Massachusetts Institute of Technology

TECH TALK

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OFFICE OF THE PRESIDENT

To Members of the Faculty:

I am pleased to announce that Professor Norman Levinson, Professor and Head of the Department of Mathematics, has been appointed to the distinguished rank of Institute Professor.

Professor Levinson is widely recognized for his research on linear and non-linear differential equations, complex variables, and transform theory. A theorem relating scattering phase and bound states in physics is named for him.

Professor Levinson has been a member of the Department since 1937, when he became an Instructor. He was appointed Assistant Professor in 1939, Associate Professor in 1944, and Professor in 1949, and was Acting Head of the Department in 1951-52. He has been Head of the Department of Mathematics since 1968, when he succeeded Professor William T. Martin.

During World War II, Professor Levinson conducted theoretical and experimental research on underwater ballistics for the Applied Mathematics Panel, NDRC. In 1948, he was appointed to a John Simon Guggenheim Fellowship and spent a year at the University of Copenhagen. He received the Bocher memorial Prize of the American Mathematical Society in 1953 for his work on differential equations. He was awarded the Chauvenet Prize of the Mathematical Association of America in 1971.

Born in Lynn,Mass.,in 1912,Professor Levinson was graduated from Revere High School. He received the S.B. degree from M.I.T. in 1933, the S. M. in Electrical Engineering in 1934, and the Sc.D. in Mathematics in 1935. He was a Redfield Proctor Travelling Fellow at Cambridge University for 1934-35 and then spent two years as a National Research Council Fellow at Princeton and the Institute for Advanced Study.

Professor Levinson is a member of the National Academy of Sciences, the American Mathematical Society, the Mathematical Association of America, and the Society for Industrial and Applied Mathematics, and is a Fellow of the American Academy of Arts and Sciences. He is a member of the Board of Governors of the Wiezmann Institute.

Howard W. Johnson

SCORE Corporation

Dr. Paul E. Gray, Dean of the School of Engineering, joined with his colleagues from seven other major American universities last week to form a new non-profit corporation to encourage student initiated competitions which advance engineering education.

The corporation is SCORE, for Student Competitions on Relevant Engineering. Its founding is largely an outgrowth of the success of last summer's Clean Air Car Race.

Engineering deans and administrators from Tufts University, Dartmouth College, the University of California at Berkeley, Carnegie-Mellon University, the University of Michigan, the University of Wisconsin and the Georgia Institute of Technology as well as MIT participated in launching the new corporation.

Membership in SCORE will be open to any institution which awards bachelor's degrees. Officers and active members in SCORE will be students, but the board of directors will be made up of administrators from member colleges. The annual membership fee will be $100 per thousand enrolled engineering undergraduates.

As its first venture, SCORE is working with the coordinating committee of the Urban Vehicle Design Competition, a group of students from Boston area colleges, located at MIT. The event will test cars designed and built to solve the special problems of city driving. More than 90 groups have already expressed an interest in participating in UVDC, which is scheduled for the summer of 1972.

CSF Campaign

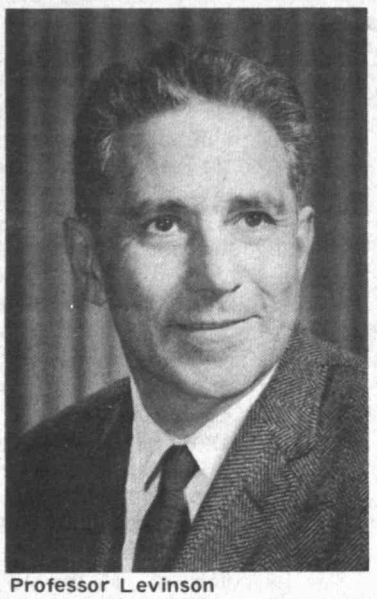
The trustees of the MIT Community Service Fund expressed concern in results to date of the campaign to raise $50,000 to support Institute volunteers engaged in programs serving the inner city. Contributions this year are $9,000 less than those received at the same time last year.

"The slow response may be because of a new solicitation procedure," Professor Carl Garland, CSF chairman, said, "but I hope all solicitors will complete their work in the next two weeks while the purpose of CSF is clear in people's minds."

Professor Garland went on to explain that the trustees are in the process of reviewing 12 new proposals for funding in addition to renewal proposals from continuing programs like Tutoring Plus, Education Warehouse and Urban Action.

"It is difficult to promise funds to any of these worthwhile projects without a clear idea of how much money the campaign is likely to yield," he said. "The trustees would like to respond to all requests before the end of the term, but this may not be possible without a sharp increase in returns from the fund drive."

Anyone who has not yet made a contribution can do so by sending a check or pledge to Room 4-113. More information on the CSF is available from Professor Garland, Ext. 6826 or from Mr. Joseph Collins, Ext. 1988.



Professor Levinson

Key Appointments

Philip A. Stoddard, vice president for operations, has announced three major new appointments effective July 1--two in the Physical Plant Department and one in the Graphics Arts Service.

William R. Dickson, '56, will become Director of Physical Plant, succeeding Carl M. F. Peterson, '29, who is retiring.

Donald Whiston, '32, has been appointed Deputy Director for Plant Systems Development in Physical Plant.

James W. Coleman will become Director of the Graphics Arts Service, succeeding Frank H. Conant who is also retiring.

Mr. Peterson is retiring after more than 40 years of dedicated service to the Institute. He was a member of the faculty in the Department of Mechanical Engineering for several years before joining Physical Plant where he has served for more than 30 years. In Physical Plant Mr. Peterson has played a key role in planning for and managing the great changes that have come about in the size and complexity of MIT's physical facilities.

Mr. Dickson, who is an Associate Director of Physical Plant, will assume overall direction of the department. As director, he will coordinate all matters pertaining to plant operations and maintenance, alterations to existing facilities and the design and construction of new buildings.

Mr. Whiston, who is also an Associate Director of Physical Plant, will direct a major review of the Institute's plant related systems and procedures, giving special concern to technological change, environmental considerations and cost effectiveness. In this process he will act as liaison with administrative and academic departments.

Mr. Conant is retiring from the Graphic Arts Service after 44 years. He helped in founding the photographic service in 1926. Since that time he has guided its growth into a multifaceted service organization in response to the growing demands of the Institute.

Mr. Coleman will be responsible for the continued operation of the Graphic Arts Service, with the objective of providing a service responsive to the changing requirements of the Institute community.

Hoffman To Become Head of Mathematics

Dr. Robert A. Alberty, Dean of the School of Science, announced the appointment of Dr. Kenneth M. Hoffman as head of the Department of Mathematics in a letter to the faculty of the department on Monday.

Professor Hoffman will succeed Professor Norman Levinson, who was appointed an Institute Professor last week, on July 1, 1971.

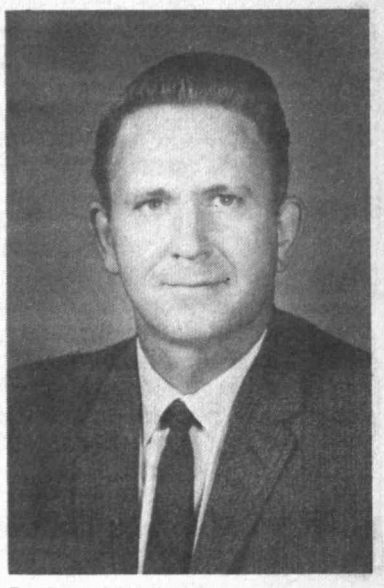
In November 1969 President Johnson appointed Professor Hoffman chairman of the Commission on MIT Education, a 12-member group composed of faculty and students. Last November the Commission presented its first report, *Creative Renewal in a Time of Crisis*, which concerned the educational goals and policies of the Institute.

In announcing Professor Hoffman's appointment, Dean Alberty said:

"This Commission was born in a difficult period when many questions were being raised about education at MIT. Since its appointment the Commission has served as an important center of communication and focal point for discussions of many issues. The community owes a great deal to Professor Hoffman for his services as chairman of the Commission during this period. Although Professor Hoffman will take up the responsibilities of head of the Department of Mathematics on July 1, he will be completing certain activities of the Commission in the summer and will continue to participate in follow-up activities."

Professor Hoffman joined the teaching staff as an instructor in 1956. He became an assistant professor in 1959, associate professor in 1962 and professor in 1964. He has taught subjects ranging from freshman calculus through advanced graduate courses, and is a leading authority on commutative Banach algebras. Before becoming chairman of the Commission, he served for a year as chairman of the committee on pure mathematics.

A native of Long Beach, California, Professor Hoffman received the A.B. degree from Occidental College and the M.A. and Ph.D. degrees from the University of California at Los Angeles.



Professor Hoffman

Professor Hoffman is the co-author of the basic undergraduate text, *Linear Algebra*, and author of *Banach Spaces of Analytic Functions*. He is also an advisor on college mathematical texts to Prentice-Hall. He is a member of the American Mathematical Society and Sigma Xi.

Edgerton Honored By Aquarium

By Linda Omohundro

Dr. Harold E. Edgerton, Institute Professor Emeritus, was honored by the New England Aquarium Monday for his assistance in the overall development of the Aquarium. The Board of Governors dedicated the Harold E. Edgerton Research Laboratory in honor of "a true and devoted friend of the New England Aquarium."

In making the presentation, David B. Stone, chairman, said, "During the Aquarium's most crucial period of development, Dr. Edgerton has always been ready and anxious to lend his assistance. In addition to his efforts in research, he has concerned himself with the total impact of the Aquarium. On a moment's notice, he has responded to situations where his exceptional talents have proven invaluable."

The goals of the Harold E. Edgerton Research Laboratory are: to initiate and participate in educational and research programs which define environmental problems; to investigate and determine informed and rational solutions for these problems; and to recognize and support the long-term importance of retaining the quality of natural resources.

Chairman of the Science Advisory Committee of the Aquarium, Dr. Edgerton is also a Trustee and a member of the Board of Governors.

It should not surprise the Institute community to learn that Dr. Edgerton has been honored in this way. Fondly known as "Doc," he is the world's greatest specialist in seeing the unseen. With his ingenious stroboscopic devices, he

has changed the dimensions of our world.

"Do you believe in magic?" he asks. Then, with a flick of a switch his "single piddler hydraulic happiness machine" goes into action. At first glance a steady stream of water is seen flowing out of a plastic tube, as it would from a kitchen faucet. Look again and that same stream of water is now a row of individual droplets flowing downward and splashing, one by one, into a glass jar of water. Doc waves his hand and suddenly the same drop of water that just splashed into the jar and disappeared has reformed and is flowing up, yes UP, toward the opening in the tube.

If that doesn't make belivers out of Doc's audience, he chuckles and tries a few more tricks. He touches a pencil to his ear, and suddenly little "moons" appear and spin around each droplet of water. Then for those who dare to watch, the water droplets stand still, floating in mid air. Magic? "No," says Doc. But his wide-eyed, open-mouthed audience isn't so sure.

Doc Edgerton is not a magician, but he is fascinated with the unknown. He has an insatiable curiosity about everything in the world--what makes a machine work, what happens when a drop of milk splashes on a saucer, how metal breaks under tension. how a cat held upside down and dropped lands right side up, what goes on in the depths of the ocean, how a soap bubble dies, how a car wheel skids in slush, what happens the instant a bomb explodes, how a batter connects with the baseball, and on and on. He attacks each problem with enthusiasm and concentration.

During his 45 years at the Institute, Doc has established a special rapport with and concern for students. With Doc the

Dr. David B. Stone (left) and Doc.

generation gap doesn't exist. students seek him out all over--in his cluttered office or lab, in the hallways, while he's eating lunch in the Student Center, at lectures, even at home. He's never too busy to stop and talk or help with a problem.

Doc spends a lot of time and energy trying to bring the various segments of the Institute together. His student-staff acquaintance hikes to the mountaintops of New Hampshire have exercised the muscles of many and the brains of those who reached the top.

With the spirit of a new world explorer, Doc has traveled around the globe on a wide variety of scientific missions. He has searched for a Spanish galleon that sank off the coast of Scotland 400 years ago and used his equipment in the Mediterranean to look for the lost harbor of Caesarea and ancient city of Helike. In 1969 he spent the summer aboard a Russian research vessel studying the mid-Atlantic Rift Valley. On one trip with Jacques Costeau, well-known oceanographer and captain of the *Calypso*, Doc explored Lake Titicaca high in the Andes Mountains.

And he loves to tell stories about his adventures. Many of his favorites are centered around the *Calypso*, A frequent passenger, Doc has been nicknamed "Papa Flash" by the crew. Several years ago he flew to Marseille to join the ship on a scientific cruise. The trip was delayed for six hours because customs officials insisted on opening his professional luggage. In one camera case they found six jars of peanut butter, a shipboard favorite, and in another box were all sorts of paper hats and favors for a party at sea.

Another favorite goes something like this: "I was talking with another man during a break at a convention of motion picture engineers in Hollywood. Suddenly we were surrounded by photographers--their cameras flashing like mad. I told the other man that I just couldn't imagine why they were so intent on taking *my* picture." Doc pauses, smiles, and then quietly adds, "The other man was Rock Hudson."

A genius at seeing the unseen, Doc Edgerton doesn't always use the synthetic eye of a camera. From behind his rimless glasses, Doc sees people and knows how to help them love life as much as he does.

Furniture Exchange

The MIT Student Furniture Exchange is a bargain hunter's delight.

Students and short-term visitors who need furniture but don't want to spend a lot of money will find a vast array of inexpensive but durable household wares on sale at the Exchange. Some of the stock has been used by several generations of MIT students.

A sample inventory includes beds, chairs, mirrors, tables, desks, bureaus, bookcases, draperies, rugs, lamps, bedspreads, baby furnishings, fans, radios, wastebaskets, hot plates, pots and pans, vacuum cleaners, paintings, books and lots of miscellany. Occasionally odd things appear, such as a pair of wooden crutches, old-fashioned hat stands, a hand carved wood-and-tapestry bed canopy, or a 75-year-old treadle sewing machine. There are many items which just can't be described--and are usually given to anyone who will take them. One example is "Bromo paper for the water closet" which, according to its container, "won the highest prize awarded by the Paris Exposition in 1878."

The Exchange, a non-profit organization, is operated by volunteer members of the MIT Matrons. They try to keep both purchase and sale prices as low as possible. Mrs. Netta Murphy, manager of the Exchange, explains, "We pay cheap because we sell cheap." If a profit is realized, the Matrons donate it to the Student Loan Fund and other student services.

Most stock is bought from departing students and visitors, but the Exchange will buy used household goods from anyone in the community. Tax-deductible donations are always welcome.

Sales are strictly cash and carry. However, if purchased merchandise can't be picked up right away, short-term storage arrangements can be made. Items sold or donated to the Exchange must be delivered by the owner.

All furniture sold at the Exchange is usable as is, but if it comes back in better shape, the owners frequently make a profit. For a while the Matrons repaired or refinished some of the more battered furniture, but they have found that students prefer to do the job themselves,

Ordinarily open only to students and short-term visitors, the Exchange holds an all-Institute sale at least once a year. The Matrons are making plans for this special sale now, so watch for an announcement.

The Exchange is located in a warehouse at 25 Windsor Street, just around the corner from Graphic Arts. Regular business hours are from 10 until 2 on Tuesdays and Thursdays. Call Ext. 4293 for an appointment.

Changes at the Coop

Howard Davis, general manager of the Coop, has announced some changes in store hours and financing practices.

After present Coop, CAP and Master Charge credit cards expire June 30, the Coop will revert to its former system of doing its own billing. The Harvard Trust Company will no longer serve as an intermediary, and only Coop charge cards will be valid for store purchases.

In the other major Coop policy change the business hours have been shortened at all stores. In particular, the MIT store is now open from 9:15am until 5:30 pm, half an hour less than previously.

Davis spoke of "preserving the intimate relationship between the customer and the store" as part of the reason for going back to in-house handling of credit accounts. He said that Harvard Trust was happy to be withdrawing from the arrangement, which lasted only one year, in which Harvard Trust did the Coop's billing. The bank was overwhelmed by the sheer volume of work that Coop accounts demanded, and losing money on the deal as well. A new team of experts in the credit card field will handle Coop accounts beginning July 1.

The decision to shorten store hours was the result of an effort to remain competitive with other department store personnel hours, Davis said. Full-time Coop employees now work 37½ hours a week instead of 40. Within this restriction the ideal store hours, based on studies of customer traffic flow, appear to be the new 9:15-to-5:30 schedule. To handle the load during peak sales period from about noon to 2pm, new part-time sales people will also work at the store.

The Lobby Shop will retain its present hours of 8:30am to 9pm during the week and 8:30 to 5pm on Saturdays.

Davis also mentioned a new approach to merchandising, particularly in men's clothing. The merchandising manager has brought in a complete line of shirts bearing the Coop label that sell for lower prices than shirts of comparable quality with prestige labels, Davis said. The manager also plans to expand this approach to raincoats, sweaters, and other items.

MIT Ranks Worldwide

MIT placed fifth among top ranking universities of the world in a recent survey conducted by the Gallup organization. A random sample of leaders in 70 nations around the world ranked Harvard first, followed by Oxford, Cambridge, Princeton, MIT and the Sorbonne. Those surveyed were drawn from *The International Who's Who.*

Anyone for Metrics?

The rest of the world has either discarded or never used the American system of measurements, with its cumbersome pints, quarts, gallons, inches, feet, yards and miles. From time to time various groups have suggested that the US convert to the metric system instead. Now a group in Newton is offering $100 prizes for TV scripts that could be used in a campaign to promote the metric system.

The Education Development Center will award the cash prizes for complete or outlined scripts for one-minute pilot films. Trial videotapes are also acceptable. The submitted package should familiarize an audience with the metric system or convince people that the US should "go metric."

All scripts must be submitted by May 21 to:

METRIC CONTEST
c/ o William Walton
Education Research Center
MIT Room 20B-136
Cambridge, Mass. 02139

Winners will be notified by mail by May 31.

For further information write to Mr. Walton directly or call him at Ext. 2041.

RLE Anniversary

The Research Laboratory of Electronics celebrated its 25th anniversary with a party at the Faculty Club last Saturday (May 8). About 150 professors, staff members from the Division of Sponsored Research, hourly employees, secretaries and wives came for cocktails, dinner and an evening of dancing. Among the many notable guests were Dr. and Mrs. James R. Killian, Jr., Dr. and Mrs. Jerome Wiesner, Dr. and Mrs. Albert G. Hill and Dr. and Mrs. Jerrold Zacharias.

Left to right: Dr. Albert G. Hill, John J. McCarthy, and Dr. Jerome B. Wiesner.

--Photo by John Cook.

RLE was formed in 1946 as an offshoot of the World War II Radiation Laboratory. Originally researchers in the lab were concerned with microwave research, and communication theory but over the years research has spread to encompass three broad areas--communication sciences and engineering, plasma dynamics and general physics.

Soaring Society

The MIT Soaring Club is flying high once again.

Revived two years ago, the club welcomes alumni, employees, faculty, staff, and students as members. Harvard and Wellesley students are also invited to join.

The club's 25 members do their soaring at the airfield in Norfolk, about 20 miles southwest of campus. After a month or two of training members can fly solo. Another four months or so and they can take passengers along.

After paying the yearly club dues--$50 for students, $100 for others--members do all the soaring they want for free. The club's members spend a total of perhaps 100 hours a months in the air.

The original Soaring Club faded out many years ago. Doc Draper, present club president, helped revive the group. Professor Thomas Davis, Ext. 6878, is the man to call for details about joining.

TECH TALK

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Report of the Task Force on Educational Opportunity

Dr. Paul E. Gray, Dean of the School of Engineering, has released the following report from the Task Force on Educational Opportunity which he presented at the faculty meeting on April 21.

The Task Force on Educational Opportunity is an ad hoc student-faculty-administration group which was formed by appointment of the president in October, 1968, as a way of providing an institutional mechanism for responding to initiatives put forward at that time by the MIT Black Student Union. The Task Force during most of its two-and-a half years has numbered in the range of 15 people. . .about equally divided between students on the one hand and members of the faculty and administration on the other hand. We have operated intensively during this period of time, typically meeting each week for at least two hours of discussion and planning. Our mode of operation has been to work through standing committees of the faculty on matters of policy, and through operating agencies on operational matters. We have maintained a connection to both the Committee on Education Policy, which is represented on the Task Force by the Associate Chairman of the Faculty, and a connection with the Committee on Undergraduate Admissions and Student Aid, which is represented on the Task Force by its chairman.

The purpose of the Task Force, central objective, was to expand educational opportunity at MIT for black Americans and for other minority groups whose access to higher education has been limited by economic disadvantage, by social prejudice, or by inadequate prior schooling. The working hypothesis of the Task Force has been that there are many black and other minority-group students who have the desire, the personal potential, and the intellectual resources that are necessary for effective participation in the many degree programs offered here. Furthermore, that participation can occur without the development of special or second-rate or watered-down programs and without the relaxation of standards for academic performance. The attainment of this objective has required special efforts to make potential students aware of the educational opportunities that exist at MIT, to devise ways of identifying and encouraging first-rate ability that may have been masked by second-rate schooling, and to provide resources and assistance that will facilitate the process of adjustment to this academic environment by closing rapidly and effectively whatever preparation gap may have existed.

The Task Force efforts represent an intensification and a bringing closer to fruition of efforts and concerns which began seven years ago in the Committee on Admissions which have been the continued concern of the Admissions Office during the intervening years.

Let me speak now about the nature of the efforts. I'll talk first about the undergraduate situation and then about the graduate situation.

With respect to undergraduates at the Institute, we have focused on recruitment, on admissions, on financial aid, on support, and including a summer transitional program. With respect to recruitment, we have made, I believe, all the efforts that can be made, all that have been suggested or that we could invent, to make contact with promising black and other minority-group students around the nation. These efforts have included letters to students distinguished by the National Achievement Scholarship Program, contact with guidance counselors, contact with referral agencies, a degree of advertising in the magazines and newspapers widely read in the black community, visits to secondary schools which are predominantly black or that have large black populations, and vigorous efforts on the part of the MIT Educational Council.

Ben Moultie and Ahmad Salih, '72.

The result of these efforts in recruitment has been over the last two-and-a-half years a ten-fold increase in the number of applications from black students. At present, we are receiving about 300 final applications per year, whereas in the two- or three-year period that preceded the Task Force, the number was closer to 30.

I would say at this time that we have not had similar success in achieving contact with other minority-group students. The problems of identification, and of not having a large student constituency at MIT who have the interest and the time to work intensively on those matters have been limiting. Those efforts continue.

With respect to admissions, there has been the usual strong emphasis on secondary school performance as a measure of admissibility, on evidence of personal force and motivation, and on evidence of interest in science-based education. At the same time, there has been a reduced emphasis on College Board test scores. We recognized at the time this was undertaken that there was a risk in terms of how individuals would perform academically at MIT, but we felt it was a risk that was necessary, and, further, one that could be justified. The results of these changes in admissions policy and the fact that these admissions decisions have been made each year by a small group involving Admissions Office staff members, Task Force members and students have been that in the last three years, including the year we are now in (speaking of admissions for September, 1971) we have made offers of admission to 90 to 100 black students. Again, this represents about a tenfold increase over the situation in the preceding years. The enrollments in the two years that are now history (Classes of 1973 and 1974) have been in the range of 50 to 60. The number of offers this year is off slightly. It looks like we will be making offers of admission to about 75, reflecting a somewhat smaller number of applications (down from 300 to 270 or so), and I suspect that the number of black students enrolled next September is likely to be nearly 50; rather than nearly 60 as it was a year ago.

As is true of all students offered undergraduate admission at the Institute, these minority-group students have their financial need met by a combination of self-help (loan and term-time job) and scholarship. In view of the pattern of significant economic disadvantages that is characteristic of these students, and to avoid compounding whatever academic risk may exist with a financial risk, these students have been asked to undertake a smaller loan commitment than their classmates during their first two years at the Institute.

As part of the program the Task Force conceived and developed a summer transitional program--a program seven to eight weeks in duration which occurs in the summer preceding the freshman year and which is intended to ease the transition from a secondary school environment to this very difficult university environment with the special kinds of pressures that seem to characterize MIT. That summer transitional program, known as Project Interphase, has operated for two years, and we have presently completed staffing and are now completing the details of planning for the program this summer. There have been changes in detail in the operation of the program, but the purpose has remained constant. That purpose is to provide an "academic ramp" into the first year, and to provide an opportunity for students to become familiar with this community and the people here when the pressure and the pace are slightly less than they will be in the fall.

I should say that not all of the students to whom we offered admission have been invited to the summer program. We have invited those whom we felt needed it and could profit from it; and that group constitutes about 60% of the group offered admission.

This year for the first time there has been developed during the academic year a student-support program in that the MIT Black Student Union has undertaken the development and staffing of a tutoring program, with some financial support from MIT through the form of college work-study funds. This program has been available throughout the present academic year for those undergraduates who desire that kind of assistance.

Let me come now to the graduate situation. There's a fundamental difference here, one which has bemused and troubled us from the outset, but one which I think is intrinsic to MIT, and we have to learn to live with it and work through it. Whereas in the undergraduate situation one is dealing with the Admissions Office on matters of operation and with the Committee on Admissions and Financial Aid on matters of policy, at the graduate level one is dealing inevitably with 23 separate departments who proceed in their individual ways, with their own traditions of operation and with their own views on matters of policy. And this has made the expansion of educational opportunity for graduate students enormously more complicated. There have been efforts at recruitment of graduate students which have taken a form similar to those I described for undergraduates, as well as special efforts to admit those students who seem to have a high probability of success in various graduate programs.

The results have been approximately a doubling in the number of black graduate students at MIT each of the last two years. The number was about 17 when we started; it increased to about 30 in the second year, and to about 55 in the present year. Offers of admission are presently out to about 60 black graduate students for next fall. Consequently the number of black graduate students registered next year should nearly double again.

Let me come next to the question of academic performance. Our intent has been and remains to achieve a rate of academic success comparable to that which obtains at MIT generally. The first large group of students to enter through the efforts of the Task Force came in September 1969 and are now in their fourth semester here. Although it is too early to make conclusive assessments of performance, the Task Force has followed closely the academic performance of this group of 53 students. After three semesters at the Institute about 60% percent of these students were in satisfactory academic condition and were making normal progress toward degrees. This rate of success is much larger than would have been predicted by the usual measures of admissibility, which give much emphasis to CEEB test scores. About 20 percent of that group (about ten students) are now in marginal condition academically. By that I mean that they have been placed on academic warning by the Committee on Academic Performance. And about 20 percent (another ten students) have withdrawn from the Institute. Two left in good standing to transfer elsewhere; the others have withdrawn either as a consequence of academic difficulty or in the face of impending severe difficulty. The rate of failure that these numbers represent is certainly larger than the Task Force had anticipated and I believe larger than can be sustained in a steady state. Maximum efforts, both to intervene and assist those students who are presently here, and understand the implications of this situation in terms of future admissions, are very much a part of the agenda of the Task Force.

Another 58 freshmen entered MIT in 1970. Part way through the second semester of the freshman year with pass-fail grading it is certainly too soon to justify comments about the performance of that group. I would add only that those of us who have been close to the situation feel that this group is now in stronger academic condition than their counterparts were a year ago. And I believe this is the case primarily because being a member of the *first* large group of black students at MIT who were ground-breaking and changing patterns of many years and has had its deleterious consequences in terms of academic performance, a set of consequences which I think will not be repeated with those students who are presently freshmen.

With respect to graduate students, the situation is much more difficult to describe because of the variety of programs in which these students are registered and the degree to which most graduate students in the first year of their work here take special subjects and subjects with hours to be arranged that make it hard to assess performance. Our best look at it suggests that there is only a literal handful--less than half a dozen--of the minority-group graduate students who are apparently in unsatisfactory academic condition at the present time.

Let me conclude these remarks with a brief listing of what seem to me to be the principal issues for the Task Force in the future.

First is the issue of financial aid, both as it bears on undergraduates and on graduate students. It is clear that the worsening situation, at MIT and elsewhere with respect to student support, has particularly severe implications for the students we are speaking of, to whom financial aid is often the decisive issue in whether they can or cannot accept an offer of admission. This has been troublesome both at the graduate level, where the rapid decrease in the availability of federal support for graduate students has made it harder each year to support even the same number of students, let alone a group which is nearly doubling each year. The same problem is present with respect to undergraduates, as I think many of you know. The standard student budget, the amount which it costs a student to spend a year at M.I.T., has been growing very rapidly. It's now at the level of $4900 and is growing at about six percent a year. This rate of growth of cost, coupled with the nearly static situation in terms of resources available to meet that requirement

Paul E. Gray.

THE INSTITUTE CALENDAR

–that is, in terms of loan and scholarship resources–produces a gap which again is particularly critical in terms of trying to make continuing progress in this area. This is a problem of the highest priority which will continue to occupy us.

The second issue I will mention is that of academic performance and the implication of that performance for future admissions. I believe we are extracting all of the

John K. Stutz and James J. Bishop.
--Photos by Margo Foote

information that is available from the performance and the general history at MIT of those who are now here. We will continue to make strong efforts to understand that performance insofar as it bears on our admissions actions in the future.

The third issue relates to the future of the Task Force itself. The group was formed as an ad hoc group with no specific lifetime but with a clear task defined, and I think we must from time to time ask the question "When has that task been sufficiently normalized so that the Task Force is no longer necessary as a continuing formal body?" I think at some point we must disengage from issues and return them to their proper places in terms of the normal policy-making and operating agencies of the Institute. We largely have done this with respect to undergraduate recruitment. The Office of Admissions carries on a recruitment effort which I think reflects fully the deliberations and the intent of the Task Force over the last two years, and there has been relatively little interaction between the Task Force and the Admissions Office in the present year in matters of recruitment. That is just one example of a set of issues we must examine from time to time to see whether the time has come for us to disband as a formal activity and perhaps to continue as a group that meets only as special questions arise. The Task Force is just beginning to engage this question, but I wanted to emphasize that we are looking at it because we do not intend to be an organization which continues its existence indefinitely.

Signer to Visit China

A 34-year-old associate professor of microbiology from MIT is reported to be one of the first two U.S. scientists to be allowed to visit China since the Chinese, beginning with the U.S. ping pong team, began relaxing visitation restrictions on Americans recently.

He is Dr. Ethan R. Signer whose special area of research in the MIT Department of Biology is bacteriophage genetics. He and Harvard's Dr. Johathan Beckwith did much of the preliminary work several years ago which eventually led to the first isolation of a gene by Beckwith and others at Harvard last year.

Dr. Signer and Dr. Arthur W. Galston, a Yale biologist, went by invitation to the North Vietnamese capital of Hanoi in mid-April to deliver a series of scientific lectures and to visit with North Vietnamese scientists and leaders. Their invitation to North Vietnam had been arranged through colleagues in Cambridge and elsewhere who had earlier visited and lectured in Hanoi.

Dr. Signer reached Hanoi via Paris and Moscow and Karachi, Pakistan, and Vientinne, Laos. Before leaving Cambridge, he had expressed the hope that he might also be allowed to go to Peking, China, since the Chinese had just been hosts to the U.S. ping pong team and had expressed the hope for more visits by Americans.

Last weekend, a Japanese news agency, quoting the official China News Agency, said that Dr. Signer and Dr. Galston would visit the Chinese capital before returning to the U.S. from their trip to North Vietnam.

Dr. Signer's wife said she was unable to confirm the news report, but said she knew Dr. Signer had hoped to be able to reach Peking during his trip.

"If he is going, he must have received his visa for China in Hanoi," she said. "He did not have one before he left."

If Dr. Signer does reach the Chinese capital as reported, the visit will be one of the first by a U.S. scientist in more than 20 years. Colleagues in the department said they hope the report is true because they are eager to learn of the state of Chinese biological sciences, particularly genetic sciences.

Dr. Signer, a native of Brooklyn, N. Y., received his B.S. degree from Yale in 1958 and his Ph.D. from MIT in 1963. His thesis supervisor here was Dr. Cyrus Levinthal, now at Columbia. From 1963-64 he was at the National Medical Research Council, Cambridge, England, working with Dr. Sydney Brenner, and from 1964-66, he was at the Pasteur Institute in Paris working with Dr. Francois Jacob (and collaborated with a fellow American, Dr. Beckwith).

Dr. Signer and his wife, the former Barbara Lucy, met while he was a graduate student at MIT and she was a programmer in the MIT Computation Center. They have a daughter, Kira, whose first birthday was Monday.

Silver Club Celebration

The MIT Silver Club, an organization of women who have worked at the Institute for 25 years or more, celebrated its own 25th anniversary at a champagne luncheon in the Student Center last Saturday. Guests for the occasion included Mrs. Karl T. Compton, who has been an honorary member

Dr. and Mrs. Killian greet Mrs. Barbara Thomas at the Silver Club luncheon.
--Photo by Randy Adams, '74.

of the club since 1954, Dr. and Mrs. James R. Killian, Jr., Mr. and Mrs. Paul V. Cusick, Mr. and Mrs. Robert J. Radocchia and Mr. Ralph A. Sayers.

Peggy Norton of Electrical Engineering was chairman of the occasion and briefly outlined the history of the group.

The Silver Club was formed in June 1946 with 22 charter members, five of whom were present for the anniversary luncheon. There are now 118 members, including those who were inducted on Saturday.

Mr. Cusick was the featured speaker. He recalled his arrival at the Institute in 1944, to help convert the payroll from a manual procedure to the NCR system--which itself has been replaced. Naturally there were some bugs in the new system, a notable one being paying Horace Ford, then the Institute treasurer, ten times his normal salary.

New members this year are: Mrs. Rita Marie Albee, Electrical Engineering; Mrs. Frances Brunswick, Draper Lab; Mrs. Carolyn Cox, Registry of Guests; Mrs. Margaret M. Finnerty, Physical Plant; Miss Mary Hovnanian, Military Science; Mrs. Julia McLellan, Admissions; Miss Dorothy Meigs, Development Office; Miss Barbara C. Morris, RLE; Mrs. Marion Oliver, Physical Plant; Mrs. Margaret Peterson, Draper Lab; Miss Elizabeth Shaw, Aeronautics and Astronautics and Mrs. Matilda Wallace, Ashdown Dining Service.

Two associate members were also elected: Miss Katherine Chisholm of Campus Patrol and Dr. Harriet L. Hardy of the Medical Department.

Miss Bess Makris of the Tech Coop was the first to be elected to a new category of membership, called affiliate membership.

New Book Out

The Conceptual Foundations of Contemporary Relativity Theory
John C. Graves, Associate Professor of Humanities
$15.00 (hardcover)

The present language of physics, like that of everyday life, is based on concepts of independence and separation. A completely new language, however, may be needed to describe the world when it is viewed from a different philosophical vantage point.

Here and There

–Connie Houghton, who is retiring after 35 years in the Technology Community Association office, will be honored at a reception on Monday, May 17 at 4:30 p.m. in the Mezzanine Lounge of the Student Center. Everyone is welcome to come.

–The MIT Community Players will present seven performances of *Rosencrantz and Guildenstern Are Dead*, May 14, 15, 19, 20, 21 and 22 at 8:30 p.m. and on May 16 at 2:30 p.m. All performances will be in the Little Theatre of Kresge Auditorium. Tickets are $2.50 and can be purchased in the Maclaurin Lobby or reserved by calling Ext. 4720.

Concourse Experiment

About 35 of this fall's entering freshmen will be able to spend their first two years at MIT in a new program--called Concourse--which differs markedly from the traditional core curriculum.

The ten-member staff of the Concourse Experiment is now planning in detail the curricular content of next year's program which will involve students and faculty in collaborative learning through two complementary types of experience.

General Meetings will bring together all the members of the program for discussions, lectures, lab sessions or other less formal activities. These will focus on a single theme or idea which will promote not only a close knowledge of the methods and materials of diverse individual disciplines, but also a perception of ways in which those disciplines may usefully interact.

Because the faculty group represents a wide range of intellectual specialties, the General Meetings promise a lively mix of perspectives. Faculty members are drawn from physics, humanities, aeronautics and astronautics, economics, mathematics, electrical engineering and chemistry. The program's originators point out that the students will profit by seeing the intellectual limitations and blindspots of the individual teachers as they venture outside their areas of professional competence.

In addition to the General Meetings, students will engage continuously in Working Groups. In these they will choose, define and carry out research projects largely independent of faculty direction. Here the emphasis will be one of the students' capacity for working together in combining their individual capabilities and marshalling the resources available to them.

The aim of the Concourse Experiment is to develop an ongoing sense of intellectual community among its members. It is hoped that the program will open a new way of preparing students for informed choice of later work in fields of concentration at the Institute and beyond.

Events of Special Interest

MIT Club of Boston Luncheon Meeting
Thursday, May 13, 12:15 p.m. Aquarium Restaurant, 100 Atlantic Avemue. $3.25.

Morris Burg Memorial Seminar+
Rabbi Bruce Goldman will speak on radical judaism. Rabbi Goldman, an ordained member of the Reform Rabbinate, is the founder of Radical Jewish Students at Columbia University and in New York, and a leader of the radical and progressive Jewish left in the U.S. Sponsored by MIT Hillel.
Thursday, May 13, 7:30 pm. McCormick Hall, Green Living Room.

Tau Beta Pi Steak Fry
Friday, May 14, 5 pm. Briggs Field.
$2.75 for students, faculty and staff of the School of Engineering. Tickets available in the department headquarters of Courses I, II, and VI. In case of rain it will be held in the lobby of Building 13.

Day Care Meeting++
Presentation of Survey results and preliminary proposals.
Monday, May 17, 12-2 pm, Room 39-585. Child care arrangements, 39-530.++

Art in Civic Scale
Wednesday, May 19, Kresge Auditorium.
"Art, People, Environment," 10 am-12:30 pm.
"Art in Civic Scale," 2 pm-4 pm.
"Participatory Urban Art," 4:20 pm-6 pm.
Presented by the Center for Advanced Visual Studies, the Department of Architecture and the Department of Urban Studies and Planning.

MIT Outing Club+
Slide Lecture on Mountaineering Medicine.
"Outdoor Medicine on Everest," Dr. Michael Wiedman, MIT Medical Department.
Thursday, May 20, 7 pm, Room 3-270. Free Admission.

MIT Alumni Homecoming
Sunday, June 6
International Buffet - $4.50
Student Center - 5 pm.
Tech Night at the POPS
Symphony Hall, 8:30 pm.
Prices $6.50, $4.50, $3.00, $1.00
For information and reservations please contact the MIT Alumni Office E19-437, Ext. 3874, 4876 or 4878.

MIT Alumni Homecoming
Monday, June 7.
Debate on Science & Public Policy. President Howard Johnson and Professor Eugene Skolnikoff, Head of MIT Political Science Department, will moderate two panels. The panelists, including Clarence Linder, President of the National Academy of Engineering; Edward David, Science Advisor to President Nixon; and Paul Gray, MIT Chancellor-elect, will explore ways that technology can be made more responsive to the broadest needs of our society.
Kresge Auditorium, 9:30 am and 2:20 pm.
Reception for Dr. James R. Killian, Kresge Mall area, 5:30 pm, $3.00.
For information and reservations please contact the MIT Alumni Office, E19-437, Ext. 3874, 4876 or 4878.

Seminars and Lectures

Thursday, May 13

The Politics of Environmental Action: DDT - A Case Study
Charles F. Wurster, Jr., Associate Professor of Environmental Sciences, State University of NY, Stonybrook. Systems Dynamics Group Seminar.
11 am. Shell Room, E52-461.

Children and Television: Lessons from Sesame Street+
Professor Gerald Lesser, Laboratory of Human Development, Harvard University. ERC Colloquium.
12 noon. Bush Room, 10-105.

Tree Manipulation Systems and Church - Rosser Theorems +
Barry Rosen, Harvard University. Project MAC Seminar in Computer Science.
3:30 pm, 545 Tech Square, Fifth Floor Conference Room. Coffee, 3 pm.

New Observations on the Chymotrypsin Mechanism+
Professor Michael Caplow, Department of Biochemistry, The University of North Carolina at Chapel Hill.
4 pm, Room 3-370.

The Role of Social Science Research: As Illustrated by the CIS +
4 pm. CAES Auditorium, 9-150. CIS Forum.

Acoustics of Open and Closed Spaces +
Mr. William F. Cavanaugh, Consultant. Acoustics and Vibrations Seminar.
4pm. Room 5-134. Coffee, 3:30 pm, Room 1-114.

Fluid Dynamics of Drag (Parts 3 and 4)+
Fluid Mechanics Film
4 pm. Room 3-270.

May 13 through May 20, 1971

Send notices for the week of May 20 through 27 to Mrs. Alice Tripp, Calendar Editor, Room 5-122, Ext. 1766, by noon on Friday, May 14.

High Temperature Superconductivity or the Fiasco of Theoretical Prediction+
Professor Bernard T. Matthias, University of California, LaJolla. Physics Colloquium.
4:30 pm. Room 26-100. Tea, 4 pm, Room 26-110.

Regulation of Cholesterol Metabolism in Man+
Dr. Edward H. Ahrens, Jr., Rockefeller University. Departmental Seminar for Nutrition.
4:15 pm. Room 54-100. Coffee, 4 pm.

Friday, May 14

Audio Dynamic Range Expansion+
Gregory Ream. Audio Perception Seminar.
11 am. Room 26-217.

Heat Capacities of Liquids Above the Normal Boiling Point
G. Mellinger, Graduate Student, Department of Chemical Engineering. 10.992 Seminar.
2 pm. Room 24-121.

The Performance of a Continuous Ice Crystallizer
A. Garcia, Graduate Student, Department of Chemical Engineering. 10.992 Seminar.
3 pm. Room 24-121.

Xenobiotics, the Utilization of Unnatural Pentoses by Aerobacter Aerogenes
Dr. Robert P. Mortlock, Department of Microbiology, University of Massachusetts. General and Applied Microbiology Seminar.
3 pm. Room 16-310.

Kinetic Equations for Turbulent Plasmas+
Dr. Nathan Marcuvitz, Harvard and New York Universities. RLE Seminar.
4 pm. Room 20E-222.

Magnetic Superconductors+
Professor Martin Peter, Rector, University of Geneva. Center for Materials Science and Engineering Colloquium.
4 pm, Bush Room, 10-105. Coffee, 3:30 pm.

Nitrogen Metabolism in Fasting Man+ ++++
Thomas Aoki, M.D., Harvard Medical School and Joslin Research Laboratory. Nutrition and Food Science Seminar.
4:30 pm. Room 16-134. Coffe, 4:15 pm.

Monday, May 17

Information Rate Via Vibro-Tactile, Two Dimensional "Phantom" Sensation+
Robert H. McEntire. Department of Mechanical Engineering Doctoral Thesis Presentation.
9:30 am. Room 5-216.

Electrical Aspects of Carbon Formation in Flames+
Professor Jack B. Howard, Department of Chemical Engineering. Chemical Engineering Seminar.
11 am. Room 9-150.

Short Term Scheduling in Multiprogramming Systems+
Dr. Per Brinch Hansen, Carnegie-Mellon University. Project MAC Seminar.
2 pm, part 1; 3:30 pm, part 2. 545 Tech Square, Fifth Floor Conference Room. Coffee, 3 pm.

Incoherent Scattering Experiment+ ++++
K. Chen, Graduate Student, Department of Nuclear Engineering.
Measurement of the Electron Distribution Functions Perpendicular and Parallel to the Magnetic Field in an HCD Using Thomson Scattering.
G. K. McCormick, Graduate Student, Department of Nuclear Engineering.
Fuel Depletion and Economics in Fast Breeder Reactor Blankets
S. Brewer, Graduate Student, Department of Nuclear Engineering. 22.912 Doctoral Seminar.
3 pm. Room NW12-222.

Turbulent Recirculating Flows, with Special Reference to Furnaces+
Professor D. B. Spalding, Imperial College of Science and Technology, London. Chemical Engineering Seminar.
3 p.m. Room 4-231.

A Continuous Model of Traffic Flow +
Mr. Charles T. Molloy, Department of Mathematics. Applied Mathematics Colloquium.
4 pm. Room 2-390. Tea, 3:30 pm, Room 2-290.

Fluid Dynamics of Drag (Parts 1 and 2)+
Fluid Mechanics Film
4 pm. Room 3-270.

Extensions of Linear Filter Theory to Ecosystems+
Mr. Stephen F. Moore, Department of Civil Engineering. Water Resources and Hydrodynamics Seminar Department of Civil Engineering.
4 pm. Room 48-316.

Design Problems in the Construction of Muscle and Other Mobile Systems+
Dr. Hugh Huxley, MRC Laboratory of Molecular Biology, Cambridge, England. Department of Biology Seminar.
4:30 pm. Room 54-100.

Tuesday, May 18

Dropwise Condensation Process+
Andrew Hunt, Graduate Student, Naval Architecture. EPL Colloquium.
12 noon. Room 3-446.

Removing the Automobile from the Air Pollution Problem+
Dr. William G. Agnew, Head, Emissions Research Department, GM Corporation. Department of Chemical Engineering Seminar.
3 pm. Room 9-150.

Theory of Betting Games+
Professor N. C. Ankeny, Department of Mathematics. MAC-AI Seminar.
3 pm. 545 Tech Square, Fifth Floor Conference Room. Coffee, 2:30 pm.

Vibration Transmission at the Soil-Structure Interface of Strip Foundations+
Anant Nigam. Department of Mechanical Engineering Doctoral Thesis Presentation.
3 pm. Room 5-134.

Air Traffic Control++
H. G. Weiss, Lincoln Laboratory.
Lincoln Laboratory Lecture.
3:30 pm. Lincoln Laboratory Cafeteria.

Control of Uncertain Systems with a Set-Membership Description of Uncertainty+
Mr. Dimitri P. Bertsekas, Department of Electrical Engineering. Decision and Control Sciences Group Seminar.
4 pm. Room 37-212.

The Social Structure of a Socialist Planned Town.
Katalin Hanak, Hungarian Sociologist. Department of Urban Studies and Planning Lecture.
4 pm. Room 9-555.

The Distortion of Sails Due to Fabric Deformation.
Professor J. Milgram, Department of Naval Architecture and Marine Engineering. NAME Seminar.
4 pm. Room 5-234.

Poetry Workshop+
For information call **Lucy Hoague** x5383.
4 pm. Room 20C-105.

Aerospace Prospects - A Professor's View +
Dr. James W. Mar, Chief Scientist USAF. Department of Aeronautics and Astronautics Seminar.
4 pm. Room 35-225. Coffee, 3:30 pm, Student Lounge, fourth floor.

Transforming Time into Occasion+
Karl Linn. Open Forum on Human Ecology. Seminar 8 pm. Room 7-345. Supper 6 pm, Room 7-345.

Wednesday, May 19

A New Theory for the Wake of Marine Propellers+
Theodore A. Loukakis. Department of Naval Architecture and Marine Engineering Doctoral Thesis Presentation.
12 am. Room 5-232.

Parameter Uncertainty in Control System Design +
Thorgeir Palsson, Department of Aeronautics and Astronautics Doctoral Thesis Presentation
2 pm. Room 33-206.

Consumer Product Testing A Business or a Service? +
Professor Amar G. Bose, Department of Electrical Engineering. Graduate Management Society, Sloan School of Management Seminar.
7:30 pm. Room 26-100.

Inclusions in Diamonds and the Upper Mantle
Dr. Henry O. A. Meyer, Goddard Space Flight Center, NASA. Department of Earth and Planetary Sciences Colloquium.
4 pm. Room 54-100. Tea, 3:30 pm, Room 54-923.

Thursday, May 20

Some Considerations in Hybrid Combustion +
Kumar N.R. Ramohalli, Department of Aeronautics and Astronautics Doctoral Thesis Presentation.
10 am. Room 37-252.

Self-Paced Study "The Keller Plan": How It Came To Be +
Fred S. Keller, Western Michigan University. ERC Colloquium
12 noon. Bush Room, 10-105.

Development of an Agro-Industrial Complex in Saudi Arabia+
Department of Civil Engineering Class Presentation.
1 pm. Kresge Little Theatre.

An Energy Selecting Electron Microscope.
Charles E. Lyman, Department of Metallurgy .Electron and Ion Optics Seminar.
3 pm. Room 26-217.

Electromechanical and Thermal Effects of Faults upon a Super-Conducting Generator +
David Luck, Department of Electrical Engineering Doctoral Thesis Presentation.
4 pm. Bush Room, 10-105.

Channel Flow of a Compressible Fluid+
Fluid Mechanics Film
4 pm. Room 3-270.

Optimal Feedback Control of Affine Hereditary Differential Systems+
Dr. Michel C. Delfour, Centre de Recherches Mathematiques, University of Montreal. Decision and Control Sciences Group Seminar.
4 pm. Room 37-212.

Student Meetings

International Students Council++
Meeting
Thursday, May 13, 4:30 pm. Walker Memorial, Room 201.

THURSDAY++
Meeting
Thursday, May 13, 8 pm. Walker Memorial, Room 2011.

TECHNIQUE++
Photo Staff Meeting
Saturday, May 15, 11 am. Student Center, Room 547.

TECH ENGINEERING NEWS++
Weekly Staff Meeting
Sunday, May 16, 5 pm. Student Center, Room 453.

ERGO++
Meeting
Sunday, May 15, 6 pm. Student Center, Room 443.

Student Information Processing Board++
Meeting.
Monday, May 17, 7 pm. Room 39-585
For additional information call x7788.

Freshman Council++
Meeting
Wednesday, May 19, 8:30 pm. Student Center, Room 400.

MIT Club Notes

Baker House SPAZ Jogging Club++
Jogging around BU and Harvard Bridges.
Daily, 10:45 pm, Baker House, Second Floor West.

Nautical Association
Basic Sailing Shore School
Repeated every Thursday and Monday through the Spring, 5:15 pm. MIT Sailing Pavilion.

Outing Club+
May 13 and 17, 5 pm. Student Center, Room 473.

Judo Club++
May 17, 18, 19, 5 pm. May 15, 1 pm. duPont Gym Exercise Room.

Science Fiction Society+
Friday, May 14, 5 pm. Spofford Room, 1-236.

Friday Afternoon Club+
Friday, May 14, 5:30 pm. Ashdown House, Games Room. Men $1, women free.

Outing Club++
Lecture and narrated film "Between Heaven and Earth" with Gaston Rebuffat, Chamonix climbing guide and expedition climber.
Friday, May 14, 8:30 pm. Room 1-390. $1. Tickets available from 5-6 pm, Monday and Thursday in the Student Center, Room 461.

Pot Luck Coffee House+
May 14 and 15, 8:30 pm. Student Center, Mezzanine Lounge.

Bridge Club+++
Saturday, May 15, 1 pm. Student Center, Room 491.

Tech Model Railroad Club++
Saturday, May 15, 4 pm. Room 20E-210.

SANGAM+
Film: "Izzat," with Dharmendra, Tanuja, in color with English subtitles.
Sunday, May 16, 3:30 pm. Room 26-100.

Nautical Association +++
Annual Meeting for all current card owners. Election of officers.
Monday, May 17, 8 pm. MIT Sailing Pavilion.

Classical Guitar Society++
Tuesday, May 18, 5 pm. Room 1-132.

MIT-DL Duplicate Bridge Club++
Tuesday, May 18, 6 pm. Walker Memorial, Blue Room.

Fencing Club++
Tuesday, May 18, 7 pm. duPont Fencing Room.

Math Club+
Wednesday, May 19, 7 pm. Room 2-290.

Scuba Club+
Wednesday, May 19, 8 pm. Alumni Pool.

Movies

The Bridge On the River Kwai+
MIT-NRC
Thursday, May 13, 7 and 10 pm. Room 10-250. 50 cents.

Performance++
Lecture Series Committee
Friday, May 14, 7 and 9:30 pm. Room 26-100. 50 cents.

Getting Straight++
Lecture Series Committee
Saturday, May 15, 7 and 9:30 pm. Room 26-100. 50 cents.

The Swordsman+
MIT Film Society
Monday, May 17, 8 pm. Room 10-250. $1.

Eyes and The Eyemyth +
Earth Song and **This Space in the Shaking of Light**
MIT Film Society
Thursday, May 20, 8 pm. Room 10-250. $1

Music

Thursday Noon Hour Concert+
Alden Ring, violoncello; John Cook, harpsichord. Sonatas by Bach, Handel, and Frencoeur.
Thursday, May 13, 12:10 pm. MIT Chapel.

MIT Classical Guitar Society+
Presents a guitar concert with the Magnoart Guitar Symphonette. Program: "Concerto in D Major" by Vivaldi; "Caprice No. 14" by Paganini; 2 Hungarian folk tunes by Bartok, and other pieces.
Friday, May 14, 8:15 pm. Student Center, Sala de Puerto Rico. Students free; others $1. Tickets at TCA.

MIT Concert Band Spring Concert+
John Corley, conducting.
Saturday, May 15, 8:30 pm. Kresge Auditorium. Free admission.

MIT Symphony Orchestra+
David Epstein, conductor. Program: "Flute Concerto No. 2 in D Major, K. 314," Mozart; "Cello Concerto No. 1, Op. 33," Saint-Saens.
Sunday, May 16, 8:30 pm. Kresge Auditorium. Students free; others $1. Tickets Building 10 Lobby or Kresge Ticket Office.

Mixed Chorus Practice+
Monday, May 17, 7:30 pm. McCormick Music Room.

Mozart Festival+
Presented by MIT Department of Humanities. Program includes: "The Musical Joke," "Piano Quintet K. 452," "Piano Trio K. 502," "Sonata for Four-Hands K. 497," "Lieder."
May 17 and 18, 5 pm. Hayden Library Courtyard. Free admission.

Theatre and Shows

MIT Tech Show Coffeehouse Theatre+
May 14 and 15, 8:30 and 10 pm. Student Center, Mezzanine Lounge. Free admission.

Rosencrantz and Guildenstern are Dead+
Presented by the MIT Community Players.
May 14, 15, 19, 20, 21, 22, 8:30 pm. May 16, 2:30 pm. Kresge Little Theatre, $2.50. For information call x4720.

George Thomas: Three Slide-Tapes +
Monday, May 17, 7 and 8:30 pm. Room 3-133.

Dance

Modern Dance Classes++
Intermediate-Advanced
Thursday, May 13, 5:30 pm. McCormick Gym.

Balkan Dancing+
MIT Folk Dance Club
Thursday, May 13, 7:30 pm. Student Center, Room 407.

Dance Development Class++
May 14, 17, 19, 5:15 pm. McCormick Gym.

International Folk Dancing+
MIT Folk Dance Club
Sunday, May 16, 7:30 pm. Student Center, Sala de Puerto Rico.

Israeli Folk Dancing+
MIT Folk Dance Club
Tuesday, May 18, 7:30 pm. duPont Gym, T-Club Lounge.

Square Dance Club+
For information call x7772.
Tuesday, May 18, 8 pm. Student Center, Room 491.

Exhibitions

New Washington Painting+
Tim Corkery, Sam Gilliam, Sheila Isham, Ed McGowin, Enid Sanford. Sponsored by the MIT Committee on the Visual Arts.
Monday-Thursday, 10 am - 5 pm. Friday, 10 am - 9 pm. Saturday, Sunday, holidays, 1 - 5 pm. Hayden Gallery, through May 25.

Original Photographs by Ralph Eugene Meatyard+
May 15 through June 5. Weekdays, 10 am - 6 pm, weekends, 1 - 6 pm. Creative Photography Gallery, duPont Gym, Third floor. Preview, Friday, May 14, 6 pm.

Steamboat Design+
Details of Robert Fulton's steamboat "North River" and other early American steamboats. Hart Nautical Museum, Building , First Floor Through June.

Deep-Ocean Mining+
Material from Sea Grant Project Office
Hart Nautical Museum, Building 5, First Floor. Through June.

Main Corridor Exhibitions+
Presented by students and departments.
Buildings 7, 3, 4, 8.

Athletics

Rugby Club+
Practice
May 13 and 18, 5 pm. Briggs Field.

Varsity and Freshman Tennis+
Yale
Friday, May 14, 4 pm. duPont Tennis Court.

Varsity and Junior Varsity-Freshman Baseball+
Trinity
Saturday, May 15, 2 pm. Briggs Field.

Varsity Lacrosse+
Massachusetts
Saturday, May 15 2 pm. Briggs Field.

Freshman Tennis+
St. George's School
Saturday, May 15, 2 pm. duPont Tennis Court.

Varsity Sailing+
NEISA Single-Handed Championships
May 15 and 16, 10 am. MIT Sailing Pavilion.

Track+
Coast Guard
Tuesday, May 18, 4 pm. Briggs Field.

There is no admission charge for athletic events.

Religious Services and Activities

Christian Bible Study Group
For details contact Professor Schimmel, x6739.
Thursday, May 13, 12:15 pm. Room 20B-031.

Islamic Society Prayers
Friday, May 14, 12 noon. Kresge Rehearsal Room B.

Vedanta Services
Friday, May 14, 5:15 pm. MIT Chapel.

Vedanta Discussion Hour
Friday, May 14, 6 pm. Ashdown House.

MIT Hillel Religious Service
Friday, May 14, 7:30 pm. MIT Chapel
Saturday, May 15, 9:30 am. MIT Chapel

Hillel Brunch++
Sunday, May 16, 11 am. Student Center, Mezzanine Lounge. Pre-sold reservations $1.45; door $1.75. Tickets available in Hillel Office.

Christian Worship Service
Sunday, May 16, 11 am. MIT Chapel.

Roman Catholic Masses
May 13, 15, 18, 5:05 pm. MIT Chapel. Sunday, May 16, 9:15 am, 12:15 pm, 5:15 pm. MIT Chapel. Ascension Thursday, May 20, 12:05 pm, Kresge Auditorium. 5:05 pm, MIT Chapel.

Christians Meet for Dinner
Tuesday, May 18, 6 pm. Ashdown Cafeteria.

Christian Science Organization
Tuesday, May 18, 7:15 pm. John Chipman Room, 8-314.

Society of the Latter Day Saints
Wednesday, May 19, 8 am. Student Center, Room 473.

The Chapel is open for private meditation from 7:30 am to 11 pm every day.

Don't Forget

Graduate Students, there is still time to sign up for an interview for Institute Committees such as CJAC or CEP. The sign up sheet is in the Graduate Student Office, 110 Walker. Deadline is May 14.

Caps and gowns may be ordered at the Customer Service Department at the Tech Coop.

MIT Creative Photography Lab Lottery for places in Creative Photography 4.051 for the fall term 1971 will be held on Monday, May 17.

Show your message, announcement or slides in the Main Corridor Slide Projectors. Contact Dave Brown, Room E18-320 or x 7718.

Membership certificates for those initiated this year have now been received from the Society of the Sigma XI headquarters. Please collect your certificate from the office of Professor Garg, Room 3-453, x 6234.

+Open to the Public
++Open to the MIT Community Only
+++Open to Members Only
++++Freshmen interested in departmental program encouraged to attend.

Getting to Work

A recent study by the MIT Planning Office throws interesting light on how we get to work.

Of the 1400 respondents--a good cross-section of the Institute--seven out of ten people come by automobile. Almost all drive their own cars, with a small percentage sharing some form of car pool.

Public transportation takes a significant number of MIT people to work, and walking is a popular mode for 12 percent of the surveyed work force. Bicycles, motorcycles and taxicabs are also regularly used for the daily journey.

Median commuting time was reported to be 26 minutes one way. Ten percent of the respondents spend over 50 minutes on the trip from home to work or reverse--that's eight and a half hours a week on the road.

Haystack

By Steve Grant

MIT received a valuable present from the US Air Force last summer.

The Air Force decided then that the mission of its Haystack facility, about 40 miles northwest of Cambridge, had been accomplished and made plans to phase it out. Later the Air Force, MIT and Lincoln Laboratory, which designed and had operated Haystack, agreed that MIT would operate Haystack under the direction of the Northeast Radio Observatory Corporation. NEROC is a non-profit consortium of 13 educational and research institutions, of which MIT is a leading member.

Haystack Observatory, directed by Paul Sebring since 1964, is today one of the best and most versatile radio astronomy centers in the world. When used with the Goldstone antenna in California it forms part of the most sensitive very long baseline interferometer (VLBI) system available.

Last month a Haystack-Goldstone team of radio astronomers headed by Professor Irwin Shapiro of Geophysics and Physics announced that, using VLBI techniques, they had discovered two objects deep in space that appear to travel much faster than the speed of light. Repercussions from this discovery have not yet begun to subside.

Another primary field of study in which Haystack is at the forefront is radar astronony, in which field it is one of only three major installations in the western hemisphere. Haystack radio astronomers, including Professor Gordon Pettengill of Earth and Planetary Sciences and Richard Ingalls of the Haystack Staff, have contributed greatly to the knowledge of the motions and topography of the moon, Mercury, Venus and Mars. For example, a radar interferometer composed of Haystack and Lincoln's nearby 60-foot Westford dish, has been used to make detailed topographic maps of the moon. In many cases these maps supersede those made using optical methods.

Haystack was designed in 1959 as a Department of Defense project in satellite communications and microwave research, to be operated by Lincoln Lab. At the time large heavy satellites with powerful transmitters were not feasible. Originally Haystack was to serve as a powerful ground station which could bounce signals off large but lightweight reflective satellites such as the Echo.

Since then technological developments have made stations like Haystack unnecessary for satellite communications. Integrated circuits, which can fit all the electrical components of more than 200 radios on a wafer one inch square, replaced bulkier discrete transistors. Missiles that could carry big, heavy payloads were built. With these advances satellite communications can now be carried out with much less elaborate ground stations. So 14months ago the Air Force decided to discontinue funding Haystack.

The observatory had been used increasingly in recent years for radio and radar astronomy. NEROC, which was formed to foster improved radio and radar astronomy facilities in the New York-New England area, became interested in using the government's new white elephant. Last July, after appropriate agreements were reached, Haystack changed hands.

The observatory is part of a complex that also includes Lincoln's Millstone radar, Firepond infrared research, and Westford communications facilities. It consists of the dome itself and a small building, which surrounds the dome and provides space for administrative offices, scientific and technical personnel, computers and other equipment.

The dome houses the transmitting and receiving antenna, along with its 120-foot dish. The computer facilities guide the dish's movements and retain and process data from observations.

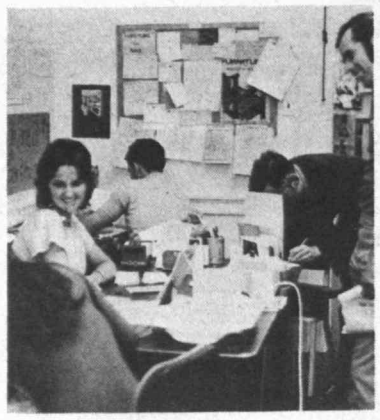
The dish itself is the same shape as an ordinary metal reflector in a flashlight. Since it is so big, gravity tends to change its shape when it is aimed at different points in the sky, but intricate counterweight arrangements solve this problem neatly. The entire counterweight system is effective enough to keep gravitational distortion down to a small fraction of a millimeter regardless of the antenna's position.

Some of Haystack's other equipment is no less incredible. Direct current power needed for transmissions comes from one room in the dome. The one million watts produced there would be enough to operate every stereo set inside Route 128 at normal volume. And the control mechanisms that guide the dish are so accurate that the entire system can be aimed within about seven seconds of arc of a distant galaxy or quasar--a feat roughly equivalent to a marksman's continuously hitting a quarter with bullets from over a mile away, if he didn't have air resistance to contend with.

Help with Housing

Need a roof over your head? Visit the Community Housing Service.

No matter what kind of living quarters you're looking for--room, apartment, shared apartment, house, or mansion--the Community Housing Service is the place to



A busy scene in the MIT Community Housing Service.
--Photo by Margo Foote.

begin your search. The office staff, headed by Mrs. Mary Smith, keeps up-to-date listings of available housing in Cambridge, Boston and surrounding communities.

The staff also provides information and counsel on leases, public school systems, cost of living, transportation, renting or buying furniture, and other housing-related problems. All of these services are offered free of charge to anyone in the MIT community.

Notebooks containing descriptions of available rooms, apartments and houses are the major reference source. Each description includes the address, number of rooms, rent, landlord's name and phone number, restrictions on children or pets, utilities, security deposits and special features like fireplaces or air conditioning, available parking, etc. Large detailed maps of cities and towns in eastern Massachusetts hang on the walls throughout the office to help clients locate a particular street or community.

After looking through the notebooks and finding some possibilities, telephones are available for calling to make arrangements to visit the dwellings. Mrs. Smith and her staff can help with any questions or special problems.

The Community Housing Service often handles special housing arrangements, such as house-sitting or house-swapping. They can also help in finding roommates or subletting.

Mrs. Smith points out that renting is a business and as in any business, such questions often arise. When renting a house or apartment, the client is usually asked to sign a lease which commits both tenant and landlord to specified obligations. If some of the clauses in the lease are unclear, the Community Housing Service staff will be glad to go over it and explain the trouble spots. Mrs. Smith says, "We have an instinct for what can go wrong, and we do our best to help." They also try to settle landlord-tenant disputes which may arise after the lease has been signed.

According to Mrs. Smith, MIT students have built up a reputation as very good tenants so landlords and rental agents are eager to list their apartments with our Community Housing Service. The fact that we offer this rental service free of charge is another factor which draws an abundance of listings. However, if they can't help a client find what he's looking for, they do have a list of selected real estate agencies that they recommend.

The spring and summer months are naturally the busiest for the Community Housing Service. Summer sublets are abundant and the "great Boston apartment hunt" gets into full swing. From her experience, Mrs. Smith believes that July is the best time to look for an apartment for September, but many students try to find something before they leave for the summer or wait until they return in the fall. Also, the large turnover of employees during the summer increases the demand for housing.

To give an idea of how busy the Community Housing Service is, here are a few statistics for last year: 16,675 visits were registered, 9,703 housing units were requested, 1,705 leases were examined, and an average of 30-40 telephone listings were received each day. That's quite a record. So, if you're looking for a place to live, go to their office in the duPont Gymnasium from 9 to 5 Monday through Friday or call Ext. 3533 for an appointment.

Host Family Program

The international community at MIT is one of the largest, percentage-wise, among collegiate institutions in the United States. About one in every seven students enrolled at the Institute is a citizen of another country.

The Host Family Program is one of many services offered to foreign students at MIT. Under the direction of the Foreign Student Adviser, the program provides for the incoming student, single or married, an American family who writes to him in his home country, meets him on arrival and provides a friendly interest throughout his stay.

Host families for students arriving in the fall are being recruited now from MIT alumni, faculty and friends. About 75 more families are needed. Anyone interested in being a host should call Eugene Chamberlain, Foreign Student Adviser, Room 3-107, Ext. 3795, or Mrs. Robert Stickney, Host Family Program Board Chairman, at 729-8305.

According to Mr. Chamberlain, "Host families are chosen for their genuine interest in people as people, regardless of national backgrounds. They should be able to communicate across barriers and demonstrate flexibility and sensitivity to the needs of the student."

The aim of the program is to help foreign students overcome the problems of loneliness, differences in customs, adjustment to housing, transportation and money problems, to mention only a few. Even if these problems do not exist, most foreign students appreciate knowing an American family who can provide a friendly introduction to this country and to MIT.

MacGregors Visit

Frank S. MacGregor, '07, and his wife were here Monday (May 10) for the unveiling of his portrait in the main lobby of the new residence hall that bears his name.

After an introduction by Professor Nathan Cook, housemaster, Mr. and Mrs. MacGregor were warmly applauded by students and administrators who were present.

Mr. and Mrs. MacGregor then toured the house. When they

Mr. and Mrs. Frank S. MacGregor with Mr. MacGregor's portrait.
--Photo by Margo Foote.

reached the dining hall, house president Paul Aidala, '72, presented Mr. MacGregor with an engraved silver stein on behalf of the house residents, and the gathering drank a toast to the name of MacGregor. Professor and Mrs. Cook were hosts at a reception in their apartment following the ceremonies.

Mr. MacGregor's portrait was painted by Charles C. Tucker on a commission from MIT. Tucker also painted a portrait of Mr. MacGregor's sister which hangs in Ruth MacGregor Hall at Mount Holyoke College.

Lunch at U.N.

President Howard W. Johnson, Professor Roland B. Greeley, Director of Admissions, and Mr. Tekle Tomlinson, assistant advisor in the Foreign Students Office, were guests at luncheon with Secretary General U Thant at the United Nations yesterday. The luncheon was arranged by Undersecretary General I.S. Djermakoye, whose son, Boucar, will be a member of the freshman class in September.

We're Number One

That's right, at MIT there are more sponsored intercollegiate varsity sports than any other university or college in the country–21 in all.

Even a sports enthusiast would have trouble coming up with the names of more than half of them. Alphabetically there is baseball, basketball, crew, cross country, fencing, golf, gymnastics, hockey, indoor track, lacrosse, pistol, rifle, sailing, skiing, soccer, squash, swimming, tennis, track, water polo, and wrestling.

Surprised? You might be, because MIT isn't trying to build an eastern athletic powerhouse.

While other collegiate sports programs are taking a second look at their philosophy and objectives, which ultimately means cutbacks and the exclusion of so called minor sports, Tech sports continue to thrive.

A familiar adage around the Athletic Department is that if two people get together and decide they want to start a team–any kind of a team--MIT will provide them a coach, uniforms and a place to play. That's not far from the truth.

Five years ago an enthusiastic group of freshmen organized themselves into a bona fide gymnastics team and proved they earned collegiate varsity recognition. With a full time coach and a workable schedule, MIT gymnasts have since been in the thick of New England championship competitions.

More recently, water polo became Tech's 21st varsity sport. Started last fall, water polo immediately became a great spectator event especially when an MIT team squared off with our neighboring Harvard.

Where, in other athletic departments throughout the country, certain sports are emphasized, MIT treats all sports the same.

"We try to treat everyone the same," says Athletic Director Ross H. "Jim" Smith. Smith added "MIT athletics are more closely related to the same objectives of the university in general." This is why he says, "Nationally, I think other college programs are coming to our level.

"We give everyone who comes here a chance to compete on the level he or she can handle. When a student is admitted here he is not identified as an athlete on any form. The admission office takes the most qualified, most interesting people and there are athletes who fall into this category.

"The only recruiting we do is to respond to inquiries, mostly by letter. And then we don't chase anyone.

"Our 12 club sports and 19 intramurals are just as important. If we based our program on spectator interest we wouldn't enjoy it. Of course, we'd like to have more spectators at our events.

"Coaches today give athletes a chance to participate in the planning of the program. The big difference between today and the past is that the response is no longer 'cause I told you so.' There is less regimentation, but there comes a point in the game where the game plan has been formulated and the athletes must perform as a team."

David Wilson, '73.

Hard sell athletic recruiting may be a nonentity at MIT but it is undeniable that if you fare well in the classroom and on the athletic scene, you stand a better than average chance of getting financial aid. In the last six years MIT basketball players Jack Mazola, Bob Hardt, Dave Jansson, and Bruce Wheeler have won $1000 NCAA postgraduate scholarships for academic-athletic achievement.

When you think of MIT sports, you automatically think of crew, basketball and sailing. MIT has enjoyed success consistently through the years in those sports, but little is known of the fact that the Tech pistol team is the National Collegiate Team Champion and that junior John Good is the nation's best international target expert; that Tech's fencing team has won seven of the last ten New England fencing team titles; that MIT's track team has recently won the Eastern Small College Track and Cross Country team titles; that in recent years MIT has had all American's in Ben Wilson, '70 (cross country track), Savit Bhotiwihok, '68 (soccer), Al Graham, '71 (swimming), Fred Andree, '71 (wrestling), Guy Pommares, '71 (fencing), John Good, '72 (pistol), Dave McComb, '70 & Steve Milligan, '70 (sailing).

So, while other collegiate athletics may be undergoing a metamorphosis, MIT quietly continues to grow in quality as well as quantity.

Softball Season

There's a lot of action on the Briggs Field softball diamonds at lunchtime these days. The eleven teams of the Draper Lab's noon-hour softball league are slugging it out in their sixteenth season.

The league's schedule will run until mid-August. After the conclusion of the regular season in which each team plays every other team twice, the eight teams with the best record make the playoffs. Finally an all star team selected by the manager of the runnerup team plays the final playoff champion.

Twenty game schedule? Playoff championship? All star team? How did it all begin? Legend has it starting one noon hour back in 1955, when a bunch of I-Lab athletes decided to pickup sides and battle it out on a Briggs Field softball diamond. Pretty soon there was enough interest to make up four teams and the natural thing was to organize a league.

One of the prime movers of the league was Frank O'Glishen, who presently works out of the Apollo Building. "We only had four teams in those days, but by 1962 we had as many as 16." O'Glishen, who also served as the loop's schedule master for six years added, "We've had some good players and good teams in the league. About four or five years ago, one of our teams went undefeated through the regular season and the playoffs--about 35 straight wins."

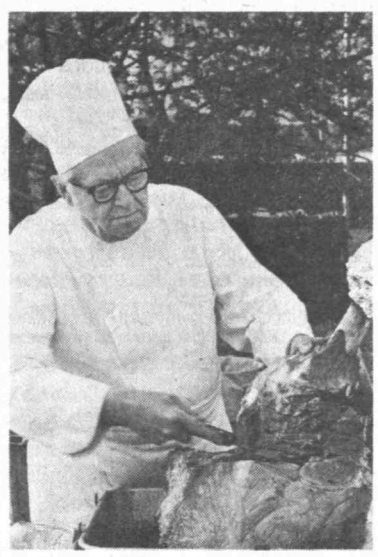
Besides O'Glishen, several other familiar veterans have been through the softball wars at MIT--Tom Telesmanick, Don Grief, Del Pike, Joe Miola, John Kingston, Bob Dovidio, and Frank Harrington just to name a few.

What is a noon hour softball game? It could be downing a Hershey bar for lunch on the way from 68 Albany Street to Briggs Field. Then loosening your tie and rolling up your pant legs and you're ready to play. The game is close and you're hoping they hit it to the other guy so you don't look bad. There must be at least three hundred screaming secretaries and buddies cheering and chiding you on. It's over in an hour. Twenty-six to twenty-five, the Satellites (Apollo) win it in the last of the first. League rules calls for at least one inning of play to decide a winner.

How does the pennant race shape up for 1971? O'Glishen, of the Satellites sees it this way. "It'll be a three way race. The Numb Nine (Inertial Gyro) won the playoffs last year and have to be considered. The Spoilers (renamed the Chokers because they've won the league's title the last couple of years but lost the playoffs), and my team, the Satellites, should be in the race, too."

A round-down of some of the other league entries include: 'the Jokers (Nuclear Reactor), Mini-Con (Miniature Components), Wolfgang (Machine Shop), The Micro's (Building 68), Sabres (Skipper Group), Dolphins (DSR), the Ads (Accounting and Management), and the Salty Jocks (Deep Submergence).

In late August after the last ball is pitched and by the time the last bit of soreness in the back has subsided, it's passing around the beer and league championship trophy and awards. All in all, it adds up to a lot of fun.



Kaleidoscope '71 was all kinds of activities on a beautiful spring evening. Hundreds of MIT people enjoyed folk dancing, music and a roast beef dinner. Some brave souls even tried unicycling.

CLASSIFIED ADS

Ads may be telephoned to Ext. 2707 or mailed to Room 5-122. Ads must include full name and extension or room number. Ads are limited to one per person per issue and may not be repeated in successive issues. The ad deadline is 5 pm, Wednesday.

For Sale, etc.

Easy ringer washing mach, $15; 2 7.75x14 ww tires, $5 ea. x4580 or 354-1049.

AKC Siberian husky, 2 mos old, blue eyed fem, champ bloodline, ready now, $150. Call x6735 or 851-3255.

Gibson J-50 guitar, adjust bridge, exc cond, $150. Larry Kornfield, x376 Draper 7 or 232-8064.

Teac A 1200u tape deck, 6 mos old, lk new, still has 6 mos of guar left, $260. Chip, x1587 or 787-5137 evgs.

Asahi Pentax Spotmatic SP type w-1:1.8-55mm, lk new w-case, $129. Call 868-5653 evgs.

Drop leaf DR tbl & 4 match chrs, $25; 2 wht chenille sngl bedspreads, $5 ea; humidifier $10; 12x12x24" kit cabinet $5; curtains $4 per pair. Sally, x6928 or 547-5368 evgs.

Manx kittens, rare, tail-less breed, raised w-young children, box trained, free to gd homes. Call 547-4720 evgs.

Pool tbl w cover, lk new, rack & cues, repair kit, instruction booklet, $90; camping trailer, sleeps 6, htr & stove, spare tire & extension rm, $450. Call 335-8315.

Man's sz 9 ½ ski boots, new. x6415.

Sml Olympia port typwrtr, $12; IBM Selec, $290 or best offer; elec blanket, dual control, dbl bed sz, $7. Michele, 491-2217.

Apt sz refrig, exc cond, $25 or best, you haul. Judy, x6419 or 332-9657 evgs.

Philco 20" TV, b&w, used only 8 mos, asking $90, wl bargain. x6762 or 262-3467 evgs.

Nikon F body w-prism finder, 55mm f 3.5 micro Nikkor lens, waist level finder w-case, y, g & uv filters, 2 Nikon cassettes, lens shade & cable release, $200. David Reed, x7535.

Green elec blanket, dual control, $5; antiq offwht bedspread $6; GE TV, $35; Rem Rand typwrtr $25. Call 566-1012 evgs.

Rolleiflex 3.5f closeup lenses & lens shade, $199.50. x7737.

Old Oliver Wendell Holmes paperweight (picture & home), $5; 2 straight back chrs w-casters, both for $10; old marble flat tbl ash tray $5; US hand crank Portelle phonograph port player $8. Call 232-0484 days.

Used furn: dresser $8; brick & board bkcase $5; chr $3. Ted Delyanis, x7295, lv message, or 868-5490.

Lrg sofa bed (twn), gd cond, $60. George Philipps, x4710.

Royce Union bicycle, 10 spd, new cond. Call 628-5817 evgs.

Couch bed $55; ironing board w-cover $7; coffeetbl $7. Lucy, 357-8137.

Chest $20; mirror & frame $5; refrig $30. Danielle, 864-0642 evgs.

BSO tickets (2), 1st balcony, 10 concerts '71-72 seas, $80. Jules, x2765 or 527-8456 evgs.

Almost new tires, 2, mtd on Volvo whls, $50. Roy, x5427.

Wall-furnace, floor-furnace, use bottle gas, ea hts on both sides of a wall; Chevy 14" wheels, snows & tubes; free kittens. x5359 Linc.

SCM port elec typwrtr, exc cond, $90. Barbara, x2311.

Raleigh man's 10 spd bike, v lrg frame, $35-40 or best. Jane Johnson, 5640.

Snows, 2, ww, on rims, 7.75x14, used 2 mos. best offer over $25 for both; VW roofrack, $3. Call 332-6159.

Smith Cor Electra 210 elec typwrtr, exc cond, $130. Gadgil, x2450.

Tech Flying Club memberships. Mike, x7378 Linc or 275-8960 evgs.

RCA Whirlpool wshr, perf cond, $110; 10 spd man's bike; wdn wardrobe; kit tbl & chrs; bureau. Call 933-4724.

Singer sew mach, new $150, now $55. Call 284-3983.

Frigidare refrig, exc cond, $85, moving. Georgia, x2407.

Liv rm set, 6 pc, rocker inc, drk Spanish design, 8 mos old, exc cond, orig $650 wl sell $550. John, x7134 or 454-2087 evgs.

Acoustical elec bass guitar, dual pick-up, gd cond, $80. Carl, 729-6180 evgs.

Skis & boots: Head GS 215 cm, $40; Humanic sz 10 ½, $45, new $90. John, x1638.

Stainless sink w drain board, faucets & wht steel undercabinet, $25. Call 484-9591.

Stereo sys: AR-3a spkrs, oiled walnut cab; AR amp, 120w RMS; AR trntbl w-ADC 10e mk II cart; Ampex 750 tape deck w-3 heads, all exc cond, $790. Eduardo, 227-7631.

HP 200c oscillator, exc cond, best offer. Hank, x5461.

AR amp, nvr used, 1968, $150. Beverley, x6014.

Stainless 8-6 pc place settings plus 6 serv pieces, $35, orig $75, less than yr old. Terry Hammons, x2668.

Violin bow, R.F. Hoyer, gd student bow. David, x5820 or 491-3488.

Dressers, 2, $10 ea; kit tbl & chrs, $10; dbl box spring & matt, $30; credenza, $35. Terry, x7217 or 522-2014.

Two manual reed organ w blower. Call 924-1382.

Paramount bowling balls, candle & duckpin, free engraving, gd prices. x5374.

New Smith Cor Classic 12 manual port typwrtr, best offer. Chris, x1455.

Multi-colored hampers, woven 8" deep; also handled wicker baskets; nvr used, $1.50-$2.50. Call 395-6061.

Ward's 8" tbl saw, stand, motor, dado set, $50. Ira, x7634 Linc or 263-3223, Acton.

Pwr lawn mower reel type, 3 hp, 21", gd cond, $60. x6739.

GE port 12" TV, gd wrking cond, $10. Dottie, x4791.

Baby crib; stairway gate; childs rocking chr; lightwt vacuum cleaner. Call 862-5639.

Free kittens. Bill x7316.

Zenith TV $30; matt & spr $40; 2 orig colonial chrs $15; tea tbl $3; all for $60. Bata, x5915.

Scott mod 222D stereo amp & Sherwood FM tuner, $100. Doug, x5528 Linc.

Pocket cassette rcrder, chosen by NASA, Sony TC-50, list $125, sell $39. Donovan, x4067.

Veldena 6'6" wd fiber laminated skis w-bndgs, gd cond, $15; Hanover fibergls 6'6" skis w Cubco bndgs, used twice, $30; pr man's lace ski boots sz 10, & tree, $6; 2 pr 51" ski poles, $6 ea. John, x7368.

Free kittens, 3 males, 1 fem, blck, gray, striped. Gary Meyer, x1472.

Masterwrk stereo rcrd player, used 1 yr, exc cond, $60; Lasko fan $10. Nigel Wilson, x5044.

Free adult nearly wht male cat, fixed, declawed, dewormed, all shots. Ken Greene, x2422.

Stereo tape deck, Ampex micro 50 cassette, 1 yr old, less than 25 hrs use, new $139, sell $80. Gordon, x7411 Linc.

Dyna tuner, exc cond, $70; 2 Jensen triax spkrs, $90 per spkr. Hal Moorman, 247-8275 or 262-7696.

Tennis rackets, 2, wd frames, Dunlop Fort, Max Ply, $10 ea, orig $20 ea. Alice, x4897.

Vehicles

'62 Falcon sta wgn, exc mech cond, recond eng, roof rack, R & H, trailer hitch, $250. x5857 or 862-4707 evgs.

'63 Renault R-8, gd Michelin tires but nds transmission wrk, $100. Jim Hecht, 354-1803.

'63 Ford Galaxie 500, 4 dr sedan, auto, pwr st, V-8, R & H, $150 or best. Al x 3619.

'63 VW, runs well, $175. Bill, x2429.

'63 Valiant, new eng, gd tires, 62K, $200 or best. x431 Draper 7 or 862-8654 evgs.

'64 Chevy Impala conv 327, nds wrk, best offer. Stanley, x7001.

'64 Peugot sta wgn, sleeps 2, lrg roof container, 4" foam rubber matt, spring sticker, $250 or best offer. Call x1785.

'65 Buick LeSabre conv, 71K, v gd cond, $600; '62 Chevy Nova, 2 dr, auto, new eng, v clean, $300. Payson Little, x6788.

'65 Chevy Belaire sta wgn, V-8, R & H, pwr st pwr rear window, 58K, exc tires, studded snows on back. x269 Linc or 275-8092.

'65 Linc Continental, 4 dr, blck lthr int, all power, fac air cond, mech perf. Bill, x7308 Linc or 365-2471 evgs.

'65 Ford Falcon, 4 dr sedan, 6 cyl, auto, $350. Call 646-4734 evgs.

'65 Comet, 2 dr sedan, eng & int gd, body nds wrk, must sell. Barry, x7027 or 442-2163.

'66 VW, new tires, shocks, brks & tune-up, gd mech cond, must sell, asking $550. Call 782-3598.

'66 Chevy Impala, gd mech cond, auto, V-8, 327, 4 dr, $850. x4576 or 547-8238 evgs.

'67 Buick LeSabre custom 400, V-8, auto, many xtras, $1200. Joe, x576 Draper 7.

'67 Citroen DS 21 sta wgn, 35 K, 1 owner, $1500. Call 244-4339.

'67 Rambler Amer wgn 440, R, roofrack, bedseats, best offer. Bruce, x2552.

'68 Datsun Sports Roadster conv, 4 spd, sync, fully equip, 1 owner, 25K, exc cond, best offer. Call 862-7994.

'68 BMW, 2002, 27K, v gd cond, XAS radials, $1900. Peter, x2636.

'68 VW, conv, auto, AM-FM, 30K, exc cond, $1450. Hapet, x294 Draper 7 or 262-7919.

'69 Cougar 351 cu in, 4 spd, compet handling suspen, Michelin X tires, AM-FM, stereo tape, active warr. x7143 or 625-9456 evgs.

'69 Pontiac Custom S, V-8, 23K, 2 dr sedan, pwr st, gd cond, asking $1950. Marilyn, x7602 or 625-1662 after 4:30 pm.

'69 VW sedan, auto stick shift, AM-FM, exc cond, $1500. Pat, x4561 or 327-1298 evgs.

'69 VW sqback, 20K, exc cond, must sell quickly, make offer. Dave, 742-6739.

'69 Ford chateau club 8 passngr sta wgn, auto, AM-FM, oversz htr, 4 br new tires, 2 built in bunk shelves behind rear seat, less than 2 yrs old, $3000. Call 358-7884, Wayland.

'70 VW, AM-FM, ski rack, low mileage, eng perf, some dents, best offer. Call 925-9090.

'66 Triumph, 500 cc, eng recently rebuilt, new paint & many custom parts, $650. Carl, 262-3192.

'67 Kawasaki 650 cc, 4 stroke, 10K, gd cond. Craig, x3227.

'68 Triumph Bonnevl 650 cc, exc cond, 4800 mi, owned & maintained by mechanic, $1200. Jim, x2311 or Chuck, 245-4563 evgs.

'69 Honda 90 Scrambler, 2500 mi, gd cond, $225 or best. Lyle, x387 Draper 7.

'69 Honda CL-90, 3K, gd mech cond, $162.30. x7920.

Alum cartop boat 14', 12 hp outboard motor, ideal for fishing or fun, $260, wl sell separate. Bob, x7115 Linc.

AUX sloop, 29' cascade, fibergls hull, sleeps 6, $10,800 or summer charter. Call 769-2570.

Alum boat, 14' motor & trailer, $225. Paul, x6573.

Housing

Arl Heights, 3BR mod apt, beautiful view, lovely porch, 5 min walk to Harv Sq bus, avail 6-15, $275-mo. Aase, x4882, or 646-0343 evgs.

Brighton, mod 1BR apt, lrg LR & K, prking, coin op wshr & dry, $200-mo, water & ht inc, avail 6-1. Call 277-2740 evgs.

Lrg, cool, 1BR apt; attractively furn, 5 min to Harv Sq, 8-1 to 8-28 & avail unfurn thereafter. Joan Nelson, 547-1705 evgs.

Camb, 10 min from MIT, 5 rms, 2 levels, unfurn, $180-mo inc util. Call 354-3653.

Camb Cent Sq area, 3 BR, LR, parlor, tile B, K w-pantry, ht & util inc. Alan, x5181.

Nr Cent Sq, 1BR apt, LR, K, prking, avail after 6-20, $245, 10 min from MIT. Andre, x2280 or 354-0848.

Lrg 2BR apt betw Harv & Cent Sq, avail 6-21, $190. Call 864-7728.

Garden apt, furn, LR, BR, study-alcove, K, B, $195 inc util, 1 yr lease, no children or pets, avail 7-1, faculty cpl pref. Call 492-4319 evgs. only.

Jamaica Plain apt, 2BR, lrg LR, K, DR, exc cond, air cond, 10 min ride to MIT, nr Northeastn avail 7-1, $210-mo; wl sell furn also. x6728 or 524-5234.

Jamaica Plain, furn rm for rent in priv house, quiet area, nr T, for summer or yr round, $15-wk. Nancy, x7426 or 522-7072 evgs.

Northgate apt in Camb, Inman St, ideal loc, mod 1BR, LR, K, w-dish & disp, air cond, ht inc, $170-mo, avail 6-1. Call 492-0936 evgs.

Watertown, 3BR duplex, prking, no pets, $250, avail 7-1. x7761 or 924-1906.

Burlington, 5BR, 11 rm split level, enlarged screen patio, exc loc, $41.5. Call 272-0220.

Falmouth yr round house, rent or sell, Sipp Village, 4BR, 7 rms plus fin basemt, frplace, LR, 1 ½B, walk to beach, newer home, prof neighbrs wrking in Woods Hole, from 7-1 to Labor Day. Call 862-8093 or 548-6115, Falmouth.

Lex, attrac cape, 2BR, partially finish upstairs, frplace, LR, lrg K w-din area, full basemt, gar, priv loc, within walk dist of Linc Lab, July occupancy, upper 20's. Call 861-9579.

Winchester, 3BR colonial, 1-3 acre wooded lot, mid 30's. Call 729-5437.

Allston sublet w-option, avail 6-15, 1BR, mod K, ww carpet, nr T, cats allowed, $190. Landra, x4103 or 731-0116 evgs.

Arl, 6 rm apt, for 8 mos only, until Jan '72, unfurn, backyard, gar, 3 min from bus stop, 7 min from Arl Ctr, $150-mo. Chris, x2402 or 648-1835 evgs.

Back Bay, Marlboro St, studio to sublet 6-1 to 8-31, w-option to renew, lrg & v close to Mass Ave, $165-mo. Clary, x5743 or 267-1356.

Back Bay summer sublet, Marlborough St nr Mass Ave, 2BR, LR, K, ww carpet, fully furn, inc color TV, stereo, other lux. Call 261-8760.

Lrg beautiful rm in lrg beautiful Belmont house K privileges, lovely green acre priv, 6-1 to 9-1, w-poss renewal, offstreet prking, quiet, $100-mo. Kate, x2281.

Boston sum sublet, avail 6-15 to 9-1, 6 rms, 1 ½B, mod K, 60 The Fenway, $315. Don Rosenfield, x7698 Linc.

Brookline sublet w-option, avail 6-1, 3 rms nr Coolidge Corn, $175 inc ht & elec, v lrg. Call 731-0690 pm or evgs.

Brookline 3 rm apt, w-back porch, to sublet either June or July w-option to lease in Sept, $180-mo inc ht & hot water, Winthrop Rd nr Beacon St. Call 731-9551 betw 6 & 9 pm.

Brookline summer sublet, 2BR of lrg 4BR apt, furn, stereo & TV, etc. DR, LR, K, nr Comm Ave & BU bridge, $70-mo. Call 731-6578.

Summer sublet w-option to lease, unfurn studio apt, avail 6-1, nr Fenway Park, $115-mo. x6792.

Summer sublet w-option for fall, studio apt, furn, nr Pru Ctr, $150-mo. x5891.

Nr Cent Sq, 10 Soden St, sublet w-option, avail 6-1, 2BR, air cond, ww carpet, unfurn, $275 inc 1 prking place, ht, arrangements can be made for furn. x6689 or 354-5650 evgs.

Summer sublet 6-1 to 9-1, 1039 Mass Ave, 2BR apt, lrg LR, furn, $160. Luke, x6185 or 492-0522.

Apt sublet, 2BR avail in 4BR Camb house, 9 rms, nr Cent Sq, w-2 other MIT students, 6-1 to 9-1, $70-mo ea. Call 864-0036.

Camb apt, 2BR, 6-1 to 8-31 option to renew in Sept, air cond, ww carpet, offstreet prking, $220-mo all util inc except elec, 27 West St. x2289 or 492-1270 evgs.

Harv Sq summer sublet, lrg studio apt on 8th fl, furn, dishwshr, air cond, for 2 or 3 people, LR & BR area, 6-1 to 9-1. x5747 or 492-4487.

Camb summer sublet, furn, 3BR, on Harv St nr MIT, $265-mo. Steve, x1569 or 547-2489 evgs.

Camb nr Cent Sq summer sublet, 6-1 to 8-31, 2BR apt, air cond, dish & disp, 1st fl, $275-mo. John, x5323 or 492-1543 evgs.

Apt nr Harv Sq, 3BR, K, LR, B, hallway, 6-1, option to lease in Sept. Anne, x7080 or 666-9467.

Camb summer sublet, 3 rms plus B, furn, nr Harv Sq, $125-mo. Doug, x6827.

Camb sublet, avail 6-1, nr Cent Sq. 1BR apt, furn, all util inc, $195-mo. Mahmoud, 547-1492.

Summer sublet, 6-1 to 9-1 (negotiable), lrg 6 rm apt, 4BR, close to Harv Sq, $275-mo. Call 868-7024.

Cent Sq summer (only) sublet, 2BR, furn, $200-mo. Luis, x2120 or Norm, 492-3821.

Camb sublet, avail 6-1 to 9-1, 1BR, furn, air cond, balcony, walk dist to MIT & Harv, $250-mo. x6268 or 491-4220.

Eastgate summer sublet, lrg 1BR apt, avail 5-25 to 9-5, fully equip, air cond, nice view, $230-mo, all util inc. Call 492-6865.

Fenway sml sublet w-option, avail 6-1, 1 BR, $170. Jose, x5959 or 261-2226.

Revere sublet, 6-1, beautiful 2BR apt in new building, mod K, dish & disp etc, air cond, prking, ht. Marcia, x2407.

NY City summer sublet, sml apt for 2, air cond, furn, $245. Write or call Carol: 3-a, 169 W 76th St, or (212) 877-2709.

Waltham, 3BR ranch, avail 6-1, 1 yr lease, $275-mo. Call 894-1584.

Cape Cod, 2BR rental, $150-wk, 6-26 to 7-3 and 7-17 to 7-31. Call 256-8064.

Lkfrnt vac area, can be used yr round, 3BR, sleeps 8, frplace, LR, K, ceramic B, roofed patio, w-outdoor grill & many other features, summer & winter sports, nr Benjamin Hill, on ½ acre, asking $18,9. x5100.

Lk Winnipesaukee rental, w-frplace, pool, club, horses, tennis, etc. Call 277-8605.

Wanted

Fem rmmate for summer sublet, option to renew, to share v nice, furn, 3BR apt on Comm Ave, avail 5-1 to 8-31, $115. Sylvia, x2021 or Joanna or Linda, 262-3829 evgs.

Male rmmate to share house in Newtonvl starting 6-1. Jim, x518Draper 7 or 332-6440 evgs.

Women's 3 spd English bicycle, w or w-out baby seat. x5797.

Rmmate for spacious 2BR furn apt on Marlborough St. x3915.

Summer rmmate, starting 6-1 in Camb, gd neighbrhd, own rm, furn, $85-mo. Jeanne, 492-4778.

Fem rmmate(s) to share 2BR apt, St. Paul St, Brookline, easy access to T, avail begin 6-1, w-option to take over lease 9-1, $78-mo per person. Gerry, x5685 or 734-5921 evgs.

Bbysitter for June, July, free rm & board plus wkly salary. x6868.

Solid state physicist to correspond w-Indian physicist, age 30. For address call Stevenson, x5543.

Bass guitar player for rock-soul group. Ennio, 227-3698.

Boy's bike, 20 or 24". Hedy, x4177.

To rent, v sml plot of land for veg & flower garden in Boston or outlying area. Susan Brown, x2797.

Sml inexp boat w-outboard motor. Bob, x7088 or 868-0910.

Traveling companion, late 20's, in Aug for northern Europe & Scandinavia; 1BR apt, pref west of Harv Sq, around $160, wl negotiate, 6-1 to 9-1. Barbara, x5369 or 868-7196.

Old copies of NY Times book review section: 10-22-67; 11-26-67; 4-21-68; wl pay. Dave, 494-2201 days or 868-9783 evgs.

Used 26" or 24" women's bicycle, gd cond, $25 or less. Alfredo, 547-5654.

Part-time bbysitter to care for infant in your home nr MIT, days. Linda, x5831 or 742-1268.

Sml house pref w-gar & frplace in suburbs anytime after June. Frank, 935-2268 evgs.

Daily ride, Brighton, Comm Ave - Wash St, to MIT, 9-5, wl pay. Linda, x2701 or 782-7899.

Boy's 20" bicycle. Molly, x1780 or 5526 or 868-1436.

Male Russian blue cat to mate w-fem. Call 498-2932.

Male or fem rmmate for 6-1, mod building w-balcony, air cond, own rm & B, $125-mo or less. x4684 or 876-7083 evgs.

Rmmates for summer, spacious Camb apt, 5 min from MIT, 6 rms, $70-mo. Call 868-8331.

Rmmate to share BR in apt betw Harv & Cent Sqs, 6-1 to 9-1, $60 all util. Sarah, 547-5706.

Fem rmmate to share 2BR lux apt in Brookline for summer, $100-mo. Karen, x6748.

Daily ride from Swampscott to MIT & return, 8:30 or 9-5, wl pay, starting 6-1. Rosalie, x2756 or 734-4524.

Apt, 1BR, air cond, nice neighbrhd nr MIT, 9-71 to 8-72, can pay $250-mo. Wendy, x6089 or 876-1051 evgs.

Fem rmmate to share attractive apt w-fem grad student, own BR, betw MIT & Harv, begin June or Sept, $85-mo. Marie, x6747.

Dbl bed sofa. Call 547-4689.

Inexp medium weight nylon strung tennis racket. Bill Corwin, x3782 or 536-1139.

Fem rmmate for summer, Brighton, on T line, sunny, own rm, $87.50, gd landlord. Susan. x6881 or 782-5642.

Used port or stndrd sz elec typwrtr. Norton. x1856.

Miscellaneous

Wl swap king sz waterbed for queen sz. Pete. 547-8183.

Nd someone to drive your car to Washington or Oregon? Bill Blanford, x1411.

Wl bbysit in Westgate apt. Call 547-7982.

Papers typed, v reas, no statistical typing. Carol, 492-3433.

Wl do gen & tech typ. Ron, x7273.

Wl do thesis typing, manuscripts, proposals, reports. x6936.

Cpl desires old house in country to rent, north or west of Waltham, $150. Pamela Hanby. x2657 or 491-2883 evgs.

Live rent free July & Aug in Newton house together w-19 yr old son who is wrking, v gd loc, pref young cpl w-or w-out child. Call x4771 or 527-5312.

Lost and Found

Found: lady's watch, call & iden. G. W. Oro. x5824.

Lost: gold charm bracelet w-a coin, $10 reward. Rebecca Grant, 868-9011.