 Corridor.



...and highlights a casual conversation in the Maclaurin lobby.

—Photos by Calvin Campbell

Athletics

Home Schedule - Thursday, April 10 - W Tennis. Lowell Tech. 4pm, duPont Courts. Friday, April 11 - V Baseball. Bates, 3pm, Briggs Field. V Tennis. Bowdoin, 4pm, duPont Courts. Saturday, April 12 - Hvy Crew. Columbia, F 9:15am, V 11:15am, Charles River. W Crew. Princeton, Yale, JV 10:30am, V 11:45am, Charles River. V Lacrosse. Amherst, 2pm, Briggs Field. JV/F Lacrosse. Proctor Academy, 2pm, Briggs Field. W Tennis. Clark, 3pm, duPont Courts. Sunday, April 13 - V Sailing. Geiger Trophy, 9:30am, Charles River. Monday, April 14 - V Tennis. Colby, 3pm, duPont Courts. JV/F Baseball. Harvard, 3pm, Briggs Field. Tuesday, April 15 - V Baseball. Harvard, 3pm, Briggs Field. Wednesday, April 16 -JV/F Lacrosse. Phillips Exeter, 3pm, Briggs Field. Friday, April 18 - V Lacrosse. Holy Cross, 4pm, Briggs Field. F Tennis. Belmont Hill School, 4pm, duPont Courts. Saturday, April 19 - Lt Crew. Biglin Cup, F-11am, JV-11:45am, V-12:30pm, Charles River. Hvy Crew. Northeastern, BU, F-11am, JV-11:45am, V-12:30pm, Charles River. W Sailing. CCT Invitational, Charles River. Outdoor Track. Bowdoin, 12:30pm, duPont Oval. JV/F Lacrosse. Winchendon School, 2pm, Briggs Field. F Tennis. Buckingham, Browne & Nichols, 2pm, duPont Courts. V Tennis. Williams, 2pm, duPont Courts.

Summer Softball Umpires — Persons wishing to umpire in the summer fast-pitch softball league (June 9-Aug 15) should sit in on officiating course Tues & Thurs, 12n, duPont conference rm; or 1pm, duPont T-Club Lge. Course now in progress. Info: Sam Benichasa, x8-3686 or x8-3661 Draper.

Soccer Officials Clinic* - Clinics and exams for high school soccer officials Fri, Apr 11. Contact Tom Stagliano, x3-2435 or 661-1926 if interested.

Rugby Football Club Practices** - Tues & Thurs 7:30pm Rockwell Cage. Full medical insurance necessary, Info x3-6221.

Women's Athletic Council* — Meetings 1st & 3rd Tues of each month, 7:30pm, duPont conference rm. Info: Mary Lou Sayles, director of women's athletics. x3-4910.

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

*Open to the public

**Open to the MIT community only

***Open to members only

Send notices for April 16 through April 27 to the Calendar Editor, Room 5-111, Ext. 3-3279, before noon Friday, April 11.

This Week in Sports

Crew Win, Postponements Mark Spring Sports Slate

By PETER M. CLOSE

Director of Sports Information

The biggest story on last week's MIT spring sports front was the engineer heavies' impressive win over Coast Guard and the cancellations or postponements of most of Tech's spring varsities due to unseasonable weather.

The MIT heavyweight crew caught a lull in the heavy wind and snow to score a length and a half victory over the US Coast Guard Academy crew. Coach Peter Holland's boat was never behind during the whole race, as junior Peter Beaman (Hampton, N.H.) got MIT moving with a 40 stroke per minute at the start. Then MIT settled to 35 at the 1,000 meter mark—halfway through the race—and were ahead by a length and a half. Beaman dropped Tech to 34 over the final 1,000 meters to give MIT the length and a half win with a clocking of 6:32.1 to coast Guard 6:39. MIT also swept the second varsity and first freshman races.

The Tech heavies host Columbia next Saturday. Last spring, MIT routed Columbia by four and a half lengths.

Baseball Team Loses Opener

Bad weather idled MIT's baseball team on two occasions last week, but the engineers did open their portion of the Greater Boston League last Tuesday, losing to Boston College 10-2. MIT's games against Lowell Tech and Boston State were postponed and will be scheduled at later dates.

Senior captain Herb Kummer (Baltimore, Md.) is leading the engineer batters in practically all the offensive departments. The big first baseman is hitting .405 after Tech's first eight games. Kummer has driven in twelve runs and has a .622 slugging average.

Women's Sailing Prospects Good

The MIT's women's sailing team appears headed for another successful spring. On Saturday, sophomore co-captain Barbara Belt (Severna Park, Mo.) skippered, while freshman Sally Huested (Camarillo, Calif.) crewed MIT to a first place finish in the Regis Bowl. The next day the engineers slipped to a sixth in the Captain's Cup. Barbara Belt and Sally Huested sailed in the "A" Division and Alanna Connors (Greenwich, Ct.) skippered and Julie Keller (Winona, Minn.) crew were Tech's entry in the "B" division.

Sports Sidelights

Boston College lowered Tech's lacrosse record to 1-2, dropping the engineers 12-5 last Saturday...the Tech sailors travelled to Philadelphia for the Owen's Cup. The engineers placed eighth and were skippered by Bill Critch (Winthrop, Mass.) and junior captain Paul Erb (Corpus Christi, Tex.)... A new Cup will be entered into women's crew competition next Saturday as MIT hosts Princeton and Yale. The Eisenberg Cup, named after Carola Eisenberg, MIT Dean of Student Affairs, will go to the winner of the annual regatta. The cup race is scheduled for 11:45am.

....MIT's track team was also a victim of the spring snow storm last Saturday, cancelling the University of New Hampshire-Tech meet. MIT will attempt to open their season next Saturday at Bates College in Lewiston, Maine...Yale will rejoin MIT's heavyweight crew schedule this spring, after a lay-off of eight years. The Tech heavies will host the Eli eight on Sunday, April 20th at 4:30pm....Tech's lightweight crew, 9-1 in the won/lost record last year, opens their 1975 slate at Yale next Saturday, competing for the Joy Cup. Coach Bill Miller's crew shapes up as another top contender for eastern lightweight crew supremacy.

Information Research Unit

(Continued from page 1) might be used. We really need each other."

Professor Keen noted that those at the conference were about evenly divided between the "real world" and academia.

Michael S. Scott Morton, associate professor of management at the Sloan School and director of the center, said that effective implementation is a prime concern in the development of computer-based information systems and management science models.

"Though our technical abilities in these areas are quite impressive, implementing these systems is still largely an art...We have

Trump Honored

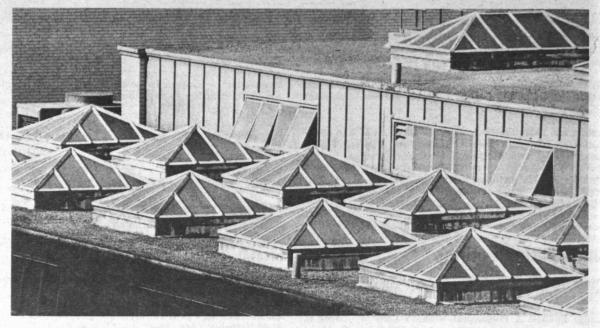
Dr. John G. Trump, professor emeritus of electrical engineering, and director of the MIT High Voltage Research Laboratory, has been awarded an Honorary Fellowship in the American College of Radiology for his contributions to radiation therapy, particularly the development of cathode ray therapy for superficial skin malignancies.

comparatively little conventional wisdom to draw on, and hence few reliable management techniques," he said during a luncheon address on current developments in applied research and implementation at the Center.

Professor Scott Morton is on sabbatical leave. Acting Director of the Center is Norman L. Rasmussen, a senior research associate at the Sloan School.

Corporate sponsors, who contribute \$20,000 each for unrestricted support of the Center's work, are a major source of funds for the Center's research. Each sponsor may designate a Fellow to the Center to participate in one of the on-going research efforts.

The Center was established because the explosive growth of the electronic computers used in information systems has been accompanied by increasingly complex choices for managers who have to decide which system is best for their needs. "We want to be an impartial source of research-based information which will help managers understand the complex choices and risks associated with acquiring, implementing and absorbing into their organizations computer-based desicion support systems," Mr. Rasmussen



SKYLIGHTS atop Building 24—like a Zen rock garden—create patterns with form, light and texture.

-Photo by Calvin Campbel

Alternative Energy Sources Group Formed

In an effort to stimulate the sharing of ideas and information on low-impact alternative energy research among members of the MIT community, an Alternative Energy Interest Group (AEIG) has been formed.

The AEIG, which will explore

NAE Elects 10

(Continued from page 1) of ceramics: "Leadership in the science and engineering of ceramic materials, spanning the whole spectrum of physical phenomena, structure-property, relationships

structure-property relationships, innovative processing and applications to modern technologies."

Dr. Edward A. Mason, professor of nuclear engineering, on leave, and member of the Nuclear Regulatory Commission: "Contributions to research on fluidized solids, organic-cooled reactors and power system optimization and leadership in complex nuclear projects."

Dr. Warren M. Rohsenow, professor of mechanical engineering: "Contributions to boiling and condensing liquid-heat transfer and the teaching of the concepts of heat and mass transfer."

Dr. David C. White, Ford Professor of Engineering and director of the Energy Laboratory: "Contributions as an engineering educator and leader in energy conversion technology, energy systems analysis and energy planning."

Dr. Robert V. Whitman, professor of civil engineering: "Pioneer in soil dynamics, especially in predicting and controlling earthquake effects on constructed facilities."

the posssibilities of developing technologies such as solar energy, wind power and methane generation, was created by several students from the Department of Architecture.

"One of the problems we shared was the feeling that we were alone in our efforts to explore alternative energy sources," according to Douglas Mahone, one of the group's organizers. "Despite all the publicity, it's difficult to locate other individuals working in alternative energy."

The students hope that the AEIG will help increase the sharing of human resources within the MIT community. The group believes that there are many people at MIT with widely varying skills who could contribute to the development of alternative energies.

"Systems analysts, management and marketing people, circuit designers, manufacturing engineers, heat transfer physicists, architectural designers, home hobbyists or plumbers would all have something to offer," said Mahone, "and we'd be interested in having them participate in the group."

In addition to encouraging dialogue in this area, the group has been working with the libraries in an attempt to compile a bibiolography of up-to-date sources on alternative energy sources. Members will be given bibliography cards to be filled out when a new source is found. These cards will be filed in the AEIG Information Office.

In order to get the group underway, Mahone and Jorge Peschiera, both graduate students, have

developed a questionnaire for distribution throughout the Institute. The questionnaire, which has already been distributed to some members of the community, asks individuals about their areas of expertise, their interests and about their availability for consultation.

Any member of the MIT community who fills out the questionnaire will become a member of the group and will be informed of group activities. The questionnaire and information on the group can be obtained from the AEIG information office (3-403) or by calling the office, x3-7735. There is also a bulletin board in the hall opposite the office where AEIG information is posted.

Obituaries

Ann C. Le Mieux

Ann C. LeMieux, 59, of Cambridge, a secretary in the Operations Research Center since December, 1965, died on April 6. Mrs. LeMieux, who had been on long-term disability leave since September of 1974, is survived by a son, Charles, of Cambridge, three brothers and three sisters.

Charles H. Symones

Charles H. Symones, 67, of Beverly, who retired as a senior technician at Lincoln Laboratory in July, 1973, died on March 19. Mr. Symones came to the Institute in 1954. He leaves his wife, Cynthia, a son, Theodore K. of Beverly, a daughter, Mrs. Thomas S. Foster of Millers Falls, a brother and two



Richard J. Walters, center, of Martin Marietta Corp., presents a check to Professor Michael S. Scott Morton of the Sloan School of Management. Professor Scott Morton is director of the recently established Center for Information Systems Research. At left is Norman L. Rasmussen, senior

research associate at the Sloan School, who is acting director while Professor Scott Morton is on sabbatical. Martin Marietta is a corporate sponsor of the center. The unrestricted gift will support the center's research program.

CLASSIFIED

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 5-105. Please submit all ads before noon Friday, April 11.

For Sale, Etc.

Port stereo rcrd player, RCA best mdl, 10 yrs, gd cond, nw \$125, ask \$35. Bob, x3-7730.

DR tbl & buffet, sts 10-12, w/6 chrs, ask \$100. Bill Russo, x8-4455 Draper.

MG leath seats, wire whls, tonneau cover, Volvo wndshield & whls, br, seats, many others. Mike, x3-7779.

Bikes: m 3 spd, \$30; boys Schwinn \$15; port wooden closet, \$20. x3-7037.

Dbl matt, box spr & frame, \$35; 5 spd 26" bike, \$50; elec log frpl set, \$5; accordian folding door, \$15, car bike rack, \$7. x7486 Linc.

Floor loom, 4 harness, gd for beginner, \$150. Patricia, x3-1848.

Bruins playoff tckts, 2, 2nd balc. Call, 661-9466, evgs.

Old toy trains (1930), collection of Lionel & Amer Flyer, call for list & prices. Bob, x8-4181 Draper.

Kalso earth shoes, m sz 9, lk nw, worn 2 wks, orig \$38, \$22. Jamie, x3-1391.

Newspapers: As of Mon, Apr 7, Bos Globe wl cost \$.20 & CSM wl cost \$.25. Bos Phoenix & Real Paper wl also be sold, \$.25/ea. Bldg 7 Lobby Hrs: 7:30-10am & 3-6pm.

Trlr hitches, 3, nw \$8/ea; mag whl, 14", nw, \$12; remote control door mirror, \$7. John, x498 Linc, aft 3:30pm.

Elec outdr/indoor vac, Craftsman, cat no. 9H79802L, hrdly used, \$40. Tony, x451 Linc, aft 3:30pm.

Twn matt & box spr, \$20 or best; animal travel box, can take apart, best;

sz 10 shoes, pr sneakers, 2 pr dress (blu & brn), cheap. Sally, 547-8557, bef 6pm, best on Thurs.

GE stereo component sys, amfm, sep trntbl, spkrs, gd cond, \$125 nego. Craig, x9238 Dorm.

NY Met Opera w/Beverly Sills, in Bos Apr 21, 2 orch seats, orig \$8.50, \$7/ea.

M metallic grn 10 spd racer, almost nw, sev improvements, \$80. Allen, x9839 Dorm, evgs.

Hrdwd floors sanded & refinished prof, \$.35/sq ft. Christine, x3-2742.

On sz waterbed, dbl flap seam bag, safety liner, beaut finished frame, therm controlled htr, \$100 or best.

Ronda, x3-7271. Bell/Howell Super 8 movie camera, nvi used, \$65; also want elec clothes dryer,

gd cond. Bill, x366 Linc.

VW 4 hole whls & tires, tires fair cond,

gd for spares, 1/\$7, 2/\$12, all /\$20. Joe, x8-4491 Draper.

Moving: 4 pc med style BR set incl hdbrd, chest drwrs, bureau w/mirror, 3 yrs, \$175; 7 pc mod formica K set w/6 swivel bckt seats, \$100; Jordan Marsh barcolounger, blk, \$150. Janet, x8-4602 Draper.

Baby carriage & matt, almost nw, \$14.

Digital clndr/clock w/auto or touch date display, blt in batt, 12 or 24 hr format, auto sims w/respect to lite or switch to always brite, nego. x0559

Den couch, 5½, wd frame, 2 blstrs, brite multi-color slipcover. Sharon,

Cotton thermal blnkts, 2, \$5/ea; wraparound matt pad, \$1.50; f clogs, sz 8B, \$3-\$5/pr. Helen, x3-7690.

Toaster, works but doesn't pop up, \$3.

'65 VW eng, 56 K, reblt, \$150. Frans, 489-2315, aft 6pm.

Head 360 skis, 170 long w/Marker Rotamat bndgs, \$75. Alice, x3-4897.

Canon FD lenses, hrdly used: 35 mm f2, \$130; 50 mm fl.4, \$100; 135 mm f2.5, \$125; 300 mm f5.6, \$195; all but 50 mm incl case, Call, 862-3952.

Must sell beaut Mouton lamb coat, fit sz 10-14, best. Mary, 262-6153.

Marantz 1060, \$125; Sansui SR212 trntbl w/Stanton crtrdg, \$100; Kenwood QS & SQ quad decoder, \$40; Analytic Acoustic Mark III spkrs, \$40/ea. Greg, 492-6983.

Bose 901 spkrs, 2, w/series 2 equalizer.

Delta Glasbelt F70x14 snows, t-less, gd cond, \$15. Tom Bentley, x3-2671, lve

CJ-5 Jeep hrdtp, \$150 or best; VW beetle bike rack, \$15 nw, \$5. Bruce, x3-5821.

Alum swim pool, 24'x4', w/vinyl liner, alum ladder, cover, fltr, best over \$300. Bill Bradford, x8-3393 Draper.

Vt land, 2.3 acres nr Mt Snow & Stratton, skiing tennis, indoor pool avail, ownr wl finance. Don, x3-3550.

Advent 202 playback cassette deck, 6 mos, \$75. Mark, 864-5096, lve msg. HP 45 calculator, mint cond, w/appli-

cations book, \$180. Geoff, x9462 Dorm.

Wd desk, sturdy, 6 drwr, v gd cond, \$30 or best. Call, 266-6273, evgs.

Panasonic amfm car radio w/2 Pioneer top mtd spkrs, \$45 or best. Tony, x8-2826 Draper.

Litronix pckt calculator, mdl Checkmate 1720, nw, \$30. Sergio, x3-2605.

Sel lens reflex 35 mm camera body, Nikormat FTn, blk finish, carry case, access foot attach, \$265 at Coop or Lchmr, list camera body alone \$285, mint cond, \$190. Marsha x3-1874.

Antique '22 RCA console victrola w/78's, orig manual, index book, many xtra needles, exc cond, best. Don, x3-5204.

Stereo 8 trk amfm, \$200. x3-3727.

Bauer E160 strobe, guide no. 44, \$10. George, x3-3212.

Boat, 27' cabin cruiser, fully equip, slps 4, galley, head, power chev, V8, \$1,500. Peggy Condon, x3-3651.

GE gas dryer, 3 temps, 2 cyc, exc cond, \$75. Marty, x5503 Linc.

Pr b nw APL 801 spkrs, still in box, \$140. Call, 247-8048, aft 7.

Used bikes: m Fr Roold 10 spd, f Ross 5 spd, \$65/ea. Roy, x8-4116 Draper.

Refractor telescope, 60 mm obj lens, equitorial mnt, 3 eyepces, sun screen, diag, Barlow lens, case, \$125. Dean or Jim, 782-4519.

Aurora AFX car racing set, 50', b nw w/access, \$50 or best; Judsen Elec Ignition, \$15. Neil, 965-0967, evgs.

Gd spare tire for VW fstbk, 5.90x15, \$4. Erika, x3-2117.

Fuji 10 spd m bike, perf cond, hrdly used, best. x8950 Dorm.

Jr downhill skis, K2 XR10, Tyrolia

stepin bndgs, \$25. Paul, x249 Linc.

Tckts, 2, Preservation Hall Jazz Band, Fri, Apr 18, \$7/pr. Evelyn, x3-4526.

JVC integrated amp, 40 W rms/ch, blt in SEA 7 band equalizer, list \$360, must sacrifice \$220. Brian, 232-3867.

lk nw bronze propellers, 2, 19x19 RH, bore diam 1/3/8, ask \$90/ ea. Tony, x3-5717.

Dbl matt & box spr, ask \$7.50. x0579.

BSR trntbl, dust cover, cueing, best. x0453 Dorm.

Citation 11 preamp, dbx 117 noise reduction unit, Sony Sqd 2050 4 chnl decoder, all perf cond. Jerry, x7754

Panasonic mini cassette tape rcrdr, ac or batt, auto stop. Betsy, x3-3134.

Manual trntbl, gd cond, \$25; Wollensak 3 hd, 2 motor deck, nds nw pinch roller, \$45. x8387 Dorm.

Vehicles

'62 Porsche 365B, exc cond, no rust, 58K, \$3,000, x3-3425.

63 VW, nds some work but mech gd, body rust, \$200. Martha, 484-3122.

63 Valiant, 2 spd, passes Mass Insp, tires gd, body fair, dependable, cheap transp, \$225. x9801 Dorm.

354-5420.

auto, straight 6, runs well, ask \$250. Phil Mandel, x3-3161, lve msg. '66 Mustang, 2 gd snows, run cond,

'64 Chevelle wgn, 99 K, gd tires, nw br,

body nds work, radio, tricky starter, auto, \$100. Marco, 494-8867, aft 5pm. '66 Chevy wgn, gd run cond, p st & br, 8 cyl, ask \$300. Jochen, 646-5470.

'67 Chevy Nova, auto, p st, 2 dr, 6 cyl, blu, 68 K, v gd eng, body fair, gd mileage, has character, \$350 or best. Dena, x3-4401.

'67 VW bug reblt eng, runs v gd, hydraulic lifters, hvy-duty clutch, gd tires, xtra batt & oil, \$400 or best; also sgl spd boys 26" bike, gd cond, \$15. Call, 247-1129, evgs.

'67 Volvo 1225, gd mech cond, nw shocks & exh, snows, \$500. Ann, x3-2916.

'68 Volvo, drk grn, 4 dr, exc cond, ac, amfm, comfy & beaut, \$1,000. Ann

'68 Land Rover, 6 cyl, 109, 4 whl drive, exc cond, seats 11. David, x3-2336.

'68 Chevy Imp, 70 K, body bad, 20 mpg highwy, nw batt, nw br & exh sys, exc cond, \$699. Call, 547-4560.

'68 Volvo 142, 4 spd, runs gd ac, overdrive, \$750 or best. Margaret, x3-2169. '69 Chevy Kingswd wgn, exc mech cond, auto, p st & br, amfm, snows,

\$600. Call, 494-0368, evgs. '69 VW bug, gd run cond, \$975 or

best. Peggy, x8-1592 Draper.

'70 Skylark sport wgn, sm V8, p st, 6 psngr, exc run cond, nds no work, ask \$1,050. Mal, x5556 Linc.

'70 AMC Coronet, 70 K, auto, v gd cond, \$900 or best, x3-5547.

'71 VW superbeetle, 45 K, sunrf, amfm, radials, v gd cond, \$1,600. Call, 266-7797.

'71 Toyota Corolla, 1200 cc, gd run cond, nw batt, tires & snows, \$950. Jerry, 494-8220, aft 5pm.

'71 Vega GT wgn, less 20 K, 4 snows & 4 wide oval tires, std 4 gear, radio, wl sell Blu Bk value (1,450); also 10 spd bike & access. John, x3-2105.

'72 Cstm Buick LeSabre, p st & br, amfm factory ac, \$2,250 or best. Wayne, 440-8229. '72 VW beetle, exc cond, 40 K, radio,

nw batt, \$,650 or best. Nancy, x3-6776. '73 VW superbeetle, semi-auto, 19.4 K, radio, exc run cond, nds paint on 1

door, \$1,900. Call, 266-7797. 73 VW superbeetle, ac, 4 spd, amfm stereo, exc cond, body perf, \$2.450.

Heather, x3-3303. '74½ Norton 850 Commando, mint cond, only 3.5 K, \$2,100 or best.

Larry, 547-6726, aft 6. Ford Gal 500, gd cond, \$300. Call,

Peugeot 10 parts: fltr, disc br, rear shocks, misc, orig \$38. \$20 or best. Hon, x 3-6385.

73 Honda CB-350, gd cond, only 7 K, 2 helmets, luggage rack, sissy bar, \$800. Jim 643-0550.

'75 Suzuki GT-550 cc mtrcvcl. nvr ridden, grnty & wrnty incl, \$1,500 firm. x7534 Linc.

Honda 305 dream, gd cond, reliable & economical, xtra parts incl, \$00. Call, 783-3560.

Housing

868-7820

Allston, 2 BR, sub 6/1 w/opt, pkg, nr Grn Line, Indry, disp, \$250 + elec. Jan, 782-3652, evgs.

Back Bay, BR apt avail 4/13, exc frpl, bay wndws, faces street, Marlborough St, 1/2 blk Mass Ave, furn, mod K & B, \$228. Call, 536-9348.

Camb, Inman Sq area, 1st fl, 5 rms & B, \$175. x3-1801.

Camb, sub 5/1 w/opt, Cent Sq, 3 rm, furn, \$150 incl ht & util. x3-5938. Camb, 12 Inman St, 2 BR condo, top

Camb, sub Eastgate BR crnr apt 5/1-8/31 (or less). John, 494-8352, aft

fl, ww, \$37,500. x3-3632.

Camb, Cent Sq, sub 2 rm furn apt

7/2-9/1, ac, pref, f, \$150. x3-3509.

Camb, sub Westgate 2 BR furn apt early June-mid Aug, ac, MIT affil, \$233 incl util. x3-5608.

Lex, Turning Mill area, furn hse for

'64 BMW 250 mtrcycl, gd cond, slow rent July-Aug, secluded, 4 BR conbut smooth & reliable, \$700. Call, temp, lg K, fam rm, 2½ B, wded acre, temp, lg K, fam rm, 2½ B, wded acre, local pool mbrship avail, no pets, \$500 incl util. Larry, x3-7810.

> Nwtn Ctr, 2 BR apt, married cpl (no chldrn or pets), 1st fl, LR, DR, lg mod K w/d&d, mod B, bsmnt storage, washer/dryer, off-st pkg, grdn, short walk T, \$300 + util. x3-7572.

> Som, sub w/opt avail 6/1, ww, ac balc, d&d, Indry facil in bldg, nor T, free off-st pkg, chldrn ok, MIT affil, \$260 incl ht, Dave, x3-7711.

> W Som, mod 5 rm apt, nw K & B, exc loc, no pets, \$220 + ht. x327 Linc.

> Lake Winnepesaukee, 3 BR chalet, recreation facil, \$175/wk. x8-4415

> Sugarbush/Glen Ellen, 4 BR contemp apt, 30" nw snow, \$125/wknd, \$175 M-F. x3-7364.

Rangeley, Me, nw lux 3BR contemp on huge lake, superb view, mtn-wilderness, swim, hike, fish, canoe incl w/rent. x8-2577 Draper.

Amsterdam prof w/wife & chlrn wants to exch hse w/Bos area colleague, 6 wks July-early Aug, pref Camb or Back Bay, have attached 3 story hse S Amst w/3 BR, study, sm guestrm, 15 min ctr. Linda, x3-3210.

Animals

Kittens, esp bred for affection & personality, all 6-toed, b&w, ready early May. Call, 266-0702.

Gerbils, \$1. x5810 Linc.

Free to gd home, red ramshorn aquarium snails, omnivorous & attractive. Ellie, x8630 Dorm.

Rabbits! Nd home for 3 New Zealand whts, only 3 wks old. Ken, 494-0060.

Lost and Found

Lost: set car keys, vcty Tang Hall, evg of Thurs, Mar 20. Richard, 726-3766.

Found: 2 Catholic medals on chn, Rm 26-110; key found Rm 26-100. Kathy, Rm 6-113.

Lost: Mon, Mar 31, Alumni Pool area, gold & slvr wedding ring, reward. Gary,

Wanted

Nd furn 2 BR apt, 4/15-5/31, for prof & fam. Evelyn, x3-1496.

'66 or newer Corvair, 4 spd. John Ison, x9540 Dorm.

Used Shopsmith, reas. Jane, x3-4804. Fac member wd like to rent hse '75-'76 academic yr, area west of Bos pref.

Hal. x3-3214. Cpl w/no chldrn or pets seek lg, sunny 2 BR apt in qt nbrhood, nr market & gd public transp to H Sq & MIT, desire May occup, \$275 incl ht & util max.

Want 2 young gerbils, same sex.

Kathy, x3-2701.

Marcie, x3-3930. Dbl matt (no box spr), sheets & pillows, gd cond, cheap, bef 4/15. Pedro, x3-2094, 2-3pm.

Fbrglas boat, 10', 10 hp motor or less. Helen, x8-3501 Draper.

Scuba regulator: MR12, Scubair Sonic, Poseidon Cyklon, Dacor 300 or comparable qual, \$100 max, x8761 Dorm.

HP 45 or HP 55, used. Jeffrey, x193-8823 MGH.

Old player piano w/orig elec pump, reas. Bill, x8-4507 Draper.

Responsible prsn looking for lg, comf rm in Bklne home (nr Bos) or long-term hsesitting, wl exch services for lower rent. Joe, x3-2529.

GR graphic level rcrdr type 1521-A. Garabieta, x3-7494.

Parent(s) of 21/2-31/2 yr old wht m baby nded for interviews in nutrition study. Lena, x3-7604.

Ride to Montreal any wknd in Apr, wl gladly share driving & exp. Joel Dewey, 536-1300 (Sig Ep).

Pr Bose 501 spkrs. x8454 Dorm. Aquarium & access, 2- gal or larger.

Hon Wai Lam, x3-7350.

Port camping toilet; have '75 Delco b nw amfm car radio, wl sell or trade for amfm same type, w/cash. Rick,

Yng cpl seek hse to rent, N or NW suburbs. David, x8-1264 Draper.

Moving back to Eng, want used trunk. Marj, x3-4733.

Apt in East or Westgate, from 7/1. Sharat, x3-7027.

Roommates

F grad stu looking for furn apt nr MIT to share or sub 6/1-9/15. x3-1873.

Responsible f rmmate for 5/1, Harv Sq sunny 2 BR apt, elegant, furn, pkg, \$150. Jessie, x3-3141.

F stu looking for rm in lg (3 or more prsn) apt, Back Bay area, for next term. Donna, x3-2053.

Carpools

Riders wanted from E Wtrtown daily, lve 8am, lve MIT 5:15pm, Call, 924-2063.

Carpool, Wtrtown-MIT, share driving. Prof Bathe, x3-2308.

Miscellaneous

Was your car trunk brkn into Fri, Mar 28 while parked across from Pres Hse on Mem Drive? Suspect in custody,

Nd a couple of dollars? Got an hr? If interested in being subject for psych exper for DSRE, call, Dave, 494-9833.

Tech & stat typing, theses, manu, etc. x3-4921.

Sch of Music grad. Lve name & no., x8-3558 Draper.

Exper secty wl type manu, reports,

theses, etc, fast & accurate. x3-3261.

Typing w/editing, anything, effic MIT

Exper typist wl type anything, Eng. Grmn, Fr, Sp, reas rates. Call, 232-2342.

POSITIONS

This list includes all non-academic jobs currently available on the MIT campus, Duplicate lists are posted each Tuesday preceding Tech Talk publication date on the women's kiosk in Building 7, outside the Office of Minority Affairs, 10-211, and in the personnel office, E19-239, on the day of Tech Talk publication, Personnel interviewers will refer any qualified applicants on all biweekly jobs Grades I-IV as soon as possible after their receipt in Person-

Persons who are not MIT employees should call the Personnel Office on

Dick Higham 3-4278 3-1594

3-4267 Philip Knight (secretary - Joy Dukowitz)

Ken Hewitt 3-6512 Carolyn Scheer 3-6711 (secretary - Ellen Schena)

Admin, Staff, Asst. Director of Personnel Services will assist Director in administration of all areas of nonacademic employment policy and practices including the provision of service to departments and employees through Personnel Officers and Personnel Information function: Person will act in Director's absence. Bachelor's degree, or equivalent combination of education and experience, specifically in personnel or related administration, human relations skill, ability to develop and apply personnel policy and to supervise a wide span of activities requiring extensive daily schedule are necessary. MIT experience and famil-

evidence nded, Jane Kosut, x3-3258.

Exper flute instruction by Eastman

Hsesitter avail for jobs in Camb area during June, July & Aug, exc refs. Terry, 495-4862.

WI do typing. Jean, x3-2361.

wife. Mike, x3-6275.

extension 3-4251.

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

Pat Williams (secretary Dixie Chin) Virginia Bishop 3-1591 Mike Purr 3-4266

3-4275 Sally Hansen 3-4269 Evelyn Perez 3-2928 (secretary - Mary Ann Foti)

iarity with its personnel practices preferred. Please submit resume.

(Continued on page 10)

A75-21 (4/9).

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Positions Available

(Continued from page 9)

DSR Staff, part-time, in Center for Advanced Engineering Study will conduct research to evaluate nature and usage of cable TV system. Familiarity with questionnaire design and interviewing techniques required. Masters degree in social science or related field or equivalent experience required. 15-20 hrs/wk. Position is for 7/1/75 through 6/30/76. D75-67 (4/9).

Admin. Staff, Applications Coordinator, in Office of Facilities Management Systems (Planning Office) will develop contact and provide application support for non-Institute users of computerized space accounting system (INSITE); assist in formal educaton programs given by Office. Familiarity with business systems, facilities management and related computer applications, experience in preparation and delivery of technical presentations, Bachelor's degree or equivalent required. MBA, familiarity with education and health-care administration desirable. Travel is required. A75-20 (4/9).

Admin. Staff, Sr. Applications Programmer, in Office of Administrative Information Systems will assist in development of new and modified programs: program, test, debug; establish file requirements and processing techniques for new systems design; contribute to development of programming and documentation standards program. 3 yrs experience with COBOL or PL/1, knowledge of BAL and financial applications required. Knowledge of 1401 Autocoder preferred. A75-19 (4/2).

DSR Staff, Programmer, in Center for Space Research will be responsible for acquisition of data from SAS-C x-ray astronomy satellite on PDP-9 mini computer: arrange for data transmission, organize tape library of data; catalogue computer routines. Knowledge of celestial coordinate systems and coordinate transformations, some knowledge of x-ray sky and scientific content of data, as well as substantial programming experience required. D75-65 (4/2).

DSR Staff in Center for Cancer Research will conduct laboratory research on molecular biology of polio virus: make solutions, assay viruses; prepare infected cells; also order supplies and oversee equipment maintenance. Bachelor's degree in Biology or Biochemistry required. Chemistry, Biochemistry or Microbiology experience helpful. D75-62 (4/2).

DSR Staff in Center for Space Research will participate in preparation, test and calibration of x-ray astronomy satellite experiment (Focal Plane Crystal Spectrometer for High Energy Astronomy Observatory x-ray telescope); prepare data analysis system; participate in scientific planning of observing program; collect, analyze and publish data. Ph.D. in experimental physics, laboratory experience required. Familiarity with X-ray techniques, X-ray astronomy and experience with satellite experiments desirable. D75-58 (3/26).

DSR Staff, temporary in Artificial Intelligence Lab will participate in the design of new learning environments for children and in development of learning theory; design and build equipment; write descriptive material, teach. EE or Physics degree, knowledge of electronics. Computers, machine shop experience, ability to design and build prototype control and sensing circuits required. Temporary through 9/30/75. D75-56.

DSR Staff in Lab for Nuclear Science (Linear Accelerator Lab, Middleton, Ma.) will provide instrumentation development, operation and data handling support for research group in electron scattering and other programs. Strong EE or Physics background at BS level, or equivalent, minimum 5 yrs experience in nuclear instrumentation including Scintillation, Solid State and Multi-wire Proportional Counters, Nanosecond Digital and Analogue Electronics, CAMAC required, PDP 11/45 experience helpful. D75-55 (3/26).

DSR Staff, temporary, Systems Programmer in Lab for Nuclear Science (Linear Accelerator, Middleton, Ma.) will assist in maintaining and extending RT-11 and RSX 11-D real-time operating systems on PDP-11/45 computers with a variety of nonstandard peripherals: intersystem files compatibility on DEC, magnetic tapes, DEC pack and century discs; compatible graphics packages on Tektronix 4010, Gould 5000 and GT-40 graphics hardware. Thorough knowledge of DEC PDP-11 machine code and I/O handling, experience in mini-computer graphics, real time systems and graphics hardware required. Temp. through 8/31/75 D75-57 (3/26).

Admin. Staff, Area Coordinator, Office of Administrative Information Sys-

tems, will analyze and resolve problems of an assigned area of operating business systems: develop modification specifications for present systems; schedule and control tasks to meet deadlines; direct and coordinate work systems analysts, programmers as required. Oversee testing of changed programs, act as client liaison and as applications programmer as required. Applicants should have business and administrative experience, analytical ability and knowledge of programming. A75-15 (3/26).

Admin. Staff, District Officer, in Resource Development will coordinate volunteer solicitors in major geographic areas. Out of town travel necessary 50% of the time. Familiarity with MIT required for effective representation as well as poise and ease in dealing with people, demonstrated initiative and ability to work independently, good oral and written communication skill. A75-16 (3/26).

DSR Staff in Joint Center for Urban Studies will conduct research on real estate economics for study and model development of neighborhood evolution and decline. Ph.D., or equivalent, familiarity with operations of participants in real estate sector of economy (bankers, insurers, builders, etc.), computer programming ability (preferably FORTRAN IV), experience in data gathering and analysis of real estate sector, willingness to assume design and implementation of a component of the overall project required. Position will terminate December 31, 1976. D75-52 (3/12).

DSR Staff, part-time, Tech. Asst., in Arteriosclerosis Center will process plasmas for cholesterol, triglyceride and lipoprotein quantitation procedures; run and maintain Technicon Auto Analyzer I; maintain patient records and run ultracentrifuge. Clinical chemistry and hematology background, ability to work with minimum supervision; previous lab experience desirable. 20 hrs/wk. D75-50 (3/12).

Admin. Staff, Director, Office of Administrative Information Systems/ Assistant Director, Information Processing Services will have overall responsibility for operation of 70-employee office which provides information systems services to MIT administrative offices: oversee the delivery of timely, accurate reports to clients; interact with client offices on the development, implementation and design of new systems, ability to identify and resolve problems in service environment, demonstrated skill in management of medium-sized organization required. Familiarity with MIT adminenvironment and understanding of computer and information systems desirable. Please submit resume. A75-13 (3/5).

DSR Staff, Economist/Econometrician in Energy Lab will participate in projects on development and application of models of domestic and international energy production and utilization: develop and apply econometric procedures to estimate para-meters of simultaneous equation energy models; assist in model formulation and development of energy data and accounts in US and other industrialized countries, supervise junior staff and students, perform related duties as required. Ph.D. Economics, specifically mathematical economics and econometrics, experience in application of functional specifications, such as translog and generalize leontief, familiarity with economic accounts of at least one foreign industrialized country required. D75-48 (3/5).

DSR Staff, temporary, in Project MAC Planner Group will write and implement programs in PLASMA and LISP. Experience in these languages required. Position runs June-August, 1975. S75-1 (2/26).

DSR Staff, Electrical Engineer, in National Magnet Lab, will perform daily operation of Low Field Lab: maintain sensitive magnetic detectors and display equipment, design and construct new equipment, perform human body measurements. Laboratory-oriented person with knowledge of low-frequency electronics, and experience with magnetics and cryogenics is desirable. Candidate should be able to work with hospital patients and to do occasional evening and weekend work. 50 hr/wk. D75-7 (1/22).

DSR Staff, Biophysicist, in National Magnet Lab will supervise day-to-day magnetic fields produced by the human body are measured, perform specific lab measurements, design lab equipment. Experience with low-frequency electronics, magnetics, heart and lung physiology required. Must be available for occasional evening and weekend work. 40 hr/wk. D75-8 (1/22).

Admin. Staff, Sr. Consultant Trainer, in Office of Personnel Development will have responsibility for planning, design and follow-up services related to training workshops, organization development; perform professional, management and support tasks as a participating team member. Must be knowledgeable and experienced in organization development, career development, adult education, process-oriented

group work with adults, and applied social science survey research. Applicants will present 1-2 hour training activity, including written proposal and report, for staff evaluation. Report, proposal and process documentation writing skill, Master's degree in behavioral science plus facilitation experience required. Knowledge of MIT/academic institutions helpful. A75-1 (1/8).

DSR Staff, in Joint Center for Urban Studies will be principle researcher on development of computer-based manpower information system for construction industry, and ability to supervise program development and operational system required. 74-1484-R (1/8).

DSR Staff in Energy Lab will be involved in developmental work with coal gassification projects. Prior experience in development and related technological processes of coal gassification: computer simulation, construction of pilot equipment with minimal technical assistance and financial resources, data gathering, work with students inexperienced in research activities, and ability to meet project deadlines required. Advanced degree in Chem. Eng. is also necessary. 74-1428-A (12/11).

Subcontract Administrator, Assistant Director in Office of Sponsored Programs will work with project personnel in negotiating complex subcontracts; prepare Requests for Bids; review quotations; arrange for preaudit of proposed costs and negotiation of active awards. Bachelor's degree in Business Administration or equivalent combination of education and experience, subcontracting experience in government agency or university environment, knowledge of procurement regulations of government agencies required. 74-1403-R (11/27).

DSR Staff at the National Magnet Laboratory will work on the Alcator thermonuclear experiment. Conceive, design, and carry out plasma diagnostic experiments using neutron, X-ray, optical, electrical, magnetic and microanalysis and assessment of data. Ph.D. in plasma physics or related area required. Familiarity with tokamak devices desirable. 75-1512-A (1/8).

DSR Staff in the Energy Lab must have minimum of 5 yrs experience in defining, securing, organizing and supervising research in heat transfer related to energy production and utilization. Familiarity with MIT; experience in supervising student theses, research and staff; Ph.D. in Mechanical Engineering required, 74-359-A (5/1).

DSR Staff, Engineer, in the Energy Lab will do experimental research in stratified charge internal combustion engines: design, construct and maintain experimental facilities and conduct basic experiments and data analysis with single cylinder test engine and rapid compression machine. BS in Mechanical or Aeronautic Engineering, some practical experience with mechanical systems and workshop practice required. D75-30 (2/29).

DSR Staff, Programmer in Clinical Decision Making Group, Project MAC will supervise construction and clinical testing of computer system to advise physicians regarding the administration of digitalis. Familiarity with pharmacokinetics of digitalis and its clinical administration, general medical knowledge including cardiovascular physicology, thorough knowledge of LISP 1.5 and ITS operating system required. D75-19 (2/5).

Technical Assistant, Acad. Staff, in Nutrition and Food Science, will perform specialized and routine chemical analyses on body fluids; operate and maintain mass spectrometer, Bechman automated amino acid analyzer; assist in new methodology development; occasionally supervise other lab personnel. BS, chemistry, biology or medical technology and minimum 2 years experience in clinical chemistry required. C75-4 (2/5).

Admin. Asst., Exempt, in Aeronautics and AStronautics will coordinate repair, maintenance and replacement of experimental equipment, organize and manage funds for repair and maintenance of workshop equipment in several dept. locations; assist in laboratory organization; coordinate space allocations, plan and oversee space renovation. Engineering background, preferably plant engineering, knowledge of MIT operations, administrative skill required. Familiarity with OSHA regulations also necessary. E75-10 (4/9).

Exempt, Asst. Account Representative in Comptrollers Acctg. Office will act as Institute liaison with employees, students, organizations in matters of credit and collection through written correspondence and personal contact; prepare aging reports, payroll notices and other related material. 4-5 yrs. accounting experience, specifically in credit, collection required. Tact, good judgment also necessary. E75-8 (3/19).

In-patient Staff Nurse, Exempt, in Infirmary will do bedside nursing and may assist with emergency and first aid treatment. Mass. licensed RN with 2 yrs experience in medical/surgical nursing required. First-aid or emergency clinic experience desirable. Must be able to work all shifts and weekends on rotating basis. (40 hrs) E75-5 (3/5).

Clinic Nurse, Exempt, in Emergency Clinic will evaluate and treat patients, administer first aid and admit patients as necessary. Mass. licensed RN with 2 yrs. clinic experience, preferably in emergency room required. Expertise in physical assessment desirable. Must be able to work permanent evenings (4pm-12am) and rotate all weekend shifts. (40 hrs) E75-6 (3/5).

Engineering Assistant, Exempt in the National Magnet Laboratory will set up experiments and take measurements of magnetic fields produced by humans and animals. Will work with hospital medical groups. Experience in biomedical research; strong experience in low frequency electronics; knowledge of magnetics and cryogenics required. Flexible schedule necessary for occasional evening or weekend work. 74-1033-R (8/28).

Tech. Asst. IV part-time, in Psychology Dept. neurophysiology lab will be involved in mammal motor control and coordination research. Primary duty is care, feeding and training of animals; will also manufacture testing equipment, assist in laboratory procedures, in data analysis and in general upkeep of lab. Familiarity with elementary electronics and digital logic helpful. High school graduate, or equivalent required. 30 hr/wk. B75-79 (3/5).

Secretary V to Director and other professional staff, Planning Office: will compose correspondence independently and from verbal instruction; organize meeting agenda; edit manuscripts including verification of content through varied source; arrange luncheon, dinner meetings without supervision; manage busy appointment schedule; assist other secretaries in routine office duties. High school graduate plus 5 years secretarial experience or equivalent combination of educaton and experience, ability to use dictating equipment and to work without supervision required. B75-141 (4/9).

Admin. Asst. V in Lab for Nuclear Science will handle secretarial and administrative duties for 40-member research group: type technical material, reports; arrange travel; maintain files; proofread articles for publication. Position requires travel overseas and to other US facilities (NY, Illinois) for varying durations. Applicants should be able to speak and write German and French fluently. B75-112 (3/26).

Secretary V in Resource Development will take and transcribe dictation; maintain busy calendar; schedule meetings; make travel arrangements; maintain files, supervise part-time secretary; independently organize and carry out varied projects including research of topics, Minimum of 2 years experience, shorthand, organization skill required. College training desirable, B75-114 (3/26).

Secretary V to Civil Engineering Department Head will handle standard secretarial duties; act as liaison with public, administration, faculty, students; maintain affirmative action and publicaton lists; prepare and maintain confidential material and records; handle special projects as required. MIT experience and shorthand are necessary. Bachelors degree preferred. B75-98 (3/12).

Secretary IV-V in Preprofessional Advising and Education Office: arrange schedules and publicity for medical/ law school representatives; advise students on professional school application procedures and related matters; compile statistical data from many sources; assist in handbook editing; coordinate IAP activities; perform other standard secretarial duties. Previous secretarial experience, ability to interact with students and faculty required. Non-smoking office. B75-142 (4/9).

Secretary IV-V to Physics department head will maintain calendar, type correspondence and manuscripts, answer phones, handle a variety of independent projects. Position includes large amount of contact with students and other office visitors. Shorthand, technical typing skill required. B75-136 (4/9).

Secretary IV to faculty member and research staff in Urban Studies and Planning will perform varied secretarial duties including technical typing, editing; maintain expense records on accounts; maintain computer lists by keypunching. May do occasional library research and contract administration. Technical typing skill, keypunch ability (or willingness to learn) required. Shorthand skill and economics background helpful. Non-smoking office. B75-130 (4/2).

Secretary IV in Harvard-MIT Program in Health Sciences and Technology will handle varied office duties; type correspondence, proposals; organize symposia and seminars; prepare budgets; administer contracts. Experience in budget and contract maintenance, high level of secretarial and organiza-

tional skills required. Non-smoking office. B75-125 (4/2).

Secretary IV to faculty and research group members in Nutrition and Food Science involved in food and biomedical engineering; perform standard secretarial duties including shorthand and machine dictation; supervise partitime secretary. Secretarial school training, or equivalent, ability to use dictating equipment required. Knowledge of medical/biological and/or technical terminology helpful. B75-116 (3/26).

Secretary IV to Associate Director, Systems Dynamics Group: type and edit correspondence, manuscripts from handwritten and machine dictation; maintain files; arrange travel and appointments; research subjects as required. Excellent typing, organization skill, command of English grammar and minimum of 2 years secretarial experience required. Shorthand/speedwriting helpful. B75-121 (3/26).

Secretary IV to professor in Nutrition and Food Science will type material including difficult terminology from machine dictation and handwritten copy; do some editing; make appointments. College degree, or equivalent, and at least 3 years responsible experience required. B75-101 (3/19).

Secretary III-IV to a Center for Space Research program manager and other members of research group will type correspondence and technical material, answer phones, make travel arrangements; maintain files and supplies; assist other secretaries as required. Secretarial school or junior college training, or equivalent, required. Technical typing experience also necessary. B75-140 (4/9).

Secretary III-IV to Physics Department Executive Officer will perform standard secretarial duties: handle arrangements for weekly colloquiua, including teas, posters, speaker stipend; complete varied projects independently. Position includes frequent student and other visitor contact. Shorthand, typing skill and ability to work under pressure required. B75-137 (4/9).

Secretary III-IV to two faculty members in Artificial Intelligence Lab will type correspondence, technical material; answer phones; maintain files; arrange appointments; perform varied tasks related to lab administration; will be trained to type and edit on computer. Typing, organization skills required. MIT experience helpful. B75-125 (4/2).

Secretary III-IV to two Physics faculty members: will type technical manuscripts; course material; handle sponsored account records; assist students and others visitors to office. Technical typing skill required. B75-113 (3/26).

Secretary III to faculty members in labor management section of Sloan School: will assist in all matters relating to operation of the section: schedule and publicize seminars and conferences; publication distribution; maintenance of section contribution and alumni records; perform other varied duties relating to research programs. Discretion, ability to work independently and to interact effectively with all members of working group, excellent secretarial skills, including shorthand and machine transcription required. MIT experience desirable. B75-138 (4/9).

Secretary III to the Superintendent for Engineering and Construction in Physical Plant will perform general secretarial duties: handle general telephone inquiries; schedule meetings; maintain corresondence files; type blueprint specifications and project reports. Will also type for members of the Engineering and Construction group. Excellent shorthand, typing skills, ability to work independently and previous office experience required. B75-139 (4/9).

Secretary III, temporary, in Student Financial Aid Office will type from handwritten drafts; assist with volume mailings and other general office projects. Typing skill and willingness to handle a variety of duties required. Temp. through 6/30/75. B75-122 (4/2).

Secretary III in Chemical Engineering will handle general secretarial and receptionist duties for several faculty and research staff: type technical reports, course material from handwritten notes and machine dictation. Fast, accurate typing; ability to work independently required. Technical typing skill helpful. B75-117 (3/26).

Lib. Gen. Asst. III-IV part-time, in Earth and Planetary Sciences will develop and maintain cataloguing and filing systems for publications and other library materials, trace lost items; monitor condition of materials. Position is normally for 1 day per week, but flexibility to work full-time for 2-3 week intervals to complete special projects required. B75-131 (4/9).

Lib. Gen Asst., III, part-time, will have responsibility for circulation/reserves desk 2 evenings per week, and handle other varied library duties in daytime hours (process reserve materials, file, correct catalogue cards, etc.). Ability to handle demands and pressure at public desk, typing skill required. Library experience desirable. 18 hrs/wk: 2 evening, 5:30-11pm, plus 7 add. daytime hours to be arranged. B74-127 (4/2).

Sr. Clerk IV-V, Accounting Assistant in Sponsored Accounting Section, Comptrollers Accounting Office, will tabulate sponsored project research expenditures and cash flow; collect forecast data; maintain daily balances; prepare monthly billings and fiscal reports. General business background plus 2-4 yrs accounting experience required. Typing skill desirable. B75-99 (3/12).

Clerk Typist III in MIT Development Office to perform duties relating to fund-raising efforts of the Institute: filing; updating of files; typing - all in of Analysts in the Development Office. Accuracy and neatness required. B75-126 (4/2).

Clerk-Typist II-III in Admissions Office to open and sort large volume of mail; file; type and answer phones. Ability to read quickly and accurately, good memory skills, some office experience necessary. Position requires consideraamount of standing at files. B75-143 (4/9).

Tech. Typist II-III in Comptrollers Acctg. Office, Transfer Voucher Section, will type various accounting and other reports, use adding and mimeo-graph machines. Typing skill and ability to operate above equipment required. B75-94 (3/12).

Technical Typist III, part-time in Chemical Engineering will type reports, manuscripts, proposals from rough drafts and with use of word-processing equipment. Excellent typing, organization and grammatical skill, technical typing (or willingness to learn), neces-Work will be coordinated by secretarial supervisor. Morning segment of job-sharing position. 15-20 hrs/wk. B75-38 (1/29).

Sr. Draftsman/woman, hourly, temporary in Center for Space Research, Lab for Space Experiments, will perform detailing of mechanical units from layout drawings; assemble components illustrate relationships and functions; will also do block diagrams, schematics and some printed circuit layouts. Two-year technical school graduate, or equivalent, plus minimum two-years applicable experience required. 40 hr/wk. Temporary for 3-4 mos. H75-43 (4/9).

Technician A in Energy Lab will assist in materials testing, construction and operation of coal conversion test facility. Position requires ability construct test specimens and modules, perform analyses of samples from test rig, including corrosion, stress rupture, x-ray diffraction and interpretation, metallography, fabricate ceramic parts sintering, hot pressing, spraying and ray material preparation. 8-12 yrs experience as technician desirable. 40 hr wk, 8am-4:30pm. Occasional night work. H75-34 (4/2).

Tech A (E-M), for the Radioactivity Center will assist in laboratory, research or analytical work; operate technical experimental apparatus. Maintain electronic equipment associated with controlled low-background facility, breath radon, thoron equip-ment. Troubleshoot nuclear pulse instrumentation, construct, wire, per-form routine tasks associated with measurement of subjects and administration of laboratory. Strong back-ground in pulse and digital circuits; experience in use of oscilloscopes and test instruments required. 74-922-R

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

C75-6	Acad. Staff		
D75-26	DSR Staff		
D75-53	DSR Staff (cancl'd)		
D75-29	DSR Staff (cancl'd)		
B75-120	Secretary IV		
B75-119	Secretary IV		
D75-24	DSR Staff		
B75-118	Clerk II		
B75-115	Clerk III		
B75-73	Clerk II		
B75-83	Sr. Clerk III-IV		
74-1306-A	DSR Staff		
B75-123	Secretary IV		

The following positions are on HOLD

pending fina	l decision;
B75-100	Sr. Clerk IV
D75-45	DSR Staff
A75-9	Admin. Staff
B75-84	Sr. Clerk IV
B75-89	Sr. Clerk IV
A75-14	Admin. Staff

INSTITUTE **NOTICES**

Announcements

Tickets**-BSO discount tickets for Apr 23 open rehearsal are available at TCA. Metropolitan Opera tickets ordered thru TCA should be picked up this week, 11am-3pm, TCA office, Stu Ctr Rm 450.

Annual Kresge Scheduling Meeting 1975-76-Open to all MIT organizations, departments and activities who plan their programs in advance. Scheduling of the main auditorium will be Thurs, Apr 17, 2pm, Stu Ctr Mezzanine Lge; for Little Theatre, Thurs, Apr 24, 2pm, Stu Ctr West Lge.

1974-75 Prizes for Writing-All MIT undergraduates, writing poetry, fiction, essays, drama, etc., are eligible. Prizes are: Robert A. Boit Prize, Ellen King Prize for freshman writing; & special Boit manuscript prize of \$200 for a work of substantial length, completed or in progress. Deadline 5pm, Fri, Apr 18. Rules & info, Rm 14N-409.

Associate Advisors-Any student interested in working with a freshman advisor should stop by the FAC Office, Rm 7-103, to pick up and fill out an information sheet.

GSC Meetings-Activities Committee: Thurs, Apr 10, 5:30pm, Walker Silver Rm. Refreshments. RSVP Philip Doucet, chrmn. GSC Meeting. Thurs, Apr 17, 6pm, Walker Blue Rm. Dinner 5:30pm, RSVP Spyridon Armenis,

MITV News*-News program in and around MIT during the week. Shown Fri, 9am-5pm,

New UROP Listings

opportunities listed, MIT undergraduates should call or visit the Undergraduate Research Opportunities Program Office, Room specified in the listing. Undergraduates are also urged to check with the UROP bulletin board in the main corridor of the Institute.

Nuclear Engineering Department

A project involving continuation of work comparing methods of iodine (mainly 125) labeling of bovine and human fibrinogen is available. The ultimate objective is a reasonably simple and reliable technique yielding more homogeneous and more clot-specific 125 fibrinogen than now available. Work will be done at Children's Hospital, where the availability of 90 kilogram calves permits metabolic turnover studies to be performed conveniently.

Dr. B.W. Murray, x3-5725. **Veterans Administration**

Hospital

W. Roxbury, MA The Research Director of the Massachusetts Chapter of the Association of Paralyzed Veterans of America would like to talk with an undergraduate student who would like to become involved in a study of how wheelchair design and construction materials can be modified. The research director, a quadraplegic himself, wants to reduce the weight of a chair while maintaining strength at stress The research would include analysis of what disabled persons don't like about present designs and a modification of materials and design to lighten a chair. Credit available, funding a possibility.

Division for Study & Research in Education

Research and education activities in universities function and change, but how? Why and how does a planning department, an economics group, an interdepartmental laboratory change from one field of work to another? Can we learn from the details of history something that would be useful for faculty, students, sponsors, or beneficiaries of such work? Students are encouraged to do preliminary surveys and historical analyses of faculty groups at MIT and other area institutions. Work wil initially involve detailed studies of catalogues, reports and other docu-ments in order to develop qualitative and quantitative descriptions of changes in curriculum, research topics, membership in the faculty group, and student population. Experience in historical research would be helpful Essential is an interest in the subject and patience with detail. Stephen C. Ehrmann, Rm. 20B-125, x3-5445.

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

Thursday, April 10-Hendrix Electronics, Inc. Stanford Research Institute; Systems Control,

Friday, April 11-Stanford Research Institute. Monday, April 14-BU Medical School, Opthalmogy Dept; Pattern Analysis & Recognition Corp.

MIT Club Notes

A'nanda Ma'rga*-Meditation classes Tues, 1:30-3:30pm, Stu Ctr Rm 407 and 8-10pm, Rm 36-153; Wed, 10am-12n, Stu Ctr 407.

MIT Ballroom Dancing Club**-The club will be very active this term, with regular workshops, lessons & dances. For specific info watch for signs, or call Pete "Twinkle-Toes" Travis, 536-1300.

Bridge Club*-ACBL Duplicate Bridge. Open pairs Tues & Thurs, 7pm. Separate non-expert pairs Thurs, 7-9pm. Multiweek team of 4 events Fri evg & Sat aft (separate events), call for details. All events Stu Ctr Rm 473. Jeff,

MIT/DL Bridge Club**-ACBL Duplicate Bridge. Tues, 6pm, Stu Ctr Mezzanine Lge.

MIT Ecology Action*-General meeting to discuss project progress, magazine subscriptions, etc. Wed, Apr 9, 6:30pm, Stu Ctr Rm 002.

Goju Karate Club*-Mon, Wed, Fri, 7pm, Stu Ctr Rm 491. Beginners welcome.

el Choir**-Members and musicians needed. Rehearsals are Sun, 4-6pm, Stu Ctr Rm 407. Those interested are encouraged to

MHT Guild of Bell Ringers**-Change ringing done on tower and handbells; tune ringing on handbells. Change ringing Tues, 7pm, Church of the Advent, Bos; Thurs, 6:30pm, Senior Hse (crafts, 1st fl); tune ringing Sun, 7pm, Senior Hse. Info: Ruth Cross, x0669 Dorm.

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

MIT Karate Club**-Shotokan style. Classes Mon, Wed, 8-10pm, duPont Wrestling Rm; Fri, 6-7:30pm, T-Club Lge. Beginners welcome

MIT Kung Fu Club*-Instruction in the art of Chinese boxing, Northern Praying Mantis style. Classes Tues, Thurs, 7-9pm, Stu Ctr Rm 407. Visitors welcome. Info, Dave Smith,

MIT Numismatic Society*-Wed, 7pm, Theta Delta Chi (372 Memorial Drive)

MIT Outing Club*-Mon & Thurs, 5-6pm, Stu Ctr Rm 461

MIT soaring Association-Directors Meet--Thurs, Apr 10, 7pm, Faculty Club. General Meeting*-Thurs, Apr 17, 7:30pm, Stu Ctr Rm 491. Movie, coffee & donuts.

Strategic Games Society-Offers opponents

and discounts on merchandise to members plus gaming and periodical library. Info: Steve Simmons, x8265 Dorm or Gary Brennan.

Student Homophile League*—Meetings 1st & 3rd Sun of the month, 4pm, Rm 1-132. Info, talk help in coming out, call Tom at the Hotline, x3-5440. Come on out-the water's fine

MIT Tae Kwon Do Club**-Beginner and advanced classes. Tues, Thurs, 5-7pm, Stu Ctr

Tech Model Aircrafters*-Flying in duPont Gym Sat, Apr 12, 6-10pm

MIT Unicycle Club*-Unicycle riding & basketball. Sun, 11am, Walker gym (Rm 50-340). Beginners welcome. Info: come, or call Mike, x0680 Dorm

MIT Wheelmen*-Meetings Tues, 7:30pm,

MIT Women's Chorale**-Wives and working members are encouraged to join. Thurs, 8pm,

Religious Activities

The Chapel is open for private meditation

Baha'i Discussion Group*-Thurs, 7-9pm, Rm 8-105. Dale, 354-1907. Of Special Interest: Thurs, Apr 10 & Mon, Apr 14, Laura Lupesewicz, MIT employee and sec'y of the assoc, will show slides of her recent pilgrimage to Israel. 7pm, Rm 8-105. Refresh-

Campus Crusade for Christ/College Life*-Family time, singing, prayer, teaching from God's word. Fri, 7:30pm, Rm-37-252.

Christian Science Organization*-Weekly meetings, including testimonies of healing. Tues, 7:30pm, Rm 8-314.

Hillel Services*-Fri: Traditional 6:15pm, Kosher Kitchen; non-Traditional 8:30pm, Chapel. Sat: Traditional 9am, Chapel. Mon-Fri, Minyan 7:30am, Rm 7-102.

Interdenominational Holy Communion Service-All members of the Institute welcome. Wed, 5:05pm, Chapel. Revs Parvey and

MIT Islamic Society*-Congregational prayers Fri, 3:15pm, Kresge rehearsal rm B; discussion session Sat. 4pm. International Stu-Lge (2nd fl Walker). Refreshments.

Prayer Time**-Lunch hour prayer and Bible class led by Miriam R. Eccles. Fri, 1-2pm, Rm

Prophets*-Wed, 12n 2nd fl seminar rm, Bldg W2. Bring lunch, drinks provided. Discussion of Old and New Testament Prophets.

12:15pm & 5:15pm; Tues & Thurs, 5:05pm;

Fri, 12:05pm; Chapel. United Christian Worship Service*-Sun.

United Christian Fellowship**-Sunday school and nursery for infants and children during United Christian Worship Service. Sun,

Vedanta Society*—Services Fri, 5:15pm, Chapel. Swami Sarvagatananda will lead meditation & Gita discourses.

10:45-12n, Stu Ctr Mezzanine Lge.

Thomson Attends Media Meeting

Professor Judith Thomson of the Department of Philosophy participated in a recent meeting of media and academe, sponsored by Bard College, to consider how to inform the public of the complex ethical and moral dimensions of public policy decisions.

Fuel Price Watch



Following are comparative prices of various fuels over the past four years. The prices are supplied by Office of Environmental Engineer, MIT Department of Physical Plant, and are published regularly in Tech Talk so MIT people will have a frequent guide to how prices have been climbing and to why energy conservation is important at home and at the Institute.

Date	Industrial Oil (#6)	Steam Per klb	Electricity Per kWh	Home Oil Per gal
Mar. 1975	\$13.70	\$4.95	\$.038	\$.362
Mar. 1974	12.47	2.86	.0276	.307
Mar. 1973	3.94	1.78	.0183	.153
Mar. 1970	1.86	1.04	.0114	.059*

* The \$.059 per gallon figure in 1970 was the cost of No. 4 heating oil used at several buildings on the campus not served by the central heating plant. In compliance with the Metropolitan Boston Air Pollution Control District standards, theses boilers have been switched over to the more highly refined No. 2 fuel oil since 1970. The 1973 and 1974 figures are for the more expensive No. 2 fuel oil, which, in 1970 was \$.13 per gallon.

Transportation Problems, Opportunities to Be Probed

Is transportation a business problem or a business opportuni-

Some answers to that question will be provided by a group of university researchers and government officials at a day-long conference entitled "Transportation: **Business Constraint or Business** Opportunity?" to be held April 24 at the Hawaiian Village, 2522 N. Dale Marbery Highway, Tampa,

The conference will be presented by MIT's Center for Transportation Studies under sponsorship of the MIT Alumni Association.

Conference speakers and panelists will include:

-Professor Charles Miller, former head of the MIT Department of Civil Engineering. Professor Miller, a Tampa native and frequent consultant to Tampa organizations, developed some of the first problem-oriented computer language programs for transportation designers.

-Professor Marvin Manheim, MIT Center for Transportation Studies. Professor Manheim will discuss the role of the business community in the process of planning an urban area's transportation system. He is the principle author of the federal Urban Mass Transportation Administration's "Guidelines for the Analysis of Alternatives."

—C. Randolph Wedding, mayor of St. Petersburg, Florida. Mayor Wedding will be the keynote speaker at the luncheon.

-Professor Paul O. Roberts, director of MIT's Center for Transportation Studies, will open the conference discussing the impact which new energy and air quality regulations are likely to have on urban transportation nationwide.

-James A. Champy, executive vice president of the MIT Alumni Association, who will also speak at the luncheon.

Professor Ernst G. Frankel, director of the Commodity Transport Laboratory and professor of ocean engineering at MIT. He will discuss the impact of recent economic upheavals on shipping and on the design of an ocean port.

An executive summary during the evening session will conclude the conference. The dinner speak-

-James Healey, president, Milton Roy Co., St. Petersburg, Fla., who will make introductory re-

-Dr. Pietro Belluschi, professor of architecture, emeritus, and dean of the School of Architecture and Planning, emeritus, MIT, who will be the keynote speaker.

-Mayor William F. Poe, of Tampa, who will deliver the closing remarks.

Transportation-related research and teaching at MIT is the largest among US universities and projections are that the activities will more than double in the next five years as interests in transportation increase. Fifty-two different transportation-related subjects are taught within various MIT academic departments. Some 40 faculty and 110 candidates for advanced degrees are engaged in more than 50 sponsored research projects amounting to nearly 12 million a year in expenditures.

Conference On Revolution

(Continued from page 1) before the Revolution and its impact upon the men who broke with Britain.

-Social tensions before the Revolution, expecially the shifting allegiances of the colonial elites, some of whom remained loyal to Britain and some of whom fought against Britain.

-The ways in which the revolutionaries persuaded the inhabitants of the colonies to accept their authority.

Among the participants will be Professor Stephan Thernstrom and Professor Bernard Bailyn, both of Harvard, Professor Pauline Maier of the University of Massachusetts-Boston, Professor Jack H. Greene of Johns Hopkins University, Profesor Gordon Wood of Brown University, Professor Gary Nash of the University of California-Los Angeles, Professor Jacob Price of the University of Michigan, Professor Richard Bushman of Boston University and Professor Michael Kammen of Cornell University.

The Journal, published by the MIT Press, includes articles and reviews combining the approaches of history and the social sciences or history and the humanities. It will publish the papers from the bicentennial revolutionary conference in the Spring 1976 issue.

Elliott Lectures

Professor John F. Elliott gave the Annual Lecture on Extractive Metallurgy at the Annual Meeting of the American Institute of Metallurgical Engineers (AIME) held recently in New York.

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Raising State Income Taxes Will Hurt Economy

By BENNETT HARRISON

When state income taxes are increased, money is taken out of the pockets of everyone, but there is also a downward spiral.

Take money in taxes, and people have less to spend. When people spend less, businesses, naturally, sell less. And those businesses buy less from their suppliers. When businesses are hurting, they lay workers off. And these unemployed, in turn, must drastically reduce their spending. By the time the spiral works itself out, the original tax increase has led to a much greater loss in economic

For instance, a \$100 million tax increase would probably reduce incomes in the Commonwealth by \$140-150 million. and that, in turn, would probably mean that between 14,000-15,000 people-milk-

men, truckdrivers, secretarieswould lose their jobs.

The governor is still struggling with the problem of how to pay for the state deficit, said to be as large as \$400-500 million. A tax increase to pay for the deficit would be a disaster for the state's economy. Such a tax increase would be taking money out of the economy at a time of national recession and regional depression-money that would otherwise be spent on currently produced goods and services, with their associated jobsall this to pay for activities that happened in the past.

How, then, can the governor reduce the deficit without throwing thousands of people out of work? In the short run, the state probably has no choice but to attempt to sell bonds to the private sector, as a way of raising the money to pay off the deficit. This may present difficulties of its own. The money that is invested in these bonds by banks, insurance companies and mutual funds might otherwise have gone into building new factories or starting up small businesses, although I personally doubt that this diversion would be serious. Massachusetts capitalists are notorious in their preference for investing in out-of-state as opposed to local ventures. There may also be room for tax reforms which might raise some revenue.

In the long run, the state government should study the possible repeal of constitutional prohibition against running deficits as a tool of economic policy. That prohibition is an archaic holdover from the pre-Keynesian days when governments tried to emulate "good

business practice," which meant always balancing the budget.

Nowadays, it is the practice of even large private corporationslet alone national governmentsto deliberately incur deficits from time to time in order to expand their economic activity.

Tax increases are not necessarily bad for the economy, provided the new tax money is spent right away to create jobs. A tax increase used to finance new state spending-on railroads, on public power, on assistance to small business-would not cost us jobs. In fact it would increase employment in the state-and it would provide things that Massachusetts consumers and businesses sorely need.

For example, if that \$100 million tax increase we talked about before were used to finance additional state spending of \$100 million, overall incomes in the Commonwealth would probably rise by about \$15-20 million. And that would probably create something like 1,500 to 2,000 new jobs-jobs that weren't there

The question that we started with was: A tax increase for what? We now have some answers. A tax increase that would destroy jobs in Massachusetts, to pay off an old deficit? No. A tax increase to finance new job-creating state programs? Yes.

(Bennett Harrison is associate professor of economics and urban studies and planning in the MIT Department of Urban Studies and Planning. This commentary was presented recently on the WGBH-TV program, The Evening Com-

Compromises Needed for International Control

Conference Ponders High Seas Government

By JUDITH T. KILDOW

The second session of the Third Law of the Sea Conference convened in Geneva, Switzerland, this month, continuing discussions begun during the first session in Caracas, Venezuela, last summer.

Delegates from more than 140 nations are once again attempting to assemble a package of compromises that might lead to an official agreement or treaty at some later date. Many issues must be compromised to satisfy the large numbers of nations and interests, but there is one particular problem which seems to be causing an impasse at this meeting: the formation of an International Seabed Regime.

In essence, the nations are trying to set up some kind of world government for the high seasthat area of the oceans that will not fall under the jurisdiction of any one nation. Included in these negotiations is the need to determine who will regulate the mining of manganese nodules, which are mineral-rich rocks found thousands of feet deep lying around on the floor of the ocean. These nodules contain small amounts of

very valuable metals like copper, nickel and cobalt, and large amounts of manganese, which is not so valuable.

There are about a dozen private companies in half a dozen countries which have major investments in mining and processing systems to harvest and refine the ocean's riches. Since these riches lie in areas which are not under any national or international regulatory system, they would normally be free for the taking to anyone who wanted them-and had the ability to get them.

But without a regulatory body to turn to, no one can obtain a permit, license or other guarantee that they will indeed own outright the minerals they harvest. In the absence of such guarantees banks and other financing institutions have not been willing to lend the enormous sums of money necessary to finance these open sea mining ventures, unless there are other submarine spoil to be found

The American companies capable of such ventures operate under traditional private enterprise standards. Their officials are suspicious of any international regulation. Since American delegates to the conference represent these American industrial interests, as well as many others, they have been pressing for a weak international seabed regime -a kind of licensing authority without much authority.

However, nations that do not have the ability to mine the nodules-and whatever else may lie out there-want quarantees that they, too, will share in the profits from development of the resources, which a United Nations resolution in 1967 declared to be for the heritage of mankind and, therefore, belonging to everyone. These developing nations want a strong international body to control industry in ways industry has not so far been willing to agree to.

One proposal, authorized by Professor Louis Sohn of the Harvard Law School, has been under intensive consideration by all delegates. It provides that the Seabed Authority would be a type of enterprise system which would enter into joint ventures with corporations wishing to develop the resources. While Administration of this enterprise system poses immense problems, the general concept appears to have some acceptance among most of the negotiating nations.

It is an interesting compromise. On the one hand it satisfies the capitalist ideology of the industrialized nations-while imposing restrictions on their operations. On the other hand, it satisfies the need for control expressed by the nonindustrialized nations-although contrary to their more socialistic ideological bent.

The negotiations are continuing in Geneva. Some feel yet another year will be required before agreement can be reached. If that is indeed the case, US companies, will press for passage of Federal legislation that will provide financial guarantees for their risks, thus opening the way for investment that will bring early exploitation of the nodule riches. Such legislation has been pending for

several years, but has always been tabled in the hopes that international agreement could be reached. If the US took such an unilateral act without international recognition it would incur the anger of more than 100 nations and lead to economic sanctions from

Taxpaying citizens should consider carefully whether they wish to put their money behind these corporate giants in the form of guarantees, in view of the clear fact that such unilateral international action will be highly unpopular. Or they might ask themselves whether they would prefer their representatives to await ultimate agreement from a Law of the Sea Conference one day, and stay away from anything that smacks of "might makes

(Dr. Judith T. Kildow is assistant professor of ocean policy in the MIT Department of Ocean Engineering. This commentary was presented recently on the WGBH-TV program, The Evening Compass.)

22 Are Appointed Full Professors

(Continued from page 3) estimation, control and decisionmaking in the presence of un-

Jeremy F. Shapiro, Sloan School of Management. A former employee of the Hughes Aircraft Company, Professor Shapiro holds a bachelor of mechanical engineering degree (1962) and a master of industrial engineering (1963) from Cornell University. He received a PhD from Stanford in 1967. He was appointed assistant professor at the Sloan School in 1966 and became associate professor three years later. At present he is associate director of MIT's Operations Research Center and senior research associate of the National Bureau of Economic Research.

Nam P. Suh, Department of Mechanical Engineering. Graduated from MIT with SB ('59) and SM ('61) degrees, Professor Suh

received the PhD from Carnegie Institute of Technology in 1964. He was a member of the faculty of the associate professor in 1971. University of South Carolina from 1965-70, when he was appointed associate professor at MIT in 1970. His principal fields of interest include the mechanical behavior and processing of materials, materials engineering and manufacturing technology.

Neil E. Todreas, Department of Nuclear Engineering. Professor Todreas was first affiliated with MIT when he received his ScD degree here in 1966 after graduation from Cornell in 1958 with a bachelor's and master's degree of mechanical engineering. From 1958-62 he was an officer in the Navy working on the design of nuclear propulsion plants in a joint arrangement with the US Atomic Energy Commission. From 1965-70 he was senior reactor engineer in AEC's Division of Reactor Development and Technology. He

was appointed assistant professor of nuclear engineering in 1970 and

Donald R. Uhlmann, Depart

ment of Materials Science and Engineering. Professor Uhlmann, a consultant to a number of industrial firms in the areas of glasses, ceramics and polymers. received the BS in physics from Yale and the PhD in applied physics from Harvard. He joined MIT's faculty as assistant professor of ceramics in 1965 after two and a half years as a postdoctoral fellow at Harvard. In July, 1969, he was appointed associate professor of ceramics. He is a member of the National Academy of Sciences, an associate editor of Materials Science and Engineering, and co-author with Dr. K.A. Jackson of the forthcoming book, Fundamental Principles of Crystal

Carl I. Wunsch, Department of Earth and Planetary Sciences.

Professor Wunsch received his SB degree in mathematics from MIT in 1962 and his PhD in geophysics here in 1966, after which he became a lecturer in oceanography. He was appointed assistant professor in that field in 1967 and associate professor in 1970. He has also been a senior visiting fellow at the University of Cambridge, in the Department of Applied Mathematics and Theoretical Physics. Professor Wunsch was awarded the James B. Macelwane Award by the American Geophysical Union in 1971.

Richard K. Yamamoto, Department of Physics. Professor Yamamoto joined the research staff at MIT in 1963, after receiving his PhD degree in physics. He received his SB degree from MIT in 1957. Appointed assistant professor in 1965 and associate professor in 1968, he has been a guest professor at the University of Nijmegen in the Netherlands.

APO Swim Classes For 70 Area Scouts

Twelve members of Alpha Phi Omega, MIT's service fraternity, have been working out on Saturday mornings in the MIT Swimming Pool, improving the swimming skills of 70 Cambridge Boy Scouts, aged eleven to seventeen.

The program, organized two months ago by Rachel Morris, a junior in electrical engineering from Lee, Mass., has offered classes for beginning, intermediate and advanced swimmers, as well as life saving instruction and instruction in methods for teaching swimmers.

The participants expect to complete skill awards, swim-merit badges and life-saving merit badges, with 15 Boy Scouts hoping to successfully complete tests leading to Red Cross certification as junior life-savers. The ten-week program will culminate on Saturday, April 5 with a water polo

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