

Holloman claims decline in MIT cost to parents

By Tom Birney

According to a paper recently prepared for the MIT administration, the cost of an MIT education considered as a percentage of a family's income has declined considerably over the past 20 years.

The report, prepared by Professors Herbert J. Hollomon and Alan E. Harger plotted various student costs as a percentage of average family income from 1948 to the end of fiscal year 1971.

The figures on gross family income used in the analysis are for families whose head's age is 35 to 44 years and 45 to 54 years, since these are the Census Bureau categories which best represent the income of families which could have college age students. In addition to the median income graph (see graph) the report also contained analyses of the first and third quartiles.

Student expense categories which were considered are as follows: tuition for two terms, total student budget which includes tuition, room and board, medical fees, books and incidentals, all from Student Financial Aid Office estimates, and finally, total student budget minus average financial aid (scholarships and loans).

Tuition has commanded a relatively constant percentage of family income over the past 20 years for families in the median and high income ranges. However, for families at the first quartile, tuition has fallen from 35% of the family income to 28% in 1970.

The primary causes for the drop in percentage of income would seem to be the increased availability of financial aid and the slower growth rate in total student costs aside from tuition as compared to the growth rate of family income.

Perhaps the entire report is



The 24 Hour Coffee House has many activities for students to enjoy. See page 7 for details.

Photo by Sheldon Lowenthal

MIT employment plan undergoes revision

By Mike McNamee

A new review of MIT's hiring practices in relation to minorities will be published in late October, according to James J. Culliton, Administrative Assistant for Personnel, and James C. Allison, Assistant to the President and Chancellor for Minority Affairs.

The new plan is a revision of MIT's old Affirmative Action Plan, filed with the Department of Health, Education, and Welfare in 1969. Due to the Insti-

tute's role as a federal contractor, all hiring in academic, administrative, and service fields comes under review by HEW, to see that it complies with federal laws on minority hiring. The new plan is part of this process.

Most of the public emphasis has been on the addition of minorities and women to the faculty and the academic ranks. The new AA plan was developed with each department setting goals for hiring in its field, based on estimates of the number of qualified candidates. These departmental plans were sent to the Committee on Minority Affairs, which coordinated the entire report. The main change in faculty hiring is at the departmental level. When a new appointment is made, the department must demonstrate that a thorough search was made for a qualified woman or minority member to fill the post.

The original goal, set in 1970 when there were 17 women and eight blacks on the faculty, including visiting professors, was to have 30 blacks in professorial ranks, resident and visiting, by 1974. At present, there are 13 blacks (against a projected figure of 18 for this time), and 33 women (projected figure of 32) on the faculty. Also, offers were made to about 30 other minority candidates who chose not to come to MIT.

"This is not a quota system, and there is no lowering of standards implied," said Culliton. "We just want to guarantee that blacks and women are counted out from the start. He stressed that the departments had developed their own goals, using their own estimates of the number of qualified members of minorities in the field. "This has allowed emphasis on Affirmative Action at the departmental level, making the department heads an integral part of the success of the process."

Allison, when interviewed, pointed out the less-publicized parts of Affirmative Action — the administrative and service hiring plans. He felt one of the most successful fields had been construction hiring. "We started going to the contractors and their sub-contractors back in 1969, even before AA, to ensure that they were hiring minorities when qualified people were available. We got some static, but, on the whole, we've been very successful with this."

"The long-term effects," said Professor Benson Snyder, Chairman of the Equal Opportunities Committee, "will be a more open and a better Institute for everyone — all will benefit."

best clarified by considering that although student costs have grown geometrically in recent years, median family income has also grown geometrically, at a slightly higher rate.

The Hollomon paper seems to indicate that today's parent, regardless of economic status, is better able to afford an MIT education for his child than was his counterpart 20 years ago.

Due to its limited nature, this study has admittedly omitted several factors which might have affected its findings considerably. In particular, there was no consideration given for the rise in state and local taxes, and the uneven distribution of financial aid.

Shannon wins Harvey for information theory

Professor of Electrical Engineering Claude E. Shannon became one of the first two men to receive a Harvey Prize from the American Society for Technion-Israel Institute of Technology.

The Harvey Prizes bear the name of Leo M. Harvey of Los Angeles, a prominent leader of the American Technion Society and former Board Chairman of Harvey Aluminum, Inc. The prize fund was established by a gift of \$1 million from the Lena P. Harvey Foundation in L.A. to the American Technion Society in 1971. Each prize carries a cash award of \$35,000.

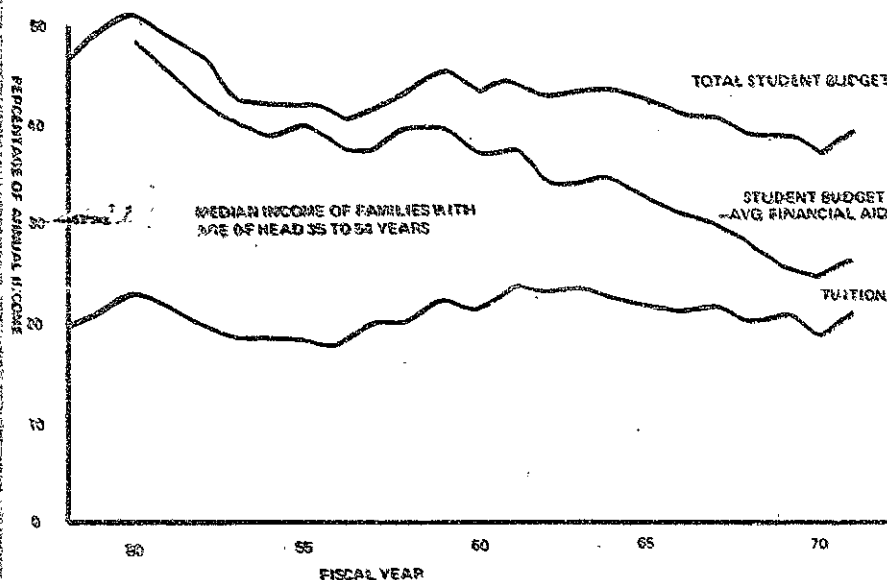
The fund will be used in perpetuity to make annual awards in one or more of four fields: Science and Technology, Human Health, Literature of Profound Insight into the Mores and Life of the People of the Middle East, and the Advancement of Peace in the Middle East. During this, the first year of their existence, the Harvey Prizes are being awarded in the categories of Science and Technology and in Human Health.

Laurence A. Tisch, President of the American Technion Soci-

ety, stated that the award to Shannon is being made in recognition of his "fundamental contribution to the modern science of communication by the formulation of a revolutionary mathematical *Theory of Information* having primary importance in all disciplines involving problems of meaning, communication, language and related concepts."

Shannon is considered the founder of information theory. In 1948 he gave a precise and quantitative mathematical definition of the concept of information. The theory was found to have fundamental importance and, when applied to the fields of semantics, comparative linguistics, cryptography, and computer design, it yielded a wealth of new correlations and data.

He initially conceived his ideas for limited applications to the technical and engineering aspects of communications systems. However, he had developed a tool of utmost flexibility and utility for the investigation of communication in its broadest sense.



GRAPH OF STUDENT BUDGET AND TUITION VS. MEDIAN INCOME

Institute considers new child care plan

By Ken Davis

A university is far more than just an institute of education; it is a community as well. This is illustrated well by the MIT child care program.

There are currently five MIT-oriented child care facilities operating, and another is under consideration. The five are:

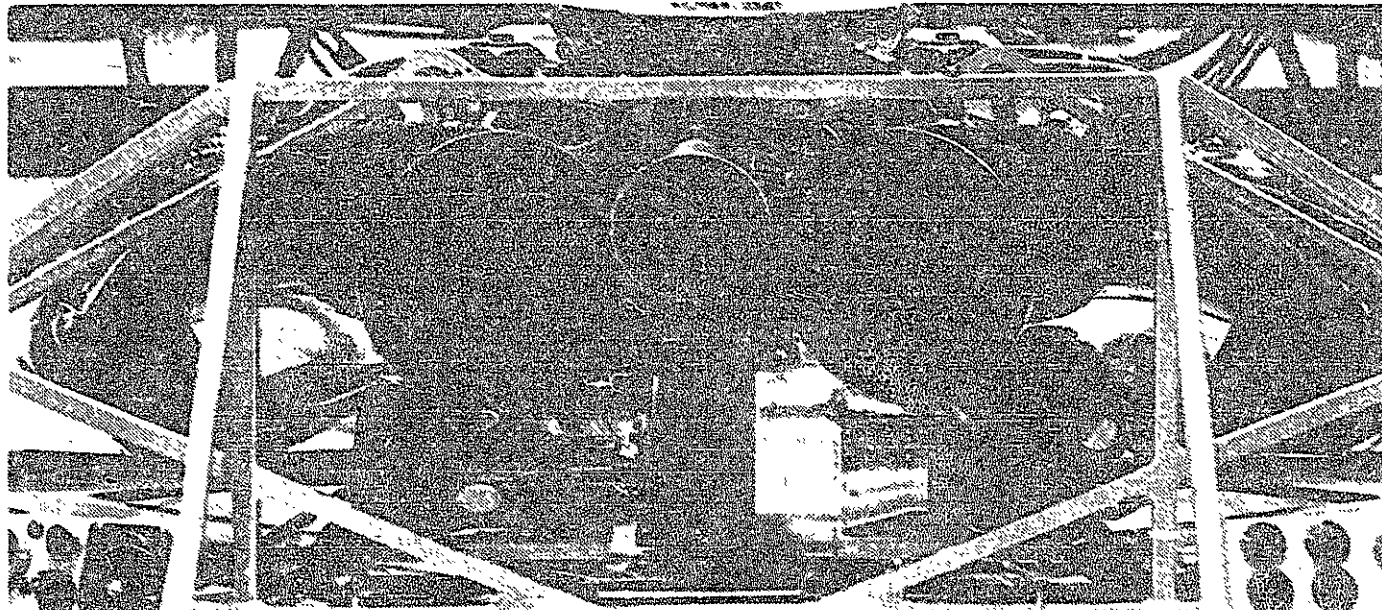
1. The Technology Nursery School, an independent corporation, which serves 90 children during the fall and spring terms, and 30 during the summer. Tuition is \$ 0.81 per hour. The Institute provides space, maintenance and utilities.

2. The Family Day Care Program: This involves parents in the MIT community in caring for children in their homes. Volunteers assist the parents and teach the children various basic skills. The major drawback of this program is that many of the participants live in apartments, which often prove too confining for older children.

3. The KLH Child Development Center, which draws a small number of its 60 children from needy MIT employees. The

Institute pays part of their tuition, which is \$42.50 weekly. However, the Mellon Foundation grant which permits MIT to subsidize these children expires this year. This program has been successful in that the rate of job turnover among the parents of KLH children has been less than the normal rate.

(Please turn to page 2)



A new exhibit has opened in Hayden gallery. The one-man show deals with cars. This is one way of looking at it.

Photo by Sheldon Lowenthal

NOTES

* Any senior at MIT interested in a Danforth Foundation Fellowship for 1973-74 should register by October 3 (today) to take the Graduate Record Exam by October 28. Each applicant should also submit an informal application to Dean Irwin W. Sizer (room 3-134) by October 16. Candidates will be scheduled for interviews on October 21 in room 1-134. For more information, contact Dean Sizer, room 3-134.

* The 1972 Putnam Math Competition will be held December 2 and is open to all undergraduates. The MIT team will be determined by the results of a take-home test to be given the weekend of October 13-15. Anyone may take the December test and there are individual prizes apart from the team competition. For information contact Prof. Greene, room 2-335, x3-7905 or Prof. Orszag, room 2-374, x3-4987.

* The Chinese Boxing Club will hold its first meeting Tuesday, October 3 at 7 pm in the duPont Gym T-Club Lounge.

* A representative from Duke Medical School will interview those who have applied to Duke on October 4 from 2-5 pm and October 5 from 9 am to 12 n. Call x3-4733 for an appointment.

* A representative from Cornell Medical School will interview those who have applied to Cornell on October 6. Appointments may be obtained in room 10-186, x3-4158.

* For those interested in working with the mentally retarded, there is an orientation session at the Fernald State School in Waltham at 5 pm Friday, October 6. For travel arrangements and information call Jon Sass, dl8124 or x3-2894.

* The SCC presents the Midnight Movie Series, Friday at midnight in the Sala de Puerto Rico. This week: Ten Little Indians; the admission is free.

* The Pot Luck Coffeehouse is open Friday and Saturday nights from 8:30pm to 12 m in the Student Center Mezzanine Lounge. Free coffee, cider and doughnuts. This week: Friday, Alison Prager; Saturday, Robert Zimmerman; admission free.

UROP

UROP has opportunities available for MIT students with the organizations listed. For more information contact UROP, room 20C-231, x3-5049 or x3-4849.

Massachusetts Port Authority, Boston; Seashore Trolley Museum, Kennebunkport, Me; Town of Ipswich, Ipswich; John Hancock Mutual Life Insurance, Boston; Newsletter Selectmens Office, Middletown; Department of Transportation, Cambridge; Boston University Medical Center, Boston; MIT Development Foundation, MIT; NERCAMP, Cambridge; Mass Office of Human Services, Boston.

The president of Teradyne, Inc. will discuss off-campus electronics-field UROP projects Friday, October 6 at 9:30 am in room 10-280.

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MIT ponders day care plan

(Continued from page 1)

4. The MIT Pediatric Clinic, located in the infirmary. The clinic provides all forms of basic pediatric care, but has no day care facilities.

5. The MIT Summer Day Camp, which serves children from the ages of six to 13, and is run by the Athletic Department.

"It's parents who need day care," said Margaret Sand, temporary MIT Day Care Coordinator. Sand, in cooperation with the Student Financial Aid Office, directed an orientation program about MIT day care on the nights of Monday and Tuesday, September 25 and 26. Also speaking at the orientations were Parent Program Coordinator Olvido Sirgo, Child Study Specialist Frances Ackerly, and Jacqueline Daley from the Catholic Charitable Bureau Family Day Care Program.

Sand explained that the MIT child care programs, basically serve those who, for personal, financial or professional reasons, can not take care of their children during the day. Approximately 70% of those who used the Family Day Care program last year were graduate students.

Marilyn Swartz of the MIT Planning Office has developed a

program which would cover some of the gaps in the current child care system. "We really needed a service for students," she said. "Full time care is also needed for children of faculty and staff, and employees not in the KLH program."

The proposal for the new addition to MIT child care calls for the establishment of a formalized care program, consisting of a Day Care Director, a Family Coordinator, and a full-time day care center in the Sloan Lounge. The site was chosen because it fits legal requirements for such a center, and would be the least expensive to renovate and maintain.

The proposed center would serve from 17 to 20 children. The size, as well as the format, were difficult to determine. University day care programs began primarily at teacher's colleges, where student teachers staffed the program as part of their training. "If you don't have an educational school to attach a center to," said Swartz, "how do you find a rationale for setting up an educational center, full-time, for children? Should you get bigger and get into pre-school education or should you keep it small?"

It was decided that a smaller

center, more in line with the need expressed in a survey taken by the planning office, would be appropriate. It is possible, however, that the presence of a facility will lead to a greater demand. "Experience has shown that starting a center small is the only way for it to be successful."

The proposed center would cost \$6000 in renovation and new equipment, and \$8000 in annual subsidies, not including teacher salaries, which would be covered by tuition. The program could still be run without the subsidy for those who could afford a \$30 weekly tuition. One question that the Academic Council is considering while debating the implementation of the program is if the cost is too high in relation to the number of people served.

Swartz and Sand contended that the cost would not be excessive, for two reasons. The first is that there is a need for additional facilities, especially with KLH funding coming to an end. Secondly, a strong child care program will help attract employees from women and minority groups, in line with MIT's Affirmative Action Program.

Another reason cited for the

Institute to subsidize the new day care center relates to the make-up of the clientele of many child care facilities. They often consist of the rich, who can afford the tuition, and the poor on welfare, who have their expenses subsidized by the government. This often leaves the middle and lower income parents with nowhere to go.

"An important point," said Swartz, "is that MIT is one of the first institutions where the administrative staff looked into and implemented child care on its own initiative." She gave the examples of Tufts and Harvard, both of which instituted child care programs only after protests and sit-ins had pressured the administrations into action.

The programs at both Tufts and Harvard, as well as one at Lesley College, were studied as possible models for the new MIT program. The Tufts facilities, which serve 60 children, were just granted \$10,000 by the university. Harvard supplied space for six day care centers, for which the university pays only rent and utilities, but not maintenance or teachers' salaries. Tuition at the Harvard program is \$30 weekly. At Lesley College, tuition is \$50 for infants and \$40 for older children.

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FAC plans system review

By Bert Halstead

The Freshman Advisory Council (FAC) is planning to review the roles and qualifications of freshman advisors.

Though the final figures are not yet in, it appears that there will be about 220 or 230 freshman advisors this year, up 5-10% from last year, according to Assistant Dean for Student Affairs Peter Buttner. This number of advisors is sufficient to insure that no advisor this year will be assigned more than the maximum number of freshmen he says he can handle. Most advisors have been assigned more freshmen than the number they said they preferred, however.

The FAC is a faculty committee, chaired by Professor Hale V. Bradt. In addition, there is an administrative staff, headed by Buttner, which includes at least one part-time student worker, and there is the FAC Advisory Group. This group consists of advisors and associate advisors who volunteer their time for the committee, as well as several freshman members. At this writing, there were still places on the committee for interested freshmen.

The Advisory Group was resurrected last year after a hiatus of several years. Meeting about once a month, it decides many FAC policy matters (those where it has authority to act), and takes positions on those matters which must be decided by the President, the Provost, or some other non-FAC official. There are some major issues facing the group this year. First and foremost is the question of the roles and qualifications of freshman advisors.

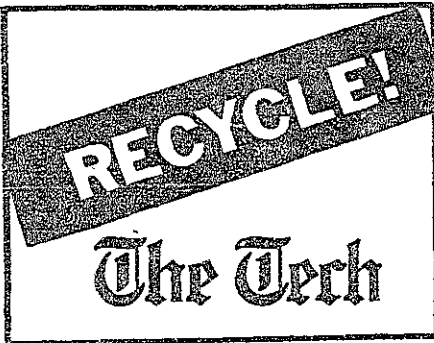
When the Freshman Advisory Council came into existence in the early 1950's, its main function was to assign about 12 freshmen to each of approximately 80 advisors. In those days, the main function of an advisor was to help the freshman choose his academic program, which was not very taxing, as there were few academic options for freshmen twenty years ago. Each department would assign certain members of its faculty to be freshman advisors each year.

In 1968, the advisor selection process was made voluntary, and the number of advisors has been increasing steadily since then. Simultaneously, the matching criteria have been expanding in an attempt to assign freshmen to advisors who share extracurricular as well as professional interests with them. This has been part of an attempt to expand the role of an advisor from that of merely an academic counselor to that of a personal friend, helping the freshman get into the swing of things at MIT.

Along with these changes, the mix of freshman advisors has been changing. Whereas at one time all freshman advisors were members of the faculty, the proportion of non-faculty freshman

advisors has been rising, and is now close to 50%. Many of these non-faculty advisors are involved in teaching, but some are not, and this is one of the reasons for the projected re-evaluation of the qualifications to be required of freshman advisors.

The FAC is involved in other matters besides freshman advisors, of course. It has editorial responsibility for several publications sent to freshmen every summer, such as the *Freshman Handbook*. This is another area in which the FAC Advisory Group will have decisions to make, concerning such matters as policy on including student quotes in the handbook. The FAC also oversees freshman registration, undergraduate seminars, freshman evaluation forms, and last but far from the least, its Residence/Orientation Committee manages R/O Week.



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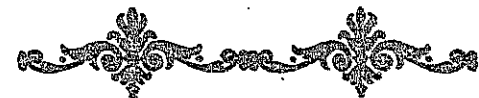
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MIT's Affirmative Inaction

By Bruce Schwartz
and Sandy Yulke

(As reported in the article MIT employment plan undergoes revision on page one of this issue, the Institute has been asked by the Department of Health, Education and Welfare to revise its affirmative action plan. This request was made last spring, in a letter to Dr. Wiesner which was never released in its entirety. At that time, Schwartz and Yulke analyzed the history of the affirmative action concept at MIT. Because the revisions are now nearly complete - after 6 months - we reprint this column which originally appeared on March 24, 1972. - Editor)

In September 1969, which some people may remember as being one month before the first Moratorium and two months before the November Actions, the Faculty Council of the Institute (which few people remember) endorsed the goal of appointing thirty new black faculty members over the following five years. They further urged that each academic department make maximum efforts to appoint at least one black to its ranks.

At that time, MIT had a total of three black professors. Today, halfway through that five-year period, it has five - not counting visiting faculty, who swell the numbers to eight.

In 1969, about 3.6% of the Institute's non-academic personnel were black. Today, that figure is over 5% - but black workers are still overrepresented in unskilled job classifications, and underrepresented in technical and administrative jobs.

Such figures tell only part of the story of why HEW found the Institute's Affirmative Action Plan of 1969, developed to meet the requirements of Title VI of the Civil Rights Act of 1965, to be inadequate, and why it deemed the progress MIT had been making toward the goal of equal employment opportunity unsatisfactory. Institute officials, despite a few qualifying remarks about the obsolescence of HEW's November 1970 data, had to agree: "The basic problem still exists and we are working hard to correct the situation," said Benson Snyder, Dean for Institute Relations and Chairman of the Equal Opportunity Committee.

For in fact the Institute has, in most areas, been dragging its feet toward compliance with the spirit, if not the letter, of the Civil Rights Act. The sole bright exception has been the success of the black student recruiting effort that came out of the Task Force on Educational Opportunity formed under Paul Gray in October 1968. In three years black admissions have gone from virtually nil to over 6% of each freshman class. In other areas, the record is poor. And if the record with respect to blacks is poor, the record with respect to women is abysmal. Women, who make up 51% of the national population, make up about 9% of the MIT student body, and less than 3% of the faculty. There are, of course, historical reasons for this, stemming from the long-standing prejudices that kept women out of science and engineering. One cannot create women PhD's overnight, however much one might want to. But no such argument can be applied to non-academic staff positions, where we find an administrative staff that is over 85% male (and white at that) directing the efforts of clerical workers who are overwhelmingly female.

HEW's point was not, of course, that these inequities exist. Everyone did, and does, know it. The point was that MIT has not been making very rapid progress in correcting them. Some of the reasons were pointed out by HEW in the part of its report - the summary and recommendations - that MIT chose to make public. The October, 1969, plan included no provisions about women, and though this was changed to include them in May 1971, HEW felt that at no level had the Institute been sufficiently rigorous in its analysis of its problems with hiring qualified blacks and women, nor had it set up adequate mechanisms to deal with them. Recruiting of blacks and women to faculty positions, has been stoppy or nonexistent in most cases, and its pace has been retarded by faculty

prejudice and conservatism. The development of guidelines and enforcement apparatus for the Affirmative Action Plan has been extremely haphazard; in fact, the Institute seemed up until last week to have attached low priority to Opportunity Development. (In a recession economy with cutbacks going on, who wants to concentrate on new hiring?) Instead of a central enforcement apparatus, Affirmative Action until a few weeks ago was managed by a patch quilt of committees.

MIT's Affirmative Action Program to date, then, has not been functioning adequately. To understand why, and to understand what changes are now being made to improve the situation, it is necessary to examine the history of the Plan.

Lyndon Johnson's Executive Order 11246, under authority of the Civil Rights Act of 1965, forbade discrimination [by federal contractors] because of race, creed or national origin. HEW was directed to monitor compliance and ordered firms to develop Affirmative Action Plans to counteract the effects of earlier discrimination.

At MIT, compliance measures included the establishment of the Opportunity Development Office within Vice-president John Wynne's office, and black student recruiting. A Task Force on Equal Opportunity under Jack Ruina began meeting in July 1969 and drafted the first Affirmative Action Plan of October 1969. Despite the promulgation in October 1968 of Executive Order 11375, which extended Title VI provisions to include women, MIT's original AA Plan made no mention of women. The 12-member Equal Opportunity Committee was formed in Spring 1970 to oversee the plan. Chaired by Dr. Benson Snyder, its membership included two faculty and two students. All departments were directed to develop AA plans of their own, and to submit them to the EOC.

In May 1971, at the direction of Howard Johnson, every department was directed to draft a new plan which would include women. These were to be submitted to EOC by July 1. The EOC then began to review them.

That review is still not complete, which gives an indication of the inefficient, bureaucratic approach MIT has tried to apply to Affirmative Action. EOC met once a week. Four "sub" committees functioned under it: Educational Opportunity, headed by Paul Gray; Faculty/Staff, under Vice-president for Research Albert Hill; non-academic Employment (John Wynne); and Community Programs (e.g. Urban Action) under Opportunity Development Officer James Allison.

The ineffectiveness of this organization, with its tangled skein of overlapping and ill-defined authority, is obvious in retrospect. Al Hill's task force, for example, overlapped with the Academic Appointments subgroup of the Academic Council, which has final say in faculty appointments. Allison was Opportunity Development Officer, responsible for training programs and the like, but he was submerged in John Wynne's office. Though Wynne headed the Employment subgroup, he was not supposed to function as central authority for employee Affirmative Action - though even HEW thought he was, and in its report criticized him by name.

There were other problems. The Institute had no way of even telling, except in a crude way, where it was lagging in minority or female employment. Prior to 1970, MIT had never broken down its employees into racial or sexual classifications. (A recently-developed computer program now permits continuous updating of such data.)

The basic weakness in MIT's Affirmative Action Plan, however, seems to have been the lack of centralized authority and inadequate publicity. With no one kicking them hard to make intensive searches for women and blacks, most departments made only token efforts, if any. (There were some areas in which progress was made, of course. The percentage of black clerical workers has reached and exceeded parity with the 10% proportion of blacks in the national population.)

MIT has compiled its worst record in the hiring of black and women faculty members. The Institute claims eight black professors with ranks of assistant professor or higher, but this includes three visiting professors. Only two new black professors have been appointed to permanent positions since 1969. But the goal set by the Faculty Council in September of that year remains unamended. In fact, Institute officials have set a goal of 32 black professors (including visitors) by July 1973, and maintain they will meet that goal. If so, that means hiring nine new black professors this year, and another 13 next year. According to figures given by the EOC, there are at this time only three outstanding offers of faculty positions to black candidates. Whether the 1972 or 1973 goals will be reached is a matter of conjecture, but based on past results, the EOC's optimism does not appear well founded.

It is difficult to judge why there have been so few black appointments since 1969. Overt racism is not the likely answer; rather, MIT's dearth of black faculty reflects the relative absence of black people from higher education until quite recently. Black PhD's are still scarce, especially in the engineering fields. They are also difficult to locate; as far as we know, no "master list" of black PhD's (such as the AAAS women's list) exists. But HEW criticized MIT's departments for not making rigorous enough searches for qualified black PhD's, and many departments have been reluctant to change their methods of appointment to accommodate Affirmative Action Plans. Some have argued that recruiting blacks or women implies "lowering standards;" in other cases, a department has been anxious to hire a particular man and, contrary to the AA Plan, has not made proper searches for equally blacks or women.

Affirmative Action, incidentally, does not imply lowering standards or "reverse racism." It obliges departments to seek out minority or female candidates who are as qualified, or more qualified, than comparable white male candidates who might be hired - and to hire them in reasonable number. If none can be found after reasonable search, then the department is under no obligation to hire an underqualified person. Just recently, for example, the Nuclear Engineering department made a strong effort to find a woman for its faculty, but women are so scarce in this very specialized field that NE could find none both qualified and available.

The September 1969 AA plan contained a peculiar provision: "... the Institute's black faculty recruiting program is being undertaken with the explicit intent not to hire faculty members from black colleges and universities thereby depriving these growing institutions of capable academic personnel." That logic is fallacious. Not only does it cut off MIT from a potentially rich source of black faculty, it is patently unfair to the black PhD. Let us imagine that Harvard, Caltech and many other prestigious universities have similar policies. The black PhD is faced with a situation (possibly unknown to him since these AA plans haven't been widely publicized) in which teaching at a black college virtually guarantees a lid being clamped on his upward mobility. The PhD at a black college is denied the choice of moving to MIT or schools with similar policies.

The "initiative" toward more women faculty members did not even begin until last year, so we have little time to see its results - but several departments are reported to be resistant. Moreover, the recruiting of black students which seems likely to swell the number of black PhD's within a few years (particularly in science and engineering) has no counterpart among women. MIT does virtually no recruiting of women students, perpetuating the historical imbalance of women in the professions, and even the ratio of women admitted compared to applications received is still lower than that for men.

With that as an outline of the official background, let us examine MIT's record and prospects in a few highly visible areas.

The under representation of women on the MIT faculty (20 professor out of over 900) is not so simply accounted for by the scarcity of women PhD's. This is true of some fields, especially the engineering ones, but does not account for the absence from the MIT faculty of women in areas where women have been significant for years - such fields as biology (which just got its first woman professor), nutrition (2 out of 30) and management (none out of 58 - Course XV, incidentally, has never awarded a PhD to a woman). One might expect graduate enrollment of women to roughly indicate the presence of women in the field; only one department - Political Science - has women faculty in proportion to graduate female enrollment. The Affirmative Action Plans, as amended under Howard Johnson's directive of last May, call for the hiring of twelve new women faculty this year, and ten the next. There are currently four offers outstanding.

The recruiting of women in the past year has been, in most cases, virtually nonexistent or so sloppy as to be almost insulting. The chemistry department reportedly told the EOC that they weren't going to try very hard to recruit. Snyder ordered the department to rewrite their AA Plan. (Though no department has so far been threatened with loss of appointments and budget, this the sting by which the Academic Appointment Subgroup can enforce compliance.)

Benson Snyder, speaking to CJAC on February 3, noted that the 20 top engineering schools in the country have produced "only about 80 women PhD's in the past five years. Virtually none of them, however, have appeared at MIT. Nor will MIT hire its own women graduates. Several departments have claimed it's because they don't like to become "inbred" - yet, according to the AAUP, MIT is one of the most "inbred" schools in the country, with nearly half its faculty having earned their graduate degrees here. This excuse is a sham.

The new Affirmative Action plan has long way to go.

In areas outside faculty hiring numerous other inequities cropped up in the HEW report. MIT has over 1500 secretaries, but few of them have the opportunity to "move up the ladder" and if they do, they are often not paid as much as a man doing the same work.

Perhaps the greatest weakness in MIT's Affirmative Action plan to date, however, has been its quiet, near anonymous operation. The secrecy with which MIT likes to shroud such things as salary scales, for example, has made it hard for employees to be aware of unfair income differentials. Though MIT is reluctant to rigidly classify its job categories (as an official said, that forces the institution into rigid stratification), HEW ordered that something be on these lines be done - and made public. The old plan, to date has not been widely publicized. Few people whom we talked to even realized the EOC existed, and certainly did not know Benson Snyder chaired it. Under HEW's directive, the new plans, including figures and recruiting methods, must be promulgated publicly and down the entire chain of authority (no recalcitrant supervisors allowed). *The Tech* will carry details as they become available.

Continuous News Service

The Tech

Since 1881

Volume XCII No. 36 October 3, 1972

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News Editors

Second class postage paid at Boston, Massachusetts. *The Tech* is published twice a week during the college year, except during college vacations, and once during the first week in August by *The Tech*, Room W20-483, MIT Student Center, 84 Massachusetts Avenue, Cambridge, Massachusetts 02139. Telephone: (617) 253-1541.

MIT again top recipient as aid to colleges rises

TOP TEN INSTITUTIONS RECEIVING GOVERNMENT AID

INSTITUTION	1970-1971	DOLLARS (IN THOUSANDS)
1. MIT		89,574
2. University of Minnesota		72,534
3. University of Michigan		60,881
4. University of Wisconsin - Madison		57,320
5. University of Washington		56,535
6. Stanford		54,648
7. Harvard		50,037
8. University of California - Los Angeles		54,030
9. University of California - Berkeley		52,279
10. Columbia		52,219

Source: National Science Foundation

By Jonathan Weker
MIT was the top recipient of federal funds in the 1970-71 school year during which the government gave a record amount of aid to higher education.

According to last Sunday's *New York Times*, the ranking appeared in a report issued recently by the National Science Foundation.

The NSF figures report that the Institute received \$89,574,000 out of a total of \$3.8 billion given by the government for that year. MIT thus retained its position as the leading government beneficiary, receiving \$13 billion more than the runnerup, University of Minnesota.

Included in the figures is aid given to universities by all federal agencies. Thus a widely-publicized Department of Defense education grant cutback to the lowest level in 1963 was more than replaced by less-well known increases by the Department of Health, Education and Welfare and other agencies. No figures for '71-'72 have yet been compiled.

There remains some question as to exactly which funds were included in the report's

figures. According to Comptroller Stuart H. Cowen the total amount of money being given to MIT by the government is closer to twice the figure stated in the report. This includes funds for the Draper and Lincoln laboratories, however, which might not have been considered aid to higher education.

Furthermore, Cowen pointed out that, were these laboratories considered a part of MIT, such facilities as the Lawrence Radiation Laboratory of the University of California would also have to be taken into account. "If you strip out the big labs, we will be receiving the most money any way you look at it," Cowen remarked.

The drop in Defense Department allocations has led to a cut in the amount of research funds in the physical sciences field. According to the report, this reduction in physical sciences research funding has caused the percentage of the entire \$3.48 billion received by the top 100 aid-getters to drop from 71% in 1969-70 to 69% in 1970-71. There was a corresponding increase in the amount of aid for non-scientific purposes, funded mostly by HEW.

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Career office expands advisory capacities

By Ken Davis

MIT, once almost exclusively a breeding ground for engineers, scientists and mathematicians, has in recent years graduated an increasing number of students

interested in professional careers. Aiding these students is the main function of the Pre-Professional Advising and Education Office. The office, which is under the direction of Susan P. Haigh, has expanded its facilities for the advising of pre-law and pre-education students. The office had already provided considerable assistance for pre-

lege Admissions Test, the Dental Aptitude Test, and the Law School Admissions Test. The office sends out letters of recommendation to medical schools which require them.

Recently, the office sponsored general information meetings for each of the three professions. Although no more such general meetings will take place, representatives of medical and law schools will give talks, and seminars to discuss career aspects of the professions will be offered.

Sign-up sheets for interest in the professions have been posted both in the main building and in the Pre-Professional Office. The sheets are color-coded, as is all pre-professional literature this year: green for law, blue for medicine and yellow for education. As of Friday afternoon, 259 students had signed up indicating interest. The signatures break down to 160 in medicine, 74 in law and 25 in education.

In past years, MIT has become a successful base for starting a medical career, MIT's rate of having students accepted into medical school has been over 70%, the highest in the country.

Handbooks have now been published for those interested in both law and education, where previously only a medical handbook existed. The handbooks contain information on choosing graduate schools, pre-requisites, financial aid, and admissions procedures.

The Pre-Professional Office also provides other services to students. The office has on file the catalogs to many medical, law and dental schools. It also handles applications for students who wish to take the National Teachers' Test, the Medical Col-

Voter registrar to be at MIT Wednesday

The Cambridge Commission of Elections will supply a voter registrar for the MIT community tomorrow. The session is slated for 11 am to 2 pm in the West Lounge of the Student Center.

Any person who can prove that Cambridge is his domicile is eligible to register. The UA sponsored drive comes only three days before city registration books are closed in preparation for the presidential election next month.

Dean Kenneth Browning is supplying lists of dormitory residents for the registrar, which should speed up the process for on-campus students. People who live off-campus should bring some proof of address such as a copy of their lease.

In the past, students who lived in Cambridge have had tremendous problems in trying to register to vote. They have been refused for a number of reasons, mostly having to do with the transient nature of the student population and the

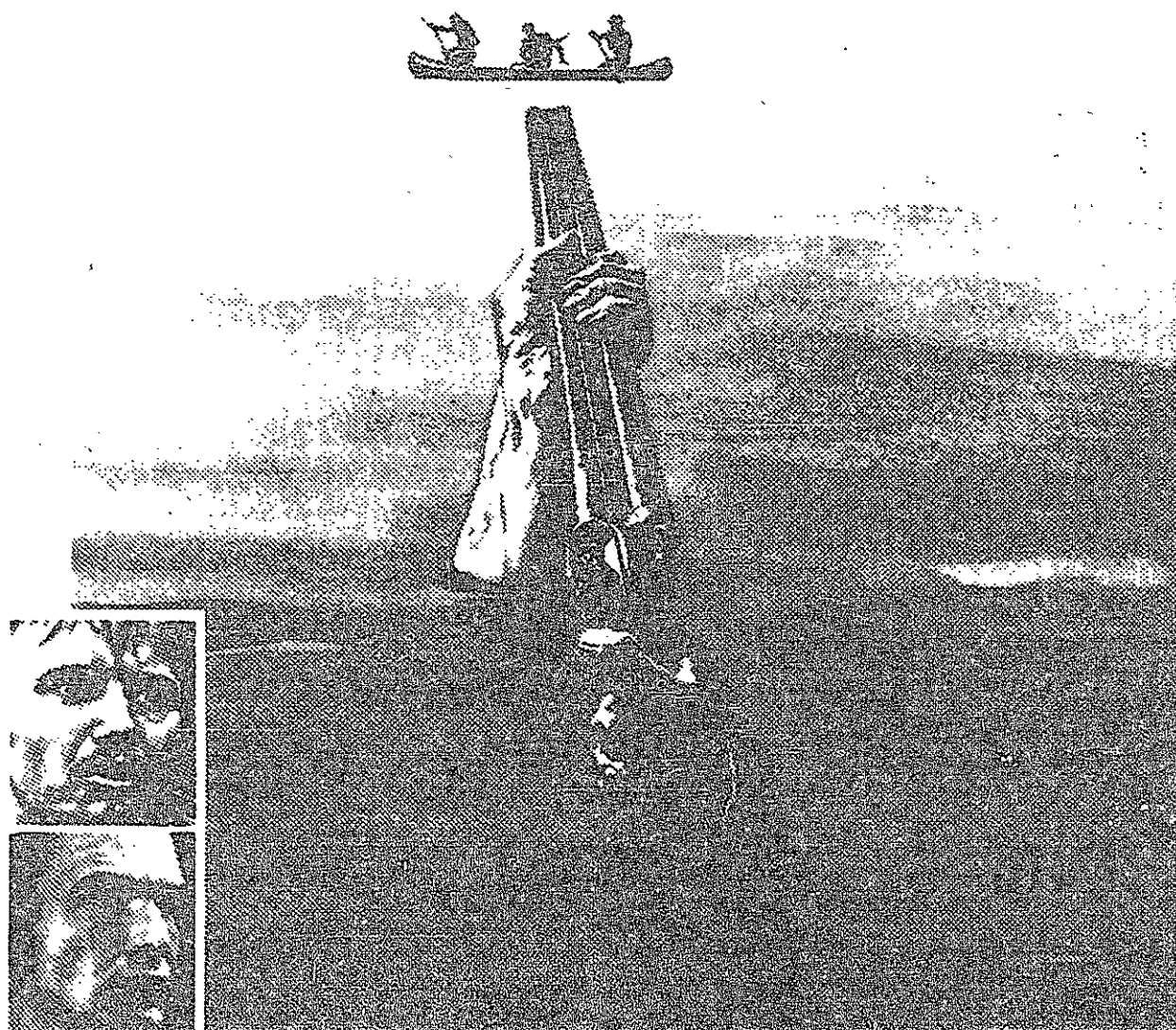
difference between residence and domicile. It is not known at this time whether such a problem will exist, although a similar drive was staged at Harvard yesterday. The results of tomorrow's drive are not expected to differ from those of yesterday's test case.

According to UAP Curtis Reeves, several groups both on campus and in the Cambridge community are awaiting the outcomes of these drives. Reeves notes that David Sullivan '74, who spent his summer helping to register Cambridge residents, plans to file charges against the election commission in the State Attorney General's office if students are barred from registering.

The voter registration drive is one of a series of events sponsored by the UA to encourage a more socially aware student body. "If we can continue to perform services like this for the rest of the year, we'll be happy," said Reeves.

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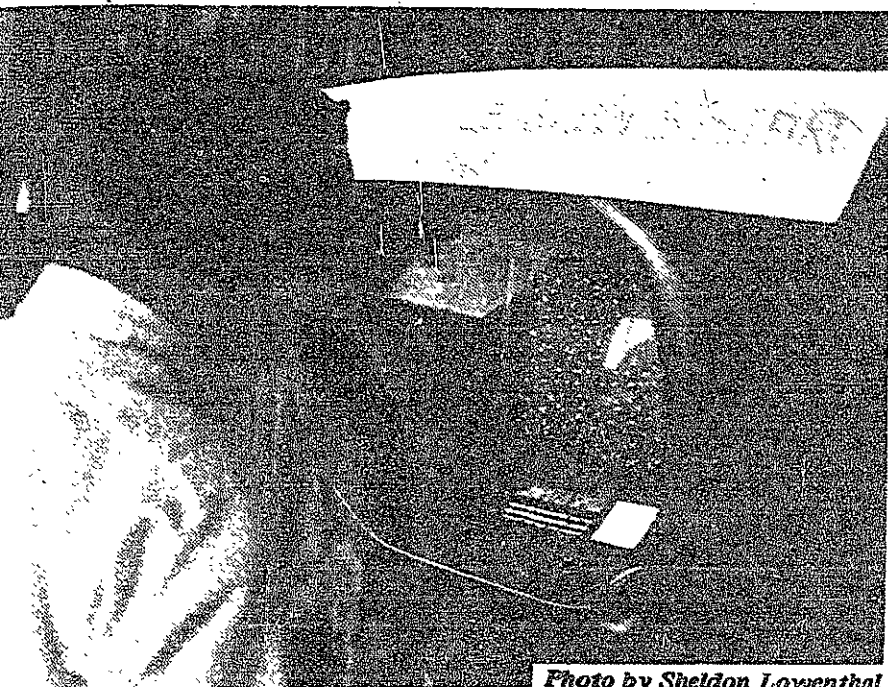


Photo by Sheldon Lowenthal

Peace war is a popular attraction of the 24 hour coffeehouse

By Charlotte Cooper
The Student Center Committee is continuing this fall the 24-hour coffee house which proved so successful in its trial run in May.

Last spring, three undergraduate Architecture students, headed by the Student Center Committee, organized a 24-hour coffee house as a two-week experiment, which was extended for the entire month of May and encouraged the Student Center Committee to continue the activity on a permanent basis this fall. Chairman Bob Ice '75 stresses that the Committee's 24-Hour Coffee House now operating in a lounge on the second floor of the Student Center is not primarily a snack bar. "We do sell food," says Ice, "but that's just a mechanism to get people into the lounge. We want the Coffee House to be a place where people can meet to talk and listen to the music on the radio, relax and enjoy themselves at any hour of the day or night."

At the Coffee House, an ID-ifying student can rent a game for 10 cents (cards are free), try his hand at a computer Space Invader game, or play the lounge's pool table. The hungry can buy pizza, candy, bagels or donuts; the thirsty are coffee, tea, or cold bottled coke. Food and drinks go for a price slightly above cost since

the Committee must pay the wages of students who work for \$1.75 an hour to keep the Coffee House open full-time. There are some volunteers — including Dean Richard Sorenson and his secretary, Ann Wiggins, who work from 1-2 on Tuesday afternoons. A total of 162 of the week's 168 hours are accounted for, with only a 3 am - 9 am Sunday shift unfilled. Anyone who would like to work these hours, or anyone wishing to place his or her name on a substitute list, should contact Linda Christian, TCA secretary.

The furniture currently adorning the Coffee House was scavenged from various parts of the Institute and consequently is comfortable but not decorative. Ice says the Student Center Committee plans to beautify the lounge by buying new furniture, painting the walls, improving the lighting, and stocking the area with magazines and newspapers. When renovations are completed, students and members of the community who would like to entertain will be welcomed since, says Ice, "We'd like an atmosphere similar to that in our Friday and Saturday night Pot Luck Coffee House. In the 24-Hour Coffee House there'll always be an audience since, so far, it's patronized by more students than we ever dreamed we'd see."

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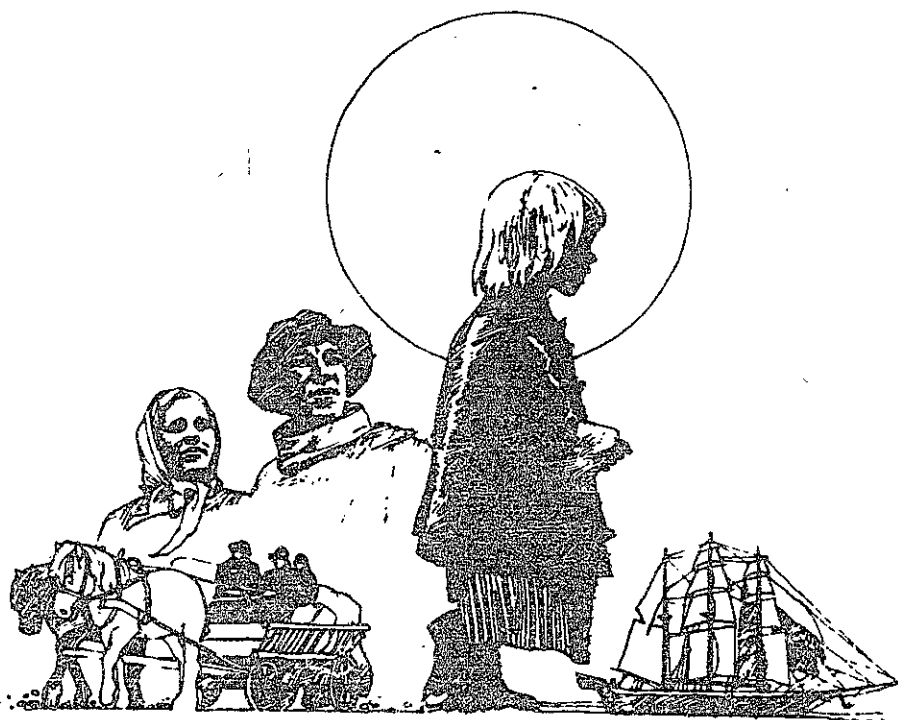
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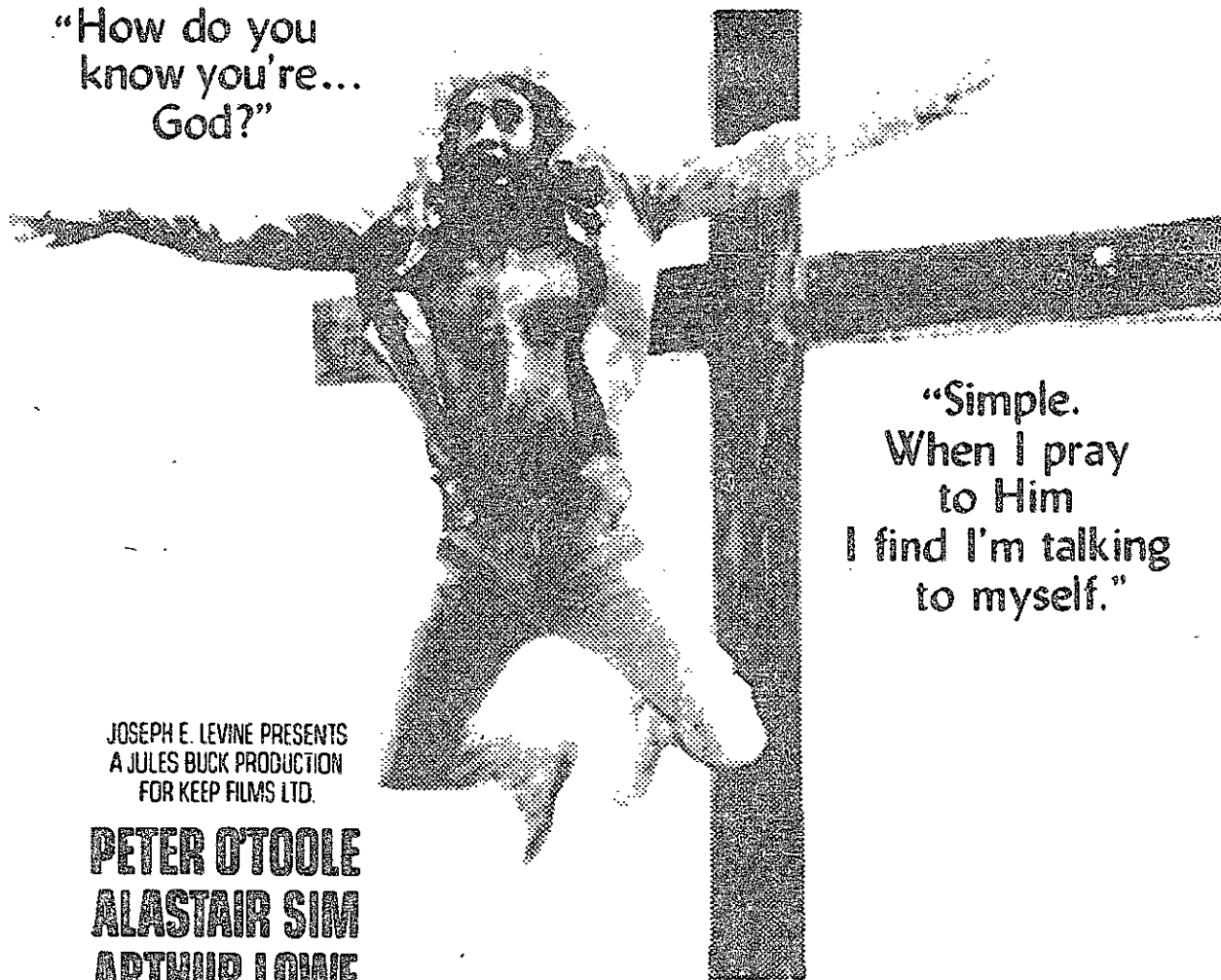
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Soccer season begins

By Fred Hutchison

Despite the excellent playing of Erik Barklis '74 and goalie Ritchie Straff '74, the MIT varsity soccer team lost its first game of the season, 3-0, to a very tough Harvard eleven, Wednesday.



Esref Unsal '75, a fullback, vies for the ball with a member of the strong Harvard team which beat MIT in their season opener last week.

Photo by Roger Goldstein

Third rated Harvard got off to a very early start when Henry Sideropoulos assisted by Ron Padmore scored the first goal of the game at 43:58 in the first period.

The next thirty minutes of the half were fairly uneventful, save for several Harvard shots on goal and some good saves by goalie Straff. Then with 9:30 left in the half Greg Hunter '76 unintentionally kicked the ball into the corner of the MIT goal thus making the score 2-0 Harvard. Credit for the goal was given to the closest Harvard player, Bent Hinze. The scoring of the first period ended at 7:32 when forward Hinze punched one by Straff to give Harvard a three to nothing lead at half-time.

After the intermission, Harvard again dominated the scoring with goals at 39:15 and 7:27 by Hinze and Felix Asedeji (a mem-

ber of the 1968 Nigerian Olympic team).

Injuries and poor passing seemed to be the downfall for the MIT eleven as three techmen entered the game with injuries and did not play up to expectations. MIT did have its good moments, however, and it is always a pleasure to watch good passing as performed by Erik Barklis. The MIT defense looked fairly good, as they let only five of Harvard's 26 shots-on-goal get through to score.

Harvard, on the other hand, was in control of the game from the start and their experience was clearly evident by their smooth passing and excellent ball handling.

The young Tech soccer squad, consisting of only one senior, looked good for the first game of the season, and hopefully with some experience and confidence they'll compile a winning season.

GOALS: First Period: Sideropoulos (Harvard) 43:58, Hinze (Harvard) 9:30, Hinze (Harvard) 7:32; Second Period: Hinze (Harvard) 39:15, Adedeji (Harvard) 7:27. Shots on goal MIT-10 Harvard-26 Saves MIT-10 Harvard-3 Corner kicks MIT-10 Harvard-2

SPORTS



Ritchie Straff '74, the MIT goalie, and Erik Barklis '74, the MIT team captain, the heroes of last Wednesday's season opener against Harvard, look on as Esref Unsal '75 tries to dribble the ball past Harvard's Demetrio Mena.

Photo by Roger Goldstein

Cross Country starts; loses Engineer's Cup

The varsity cross country team lost the Engineer's Cup to WPI in a tri-meet with RPI last Saturday, held at WPI under overcast skies. WPI scored a surprise upset, with its first five runners finishing in the top eight places. RPI, the 1969 and '70 winner, came in third.

The absence of John Kaufmann '73 (recovering from bronchitis) was another setback for the team, which lost four runners to graduation this summer. The Engineers were led in by Al Carlson '72, a transfer student from Brigham Young University, who finished the course with a comfortable lead.

Terry Blumer '73 made a valiant effort and finished in fifth place after falling on the last turn about a hundred yards from the end of the course.

Next Saturday the team takes on Coast Guard and Wesleyan at Franklin Park. Come out to watch. The varsity meet will start at 1:30 pm.

WPI 24, MIT 43, RPI 53

1. Carlson (MIT) 22:35; 2. Briggs (WPI) 22:40; 3. Murch (WPI) 22:46; 4. Fowler (WPI) 22:48; 5. Blumer (MIT) 22:52; 11. Borden, P (MIT) 23:20; 12. Hill (MIT) 23:35; 14. Baumler (MIT) 23:42

Baseball's week: 3-0-1

By Michael Gary

The Engineer baseball team met with extraordinary success last week, as they managed to win three games and tie one in an exhausting four game schedule.

The games marked a turn-about from utter mayhem to proficiently-played baseball. This rather sharp transition can be explained either by the team's lack of consistency or by

the fact that the Engineers have finally begun to develop their potential.

The first two games, on Monday and Tuesday, were against Graham Junior College. MIT, by virtue of luck more than anything else, prevailed twice with scores of 11-4 and 11-9. The abundance of scoring on the part of MIT was a result of the abundant errors committed by Graham in both games, 13 in all. However, there were some noteworthy batting efforts by the Techmen. In the first game the outstanding hitters were Rich Charpie, the captain and sole senior on the team, who contributed a home run to deep center field, Kevin Rowland '74, who sparked the offense with a two for two performance including a sacrifice fly, and the ever-dependable Herb Kummer '75, who batted in two runs.

On Tuesday, the shoddy fielding continued, but once again MIT put on an impressive display of hitting. It was highlighted by Joe DeAngelo and Tom Leise, both juniors, who each accounted for two RBI's. MIT's pitching was ineffective with the exception of Rich Chace '76, who pitched two perfect innings including three strikeouts in recording the victory.

The third game of the series was played on Thursday against Quinsigamond Community College. A superb combination of timely hitting, exceptional defense and superlative pitching by Dave Yauch '75 gave MIT a 7-3 victory. Roy Hensickson, the Tech freshman shortstop, displayed a powerful and accurate throwing arm and expertise in turning the double play. His presence in the field contributed considerably to the general improvement of the MIT defense.

Thus, in contrast to the previous two games, MIT played admirably in the field. The Engineer hitting attack was distributed fairly evenly among the later innings and was particularly notable because it came when the team was at a three-run disadvantage. The first MIT run came on consecutive doubles by DeAngelo and Dave Tirrell '74 in the fifth inning. A two-run sixth tied the score at 3-3. The winning run came in the seventh inning on a base hit by Mike

Dziekian '76, who proceeded to steal second base, and to score on a close play at home after a base hit by Kummer.

The most pleasing aspect of this encouraging game for MIT was Yauch's pitching. Yauch, the veteran of the staff, struck out eight in going the full nine innings - an uncommon feat in fall baseball. He appeared to have good control of his fastball and curve.

The final game of the week was played Friday under dismal weather conditions at Massachusetts Bay Community College, to whom the Engineers had succumbed a week before. Because of the weather, a continual mist throughout, only seven innings were played, and the game ended in a 4-4 tie. In the first inning Rowland's bases-clearing triple followed by DeAngelo's squeeze bunt gave MIT a four run lead. Alas, in their half of the second inning Mass Bay countered with four runs of their own, and the score remained deadlocked until the game was terminated in the seventh.

It is hoped that the peaks and troughs reached by the Engineers in the past week will not be indicative of their play for the remainder of the fall. Some consistency is clearly needed for MIT to be able to compete realistically in the spring.

Chess

By Daniel Reinharth

Thanks to our new world champion, Bobby Fischer, chess has leaped into the entertainment limelight. Since its newfound popularity has manifested itself in the form of curiosity from the uninitiated, I feel that it is appropriate to write a column primarily instructional in nature.

The instruction, however, will be somewhat sophisticated - I am interested in helping novices to turn the corner between woodpusher and chessplayer. I shall introduce key principles and elaborate upon them by quoting relevant games, and shall assume a prior knowledge of how the pieces move and of descriptive notation.

Essential to improving in chess is the playing over of recorded games. This column must be read with a chess set

handy to play and analyze the illustrative games. I shall also make use of the illustrative games to sketch some of chess' personalities and the development of the game's theory, with emphasis on the Soviet contributions.

I picked the following game primarily to show what Boris Spassky means to the heritage of chess. Contrary to popular opinion, his career has not been marked chiefly by uphill, losing struggles against Bobby Fischer. In this game Spassky defeated a grandmaster who missed the world championship by taking only twelve points out of 24 in a match against Botvinnik.

White: Spassky; Black: Bronstein. Leningrad, 1960. 1. P-K4, P-K4; 2 P-KB4, PxP. This opening is called the King's Gambit. White offers Black a pawn in order to gain control of the center (space) and to bring the pieces out quickly and aggressively (development). 3. N-KB3, P-Q4; 4. PxP, B-Q3; 5. N-B3, N-K2; 6. P-Q4, O-O; 7. B-Q3, N-Q2. Notice how Black returned a pawn to keep pace with White's development. 8. O-O,

P-KR3; 9. N-K4, Nxp. Spassky sacrifices another pawn to activate his pieces. 10. P-B4, N-K6; 11. BxN, PxB; 12. P-B5, B-K2; 13. B-B2, R-K1; 14. Q-Q3, P-K7.

This is the crucial point of the game. Put yourself in Spassky's place: a) Your pieces are well placed, with the lineup of bishop and queen comprising a checkmate threat. b) Black's pieces are congested, but c) Black's pawn on K7 is threatening to take White's rook and become a queen, with check. What do you do?

It would be perfectly logical to answer the threat with R-B2, preserving all the aforementioned pluses. Spassky, however, realized that he had the opportunity to play the move of a lifetime. The clinching factor was that Bronstein had left himself with only 20 minutes to play the next 26 moves.

15. N-Q6!!!, N-B1; 16. NxBP!!!, PxR=Qch; 17. RxQ. Note that although White has sacrificed a rook, he has immediately received the services of the other, previously inactive rook. 17. ... B-B4; 18. QxB, Q-Q2; 19. Q-B4, B-B3; 20. N(3)-K5, Q-K2; 21. B-N3. White's pieces are all functioning, while Black's are taking a vacation. 21. ... BxN; 22. NxBch, K-R2; 23. Q-K4ch, resigns. White has the unanswerable threat of 24. RxN. See for yourself why it wins no matter what Black plays.

Future columns will dwell on more important themes, but the inclusion of complete games will serve to place those themes into their proper contexts within the chess game as a whole.

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Tuesday, October 3, 1972