The MIT Faculty Newsletter

Vol. I No. 3 **March, 1989**

Key Issues Face Faculty

Bernard Frieden

A series of controversial matters that have been debated within specialized faculty and administration committees are heading for open discussion and decision at meetings of the full faculty this spring. Since we customarily put important motions before two successive meetings in order to have adequate time for discussion, all the agendas are going to be crowded with big-ticket items.

The main items coming up for action by the faculty are these: 1) proposals for changes in Institute science requirements; 2) proposals for changes in the freshman year; 3) actions to implement the recommendations of the report on Applied Biological Sciences of last May: a policy statement on the meaning of tenure at MIT; requirement for a Presidential advisory committee to review proposals to eliminate academic units; and uniform rules for the Committee on Curricula and the Committee on Graduate School Policy to follow when they review proposals to phase out degree programs; 4) report by the Committee on Undergraduate Admissions and Financial Aid on admission policies and procedures.

In addition, the Faculty Policy Committee may propose changes in the size and mission of the Committee on Discipline; and there may be other proposals for minor amendments to Rules and Regulations of the Faculty.

I hope the March, April, and May meetings are well attended, so that we can be sure to hear a good cross-section of faculty views. For my part, I pledge to lay in an extra-large supply of food and drink for the post-meeting reception.

Undergraduate Admissions at MIT - A Personal View

A. P. French

In 1935 the entering class at MIT contained a young man who became the most brilliant theoretical physicist of our time and also, in his later years, a famous and colorful public figure. But as a youngster, although superb in mathematics and physics, he was abysmal in English and history. He was also a socially inept and smart-alecky kid, as is clear from his own accounts in that best-seller, Surely You're Joking, Mr. Feynman! I choose to begin this article by mentioning him because I fear that, in the context of today's admissions practices at MIT, some future Feynmans might be turned down. That would not be a disaster for the individuals, who would in due time reflect glory on some other institution, but it would be an inexcusable loss for MIT.

The admissions process at any college or university, and especially at a selective place such as MIT, is of course a form of social engineering. There will perhaps be specific plans for the future evolution of the institution, and students are picked accordingly. Two examples of this at MIT, which we can all applaud, are the increased numbers of women and of under-represented minorities. But even in the absence of a definite plan, there will be a variety of criteria for acceptance of some applicants and rejection of others. Nobody would

I fear that, in...today's admissions practices at MIT, some future Feynmans might be turned down.

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MIT Existentialism

Thomas W. Eagar

Unfortunately, in the hustle and bustle of our daily work, we rarely have time to ask ourselves what is the purpose of the Institute? What is the essence of its existence?

Clearly, the answer must lie somewhere in the people who make up the Institute. These can be roughly categorized as students, faculty and staff/administration. In my own opinion, albeit somewhat biased, the strength of MIT lies in the former two. As each new class enters, the students bring a vitality and diversity that cannot be duplicated in a commercial or governmental research institute. The faculty, on the other hand, constitutes a rare collection of talent that requires generations to assemble. No amount of money could hire such a faculty over a short period of time. It was the reputation, excitement and activity of our present and past colleagues that attracted most of us to MIT. It is our responsibility to leave MIT with at least the same, if not greater levels of reputation, excitement and activity.

Taken together, the faculty and students define MIT as an educational institution. Educated students are our primary product; outstanding research is merely a by-product of an outstanding education. Yet all too often, the voices around us shout that it is research and not education that guides our actions. The students lament these misplaced priorities; the faculty lament them; but somehow we continue to be drawn ever more deeply into the pit. The administration signals us that increased funding is our lifeblood and that more is better; it will make us stronger. But the harder

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Authors

Stephan L. Chorover is Professor of Brain and Cognitive Sciences.

Thomas W. Eagar is Leaders for Manufacturing Professor of Materials Engineering.

Bernard Frieden is Professor of Urban Studies and Planning; Chairman of the Faculty.

A. P. French is Professor of Physics.

David E. Hardt is Associate Professor of Mechanical Engineering; Director, Laboratory for Manufacturing and Productivity.

Lynne B. Sagalyn is Associate Professor of Planning and Real-Estate Development.

David Gordon Wilson is Professor of Mechanical Engineering.

Contributions

The MIT Faculty Newsletter is published by the faculty as a forum for discussion. Please send us letters, articles, quotations, cartoons, or anything else you feel would be of interest to the MIT community. A longer piece should be about 750 words, and the maximum length is 1000 words.

Send your contributions to: The MIT Faculty Newsletter, Room 38-160; or to any member of the Editorial Board.

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(Production Editor)

Financial Relief

Jay Keyser, Associate Provost, has given us a grant to cover the production of this and the next issue of the newsletter. We are grateful for the time this grant has given us to arrive at a longer-term solution to the funding question.

The Editors

High Housing Prices Hit Home

Lynne B. Sagalyn

When housing prices in major metropolitan areas around the country surged dramatically throughout the late 1970s, in Boston they were a bargain. Compared to average selling prices in Los Angeles, San Francisco, and New York which were nearly identical in 1976, Boston prices were about 20% lower, though slightly above the U. S. average. By 1981, California's five-year boom had pushed the differential up to 30%.

Throughout this period, Boston's comparative advantage in the housing market was good news for the MIT community. We could recruit faculty and graduate students without worrying whether housing affordability would negatively sway the decision.

Now the situation is very different. Between 1983 and 1985, Boston's housing market experienced an extraordinary run-up in prices which pushed Boston into the top tier of cities with high-cost housing. The median price of existing single-family homes sold, as reported by the National Association of Realtors, increased 75.3% - from $82,600 to $144,800 - in just two and one-half years, a period when inflation averaged a mere 3.8% per year. The rapid increase was not just a downtown-Back Bay phenomenon. In communities with very different housing stocks and populations such as Lexington, Malden, Quincy, Stoneham, and Wellesley, prospective buyers faced similar price shock.

High housing prices came from several familiar sources. Employment in Massachusetts, and the Boston area in particular, grew more rapidly than the nation as a whole between 1983 and 1985. Population increased too, though not enough to explain the boom in prices. The dominant force fueling the housing market was rising personal income. Adjusted for inflation, per-capita income in Massachusetts outpaced the country as a whole for seven of the nine years between 1976 and 1985.

At the same time, costs pressures pushed up prices. Since 1980, construction costs in the U. S. had been rising at a slightly greater rate than inflation; in Boston, costs had increased even faster. Between 1980 and 1983, the Boeckh building-cost index for Boston rose at an annual rate of 8.3%, when inflation was running 6.6%. The rate of increase slowed down to 6.4% in the next two years, yet it still outpaced inflation by two percentage points. Growth-conscious regulations in many communities and rising land costs also contributed to the spiral.

Something else was at work: expectations of capital gains. Historically, for most homeowners, the net equity in their homes represented the bulk of their net worth. By the mid 1980s, the investment value of housing had acquired even greater financial significance after years of accelerating inflation and real-price jumps in housing, and surveys confirmed that most households viewed the decision to buy at least in part as an investment decision. As a package, owning one's home offered a unique set of returns: housing services, tax benefits, and capital appreciation.

All these things - strong demand, cost pressures, and expectations of capital gains - contributed to Boston's hot housing market, and the high prices it produced are likely to stay with us. Though the torrid pace of the past few years has abated and pockets of oversupply exist in selected areas, economic fundamentals remain strong. Without a reversal of these trends, local market analysts and researchers foresee little likelihood of a sharp decline in Boston-area prices. In general, housing prices tend to exhibit downward price rigidity. Unless people are forced to sell immediately, most can afford to wait, and wait, keeping their house on the market for several months rather than cutting the price. It takes longer to sell a home and the number of transactions falls dramatically in a soft market, while prices move down very grudgingly.

The high cost of housing in Boston puts MIT in a tight spot. Recruiting faculty has gotten harder as people confront the reality of their housing purchasing power in Boston. Graduate students reject MIT offers because they cannot afford to live in Boston. In both instances, we probably lose an unknown number of people to universities who make housing burdens more affordable.

Certainly there are no easy answers, but there are a few ways to think about the problem. First, the high-cost housing problem is really part of a broader set of issues concerning the faculty-benefits package. MIT already has one of the most expensive packages, so there may not be much more to spend in the short-run. But should it be spent differently? Do faculty value current benefits as much as more housing? We need to know how other top research institutions assist faculty with housing. MIT currently assists its faculty through a second- and third-mortgage program. Judging from the growth in dollars committed, faculty are taking advantage of the program, but we need a better understanding of its impact. Second, for junior faculty, where one finds affordable housing is part of a broader set of issues surrounding family and work. The Elias Committee on Family Life and Work is studying these issues, and it would be helpful to know from first-hand evidence in what ways housing solutions might help balance the demands of work and the demands of family life.

Letters

Faculty Salaries

To The Faculty Newsletter:

The Faculty Newsletter is a welcome and important forum for discussion.

I noticed that the first two issues have had articles on faculty salaries. The general consensus seems to be that salaries are too low. I have a simple suggestio for modestly improving the situation at no cost to the Institute - allow faculty members to be reimbursed for working three summer months instead of just two (Markus Zahn also raised this idea in his piece in the December issue). This proposal would allow faculty members to be compensated, on their own initiative, for devoting additional time to research projects at the Institute rather than having to devote extra time to outside professional activities in order to make ends meet. Many universities work on a twelve month year. Why not MIT?

I support the Institute's goal of moving towards 'hard money' support of 9-month academic year salaries. The proposal for a three month summer should have no impact on this goal. The summer would remain a period when the Institute takes no responsibility for salary support.

Currently, the Institute uses a twelfth month of salary support as a reward (incentive) for faculty members taking on unusually heavy administrative responsibilities. Assuming the twelve month year is implemented, the Institute could preserve this reward (incentive) system by continuing to pay such individuals a one month bonus (conceivably a 'thirteenth' month of salary). Similarly, the special summer program could function on a 'bonus' basis.

Most faculty members work twelve months a year. Why should they be paid for only eleven? The Institute would benefit from having an incentive for faculty members to devote more time to Institute activities. I think a twelve month year is a proposal worth discussion and consideration.

Richard J. Cohen, Professor
Health Sciences and Technology

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Subscriptions?

To The Faculty Newsletter:

The Newsletter is a fine idea and I'm delighted you all are working so hard on it. I think $30 a year subscription is simply not going to work, though. It's well-produced and I wouldn't sacrifice in that area...maybe fewer issues? Anyway, keep up the good work. It could be a very useful addition to life around here.

Jean Jackson

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DartmouthReview

To The Faculty Newsletter:

I should like to respond to the rather biased account of the Dartmouth Review case which appeared in the December 1988 issue of the faculty newsletter. My objections are directed not only at Professor King's obviously politically slanted article but also at several points made by the Dartmouth deans in their public announcement. The attitudes reflected in these articles are pervasive on contemporary university campuses and, in the opinion of many, constitute a serious challenge to academic freedom.

The Dartmouth Review is a student-run journal that was the first of a genre of conservative-leaning papers that poignantly challenge the mainstream liberal sentiment of modern academia. The expression of conservative views in the heart of a solidly liberal camp led to a great deal of teeth-gnashing on the part of the Dartmouth faculty. From its inception, the Review has faced nearly continuous harassment from the faculty, whose first line of attack was to sue the publication over its use of the Dartmouth name (never mind that there are Dartmouth Pharmacies, Dartmouth Dry Cleaners, etc.). Having failed with this strategy, the faculty now attempts to rid Dartmouth of the monstrous conservative presence by expelling the students on trumped up-charges.

Let us review some of the facts surrounding the Dartmouth Review case. It is true that the editors of the Review have questioned the efficacy of certain affirmative-action programs, as indeed many women and minorities are doing today. One can very well challenge the effectiveness of such programs without being a racist; if debate is forbidden it is difficult to improve such programs. The staff of the Review and many other students have expressed the desire to reinstate the American Indian as the symbol of Dartmouth, which was founded as an institution for educating Indians. The faculty, exercising "sensitivity", have forbidden the singing of the school song and the use of the Indian logo, and have covered up a large mural depicting a white man and an Indian drinking together. (The mural is uncovered during alumni functions.) It seems to me that it is the faculty, rather than the students, who are exercising racism here. One can certainly understand the students' desire to reinstate the Indian logo without attributing it to racist motivations. Professor King's fatuous statement that "the systematic campaign against Prof. Cole was part of an ongoing Dartmouth Review effort to limit the gains made by

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Building a Lab on Industrial Funding

The Laboratory for Manufacturing and Productivity

David E. Hardt

The Laboratory for Manufacturing and Productivity (LMP) is an Interdepartmental Lab in the School of Engineering. It was established in 1977 by Prof. Nam Suh of Mechanical Engineering and Prof. Herbert Richardson, then Head of the ME Department. The LMP is now home to 60 graduate students, nine faculty, three research staff and a technical staff of three. In addition to these "full-time" participants, an equal number of faculty spend part of their time involved with the Lab. We are also fortunate to have a well equipped shop for both instruction and construction in support of graduate research.

In the past five years our work has been characterized by an increasing breadth of coverage, to where it now encompasses basic process work, process optimization and control, flexible automation, quality issues, systems scheduling, and design/manufacturing efforts. Our industry base has as well expanded to include (in addition to the traditional mechanical industries) semiconductor and electronics, and shipbuilding. With the advent of the Leaders for Manufacturing Program, many of the faculty in the Lab are as well expanding their appreciation, if not their direct experience, into management issues related to manufacturing.

Unlike many labs at MIT, the LMP was not established on the basis of a major Federal contract of grant, but rather on the basis of novel forms of industry involvement in sponsored research. The seeds of the LMP were sown in 1971 when Nam Suh set up the MIT-Industry Polymer Processing Program (P3). The concept (novel then, but since replicated many times elsewhere) was one of collecting a consortium of companies about a general research theme (in this case the processing of polymeric materials into manufactured goods) in which they all share a basic, and typically non-competing interest. The members of the consortium pool their funds to create maximum flexibility in program direction, and at the same time actively participate in the work through quarterly on-campus meetings and through an advisory council.

Unlike many labs at MIT, the LMP was not established on the basis of a major federal contract or grant....

While research directions are determined by the MIT investigators, the companies, acting in a collegial fashion, evaluate the current work and help provide research ideas.

This model for MIT-Industry collaboration was the foundation of the LMP, which has continued over the past 12 years to obtain the majority of its support from industry. However, increasing interest in manufacturing has led to a growing fraction of federal funding, with sources including NSF, ONR, NBS (NIST), and DOE. It is interesting to note that the foresight of the founders of the LMP was supported not so much by a concurring government (although the NSF did provide seed funds), as by direct counterparts in Industry. The LMP grew and became well established several years in advance of now universal acknowledgement of the importance of manufacturing research.

To foster greater communication with Industry at large, not just those sponsoring our research, the LMP Industry Collegium was established in 1982. The objective here is to create a membership of interested parties that are provided with up-to-date information about our research, and are invited to visit the Lab or have faculty visit their facilities. The Collegium also sponsors workshops on specific research topics and holds an annual meeting for all of the thirty five member companies. The funds generated by the Collegium are used to support a graduate fellowship program and to provide general facilities and personnel support for the research labs.

The combination of Industry and Government funding now evident in the Lab provides an ideal environment for graduate students. Those associated with Industry sponsors are exposed to the current concerns there and often get to make tangible contributions. For example, LMP work has led to several in-plant demonstration, prototype processes and machines, and several patented manufacturing methods now is commercial use. Also, many of our students will travel to the sponsors, and even conduct experiments in their facilities. At the same time, the longer term perspective typically afforded by government sponsorship allows others to make real headway in the development of the foundations of manufacturing research. In the past decade, a dozen of our Ph.D. graduates have taken University positions concentrating in the development of manufacturing teaching and research programs.

All of the advantages of Industry support come with the price of numerous separate agreements with the sponsors. Even those within the

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MIT EXISTENTIALISM

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But the harder we run, it seems the more rapidly we are falling behind; and when we stop to look up, we see that we are losing the purpose of our existence - it is education that is being hurt the most.

On the one hand, we hear that the government overhead rate does not cover the full costs of research; our facilities are deteriorating without being replaced; yet we need to do more of this money-losing research in order to balance the budget! Are we racing on a treadmill with a short term budget horizon, only to awaken someday to learn that our infrastructure and our essence - education - has deteriorated to irreparable levels?

> **How long will MIT allow the government to dictate that we spend $2 to prevent $1 from being misappropriated?**

As I look at the changes in MIT since I came here 20 years ago, I note that the greatest growth has come in administration, in spite of reductions made in recent years. The number of students and faculty over the past twenty years are roughly constant; the service and support staff is reduced; but I see vastly greater space devoted to administration. [See MIT Numbers, page 9. Please note that there have been changes between 1978 and 1983 in the definition of each category, but nonetheless a trend is evident.] There are several reasons for this.

Firstly, the federal government is demanding ever increasing controls. How long will MIT allow the government to dictate that we spend $2 to prevent $1 from being misappropriated? In order to relieve the faculty of these burdens dictated from Washington, we add administrators to help us. How many of us have felt thankful for the new officer with whom we may interact? Does the time interacting with these additional layers of control actually save us the time necessary to fulfill our purpose - education - or do we sometimes feel that the extra layers only detract the more from our purpose?

The administration sees our plight; it is obvious to them that the faculty are not paying enough attention to education - so they have established new and/or expanded administrative offices to help us. We now have administrators, most of whom have never lectured in a classroom, providing us with rules and guidelines on how to interact with students. Students can go to these administrators to correct the problems created by the inattentive faculty member.

This scenario illustrates the second, and I believe the greatest reason for growth of the administration. An anecdote from six years ago will further demonstrate the point.

One day, after dealing with a particularly helpful administrator, I wrote a letter to his supervisor, indicating how much I appreciated the assistance that this individual had given me over the past five years. The supervisor showed the note to the individual explaining that it was very complimentary. He added that this administrator should know that their job was to "control the faculty; not to serve the faculty." My compliment had been turned into a condemnation.

Over time, one may note that fewer administrative positions are held by former faculty members. More and more, MIT is being run by "professional" administrators. An important question that the faculty must ask is "Who runs MIT?" Several generations ago, I believe the answer would have been the faculty. Today, we need only look at who votes at the Institute faculty meetings. Nearly all of us have surrendered our authority to the administration - and they have accepted it.

Faculty are an independent lot. Many of us will freely admit to choosing the academic life because we dislike hierarchy; thus we gladly avoid being part of the decision making process. Yet when we disapprove of the decision which is made in our absence, we are derisive and recalcitrant. The professional administrators, coming from a more hierarchical culture, decide that such behavior requires greater controls on these undisciplined faculty. It is a vicious cycle that must be broken before it destroys us all.

One of the problems is that the erosion of faculty authority and the growth of administrative control is a glacial process. It moves imperceptibly, yet it possesses great force. We reach the gulf and are broken off without having noticed that we have changed places.

The decay of our educational purpose moves in a similar manner. Perhaps I was naive ten years ago, but at that time I knew very few faculty who did not teach. Now I hear some of our most prominent faculty boast that they have not entered a classroom in six years. As the faculty as a whole loses authority, more of the group move to the new source of power, remaining as faculty in only a titular sense. This places a greater educational burden on the remaining faculty, who become overextended and resentful. The result is deterioration of the academic functioning of the Institute. Again, this is a cycle that must be broken.

The issue of service vs. control in the administration/faculty relationship is complex. Some control is necessary, as is the movement of some faculty into administrative positions; but whenever a change or a decision is made, we must ask, what will be the effect on our educational imperative?

Somehow MIT must return to its roots. As William Barton Rogers said, "The true and only practicable object

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Undergraduate Admissions
(Continued From Page 1)

wish to see an entire student body selected solely on the basis of academic performance, and we are fortunate that MIT's students represent a dazzling array of talents, interests and concerns. Nevertheless, MIT owes its strength and its uniqueness to its academic and intellectual preeminence, especially though not exclusively in science and engineering, and anything that might jeopardize that proud status should be looked at very hard.

Faculty members have in fact been expressing concern that MIT is not getting as many outstanding students as it used to. Six months ago, to explore this largely subjective impression, I undertook an analysis of data contained in the annual "Profile of the Entering Class" published by the Admissions Office. Many faculty members have now seen the informal report that emerged from this analysis. The data showed that, for the past 20 years, the entering class has contained a progressively smaller fraction of students in the highest bracket (750-800) in every category of the standardized tests -- Math SAT, Verbal SAT, and the achievement tests in mathematics, science, and English or history -- which applicants are asked to submit. The Table shows the numbers of entering freshmen in the 750-800 range for three different years. I would certainly not suggest that all the students with 750-800 scores are destined to be stars, nor that this top bracket is the only source of people who will become leaders in their fields. Nevertheless, I believe that the major changes shown in the Table do imply a significant shrinkage in the pool of entering students from which outstanding mathematicians, scientists and engineers -- and, indeed, other professionals -- are likely to come.

The admissions process must, of course, concern itself with complete individuals, which means looking not only at their integrated academic credentials but also at their personal attributes; and the Admissions Office has, for many years, made a preliminary sorting of applicants using two indices -- a scholastic index (S.I.) based on test scores and other academic data, and a personal rating (P.R.) based primarily on a student's non-academic qualities and interests. By far the most important components of the S.I. -- use of which was discontinued in 1986 -- were the achievement test scores in mathematics and science. Given the trends in individual test-score data (see Table) it is not surprising that the numbers of entering students with high S.I.s have also declined markedly since 1968. By contrast, the numbers of students with high personal ratings have risen dramatically. Although the latter trend can in general be welcomed, a disturbing feature (first noted by Professor Francis Ogilvie) is that in recent years (since about 1980) applicants in the highest S.I. category have mostly been rejected if their personal rating was low.

In 1986 the old S.I./P.R. scheme was replaced by a new two-dimensional sorting of applicants. The new academic index is again a combination of test scores and other academic data. However, whereas in the old S.I. the achievement test scores in mathematics and science represented nearly 60% of the index, they now constitute only 25%. This reduced emphasis on science is partially -- but only partially -- counteracted by assigning one-third of the personal rating to evidence of special interest and achievement in science outside the classroom.

I believe that these recent changes in the basis of the selection process, and the practice of denying admission to numbers of top students because they do not look well-rounded, are developments that need to be reversed. These trends are being noticed by schools and teachers around the country. For example, the University of Minnesota operates a powerful program in mathematics for high-school juniors and seniors. They are beginning to find that some of their very best students are being rejected by MIT, while weaker students from the same program are being offered admission. If that goes on, their best students will simply apply elsewhere, and MIT will be the loser.

A sample "round-up" presented recently by the Admissions Office for the benefit of interested faculty exposed some sharp differences between faculty and admissions staff on admit/reject decisions. But I am sure that the Admissions Office is not -- it certainly should not be -- the prime source of admissions policy; and if we, as faculty members, do not like some of the trends that have been occurring, we must make our voices heard, loud and clear. The opportunity to do so will come soon, when the Committee on Undergraduate Admissions and Financial Aid presents to us the results of its extensive ongoing study of all aspects of the admissions process.

	SAT SCORES		ACHIEVEMENT TEST SCORES			
Year	Math	Verbal	Math	Chem.	Phys.	Eng/Hist.
1968	617	168	879	352	249	98
1978	497	50	743	207	182	64
1988	373	28	546	103	114	45

[The Math Achievement numbers are sums of Level I (pre-calculus) and Level II (including some calculus). About 25% of the students submit results of both tests.]

M.I.T. Numbers

TOTAL ON-CAMPUS EMPLOYEES

Comments

MIT saw an increase in total employees of 1,410 between 1967 and 1987. The Service staff is the only category which experienced an overall decrease (27.9%) in the 20 year period. However, the growth of 25% (1,600) between 1977 and 1982 reflects in part the inclusion of part-time employees in the official staff counts.

During the five years 1982-1987, the overall population decreased by 190. The decrease, which occurred primarily within the Support and Service staff categories, reflects the locally tight market for qualified clerical and hourly employees and the resultant increased use of service contracts and temporary agencies.

Over the twenty-year period shown in the Table (next page), what appears to be an enormous growth in the number of administrative staff is, in part, the result of a variety of definitional changes. In the early 1980's categories such as Medical Staff, Library Staff, Academic Administrative Officers, and Directors moved out of the Academic Staff into the Administrative Staff. In addition, the Exempt category, formerly part of the Support staff category, was merged in Administrative Staff. During the 1970's, increased administrative reporting requirements from the federal government in almost all areas of the Institute's activities necessitated an increase in the growth of the administrative staff. During the past two years the need for additional support for the Capital Campaign has also required increased staffing for Resource Development. Despite these upward pressures, however, the administrative staff category only increased by 1.5% in the years 1982-1987.

In the late 1970's, the categories of Research Associate and Technical Assistant also moved out of the Academic Staff into the Sponsored Research Staff. Given the previously mentioned transfers of large numbers of individuals into other categories, the increase in the Other Academic Staff category has been substantial. This increase is the result of several staffing trends at the Institute. It reflects, in part, a growing reliance on Lecturers and Instructors for teaching functions. It also reflects the growing population of Visiting Professors, Scientists, Engineers and Affiliates. These individuals come to MIT from a variety of places, including industry and other universities and colleges both domestic and international. Visitors are primarily paid by their sponsoring institutions and spend their time at MIT pursuing specific research or academic goals. In addition, joint appointments with closely tied organizations such as the Whitehead Institute also put upward pressure on these statistics.

Notes

Employee counts are taken in October of the fiscal year (e.g., FY 1987 data are as of October 1986) and include both salaried and non-salaried appointments. Draper and Lincoln Laboratory employees are not included.

The Faculty category includes all individuals holding Institute appointments as Full, Associate, Assistant, Adjunct and Institute Professors, as well as members of the faculty who also hold administrative positions. Other Academic includes Professors Emeritus, Visiting Professors, Lecturers, Instructors, Visiting Scientists, Postdoctoral Associates and Fellows. Research Staff includes sponsored research administrative and technical staff.

Data prior to 1980 excludes part-time employees. Temporary, Vouchers, undergraduate and graduate students, Fellows, and employees from temporary agencies are excluded from the data. As noted above, major redefinitions of Other Academic, Administrative, and Research took place between 1978 and 1983. Exempt personnel were redefined as administrative staff in 1983. Prior to 1983, some academic administrators were included under Other Academic Staff.

Sources

Personnel Office; Faculty and Academic Staff Records Office.

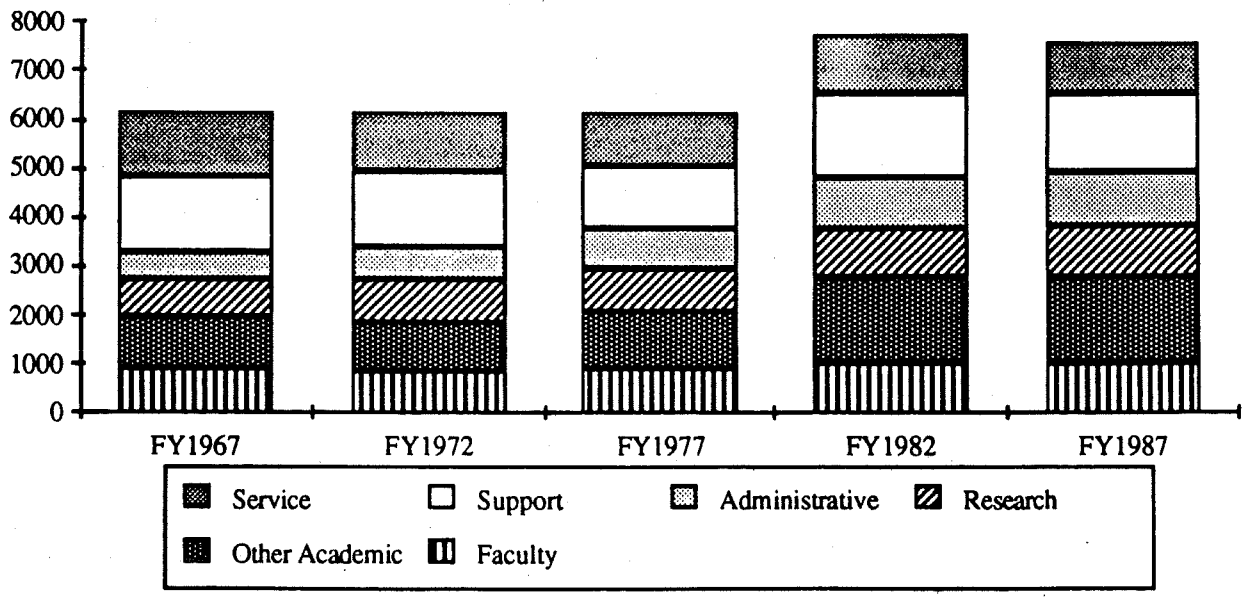
M.I.T. Numbers

TOTAL ON-CAMPUS EMPLOYEES

	FY 1967*	FY 1972*	FY 1977*	FY 1982	FY 1987
Faculty	913	887	916	1,027	1,015
Other Academic	1,039	975	1,146	1,784	1,761
Research	809	878	929	961	1,052
Administrative	515	684	832	1,097	1,114
Support	1,586	1,526	1,267	1,714	1,619
Service	1,325	1,202	1,094	1,204	1,036
TOTAL	6,187	6,152	6,184	7,787	7,597

*Does not include part-time employees.

TOTAL ON-CAMPUS EMPLOYEES



Source: MIT Factbook

SOCIETAL VALUES

David Gordon Wilson

Something must be wrong with a system in which the MIT faculty spends so much time writing proposals instead of being creative. Some of the chore of writing proposals is, of course, creative, but most of the activity is destructive to one's home life and to one's chances of getting papers written. Three unrelated events this summer brought home to me the absurdity of the proposal situation.

One was running into a colleague, highly esteemed, loaded with honors, and running a lab doing work of enormous value to society. I asked him how he was enjoying his summer. He replied wearily that he used the summer to write proposals, and he was finishing his fifth. "At least," I said, "you must get most of yours funded, so that it's not such a waste of time for you as it is for me." He expostulated with frustration. "Four out of five, sometimes nine out of ten, get rejected," he grumbled.

The second event was being awarded a contract myself. I and my associates were one of ten groups that received awards, from 189 proposals made. So the average chance of being funded was, in this case, one in 18.9. The first reaction was pride. At least true worth was being recognized. The second reaction was pity for the unlucky 94.7 percent. What a terrible waste of effort! Large organizations spend 5 - 10% of the contract amount in their proposals. Faculty are not paid overtime, but some value must be put on the time they take from their families and from other pursuits. Let's say that they spend, mainly in the value of their own time but also in that of other Institute people and of the facilities used, 2% of the final contract price. The collective dissipation of wealth from 189 proposers had already been, then, well over three times the taxpayers' funds to be given out by the NSF. If we are generous in claiming that the research on the topic is so important that it will yield results worth twice the research funds spent, the country as a whole will still have become poorer as a result of all this activity.

The third event was trying to get a plumber to do some work in my house. Plumbers always seem to be in high demand. Plumbers do not have to write nineteen proposals each following an exact protocol and delivered by overnight couriers to be awarded a single contract. They seem, instead, to be able to pick the jobs on which they want to work, to choose the time when they will do their work, and they submit apparently arbitrary (or at least unitemized) large invoices. They have the power. It is evident that society values plumbers (and many Boston policemen) more than it does M.I.T. faculty because many of them get paid considerably more than any faculty member for fewer hours of work.

We can't derive much solace either from our students or their parents, who feel that they are paying too much for an M.I.T. education. But their fees cover, we are told, less than half of their educational costs, much of which is for faculty salaries.

Now we have an "education president" all this confusion in societal values will, no doubt, be cleared up.

[Good News! Dave Wilson made three successful proposals last year. One was to the N.S.F., one to D.O.E., and one to E.C.W. The last was by far the most rewarding: E.C.W. became Ellen Warner Wilson on December 30.]

> If particular care and attention is not paid to the ladies we are determined to foment a Rebellion, and will not hold ourselves bound by any Laws in which we have not voice, or Representation.
>
> Abigail Adams

Building a Lab

(Continued From Page 5)

Consortia must be dealt with on a one-to-one basis. As a result, the LMP now administer over 40 separate research agreements, this to support our 60 graduate students!. This stands in stark contrast to other, typically larger labs that obtain the bulk of their funding from a few very large sources.

The challenge ahead is to maintain this balance in light of increasingly expensive research and diminishing sources of funding. Borrowing from our most recent long range plan: "The role of the LMP within MIT as well as within the engineering community at large, is to pursue fundamental research aimed at developing an understanding of what is unique to problems in manufacturing, and to develop concepts that can unify and simplify our study, modeling, analysis, synthesis and teaching in this area." While such an ambition has historically been achievable only through large Federal Government support, the LMP is committed to maintaining its close contact with the Manufacturing Industries of the world, and to never losing touch with this vital constituency.

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MIT Existentialism

(Continued From Page 6)

of a polytechnic school is, as I conceive, the **teaching**...of...scientific principles. There is no branch of practical industry ... which is not capable of being better practiced ... through the knowledge of its connections with physical truths and laws." [emphasis added]

It is education that sets a university apart from other research institutes. To choose anything other than teaching is to deny our existence; to cheat our students, and ultimately I believe, to effect our destruction.

Doceo ergo sum.

(I teach, therefore I am.)

Letters

(Continued From Page 4)

women and minorities on campus" is slanderous and has no basis in fact.

It is true that in 1986 several Review editors tried to raze some shanties (though I do not recall them having been burned). What Professor King fails to point out, however, is that these shanties were constructed in violation of university policy and had stood for many months despite numerous complaints. Now I do not believe in fighting fire with fire, but the actions of the review editors were no more illegal than those of the students who built the shanties; the difference is that the former were punished while the latter were not reprimanded in any way. What if the students had built instead a mock Moskito Indian village in protest of the failure of the U.S. Congress to support the Contras? My guess is that the rules would have been strictly applied in that case.

The federal courts will attempt to establish the facts surrounding the case of Professor Cole. Some of the statements made by the deans in their public announcement seem incredible, however. There is no indication that the Code of Conduct expressed in the Student Handbook was meant to apply to the classroom. The use of tape recorders in classrooms is prevalent today and, as a professor, I cannot imagine saying anything in the classroom that I would not want repeated (except for sign errors!). The deans' announcement carefully omits mentioning that Professor Cole's lectures were notorious for being short on substance and long on obscenities; no wonder Dr. Cole was upset. Granted, the investigative reporting conducted by the Review students was perhaps overly zealous, as students often are. But there can be little doubt that had Dr. Cole been a conservative white male and the students mainstream liberals, the latter would have been at most reprimanded, not expelled, and there would be no handwringing.

The uneven-handed treatment of students according to their political or social philosophy is not confined to the Dartmouth campus. At Yale, recently, a student hung a banner out of his dormitory window at a march during "Gay and Lesbian Awareness Days." The banner said "B.A.D. / Bestiality Awareness Days." The student was expelled on the grounds that his banner was "insensitive." Some folks consider it insensitive to have public rallies in favor of sexual practices (any sexual practices). Others consider insensitive the use of obscenities in the classroom. Who decides what is insensitive? This is simply the latest form of censorship by the academic establishment.

At MIT, as elsewhere, students adhering to the liberal mainstream are permitted, and sometimes even encouraged to violate university policy, as happened when this faculty voted to drop charges against students who refused to dismantle shanties long after the standard time allotted for such activities on Kresge Oval had passed. But when conservatives are invited to speak, in full compliance with university policy, they are routinely prevented from doing so by liberal activists, with no risk of punitive action by the spineless faculty.

What Professor King and other academics mean when they refer to free speech or academic freedom is freedom for establishment liberals; everyone else had better shut up. Freedom for those with whom we agree is easy...extending it to those we disagree with is the real challenge. In the words of Oliver Wendell Holmes, "If there is any principle of the Constitution that more imperatively calls for attachment than any other, it is the principle of free thought - not free thought for those who agree with us but freedom for the thought that we hate."

Kerry A. Emanuel
Professor of Meteorology

Prof. King Replies

The Dean's committee dealing with the Dartmouth Review/Cole affair found that Prof Cole had been directly harassed by the Review staffers. Prof. Cole had done nothing to interfere with the Review's publication of material critical of him. Nonetheless, despite his express wish to the contrary, they had phoned him repeatedly at his home in the evening, and had taped these phone calls. They subsequently confronted him after his class on his declining to respond to their highly critical article. They refused his request to leave the classroom, and to stop taking photographs. I am not aware of any responsibility of faculty to respond to insulting articles by journalists. I would hope that students behaving in the above manner toward Prof.Emanuel would be disciplined.

I am not in a position to assess the fairness of the decision to suspend. The Federal Court has in fact ordered the reinstatement of the students. Newspaper reports indicated that they did not pass on the substance of the Committee findings, but on procedural questions.

The faculty criticism of the Dartmouth Review was in response to the Review's effort to limit the expression of members of the Campus community with diverse backgrounds and views.

Jonathan King

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Letters to The Faculty Newsletter expressing any and all points of view are most welcome. Please address all correspondence to: The MIT Faculty Newsletter, Room 38-160, or to any member of the Editorial Board.

MARCHING 4TH -- AGAIN

Steven L. Chorover

On Tuesday, March 4, 1969, there was no "business as usual" at MIT. Instead, the community gathered at Kresge Auditorium and the Student Center for a day-long work stoppage and "teach-in" on "Scientists, Students and Society." The event was organized by MIT students and faculty members working together. Two still-active organizations, **The Science Action Coordinating Committee (SACC)** and **The Union of Concerned Scientists** were founded in the context of the March 4. During the two decades since, both have continued to promote the ideals expressed in the call to the meeting (printed below).

* * *

On **Friday, March 3, 1989,** there will be a "teach-in" and a program of related activities intended both to commemorate the 20th anniversary of that historic occasion, and to provide a forum for the discussion of present concerns of comparable scope and urgency. Toward that end, an organizing committee of students and faculty members has been working together with the **Seminar on Technology and Culture at MIT.** Planning is still underway for an afternoon of talks and workshops on "Scientists, Students and Society 1969-1989." There will also be a public reception in conjunction with the opening, at the List Visual Arts Center in the Wiesner Building, of a special month-long exhibit of artworks on "The Military and the University" by New York based artist Margia Kramer, and a staged reading of **Scientific Americans** -- a new play (a comedy of sorts) dealing with the dilemmas faced by a young engineer who becomes involved in weapons-related research.

We invite our faculty and student colleagues to join us on March 3.

* * *

Union of Concerned Scientists

Faculty Statement
March 4, 1969

Misuse of scientific and technical knowledge presents a major threat to the existence of mankind. Through its actions in Vietnam our government has shaken our confidence in its ability to make wise and humane decisions. There is also disquieting evidence of an intention to enlarge further our immense destructive capability.

The response of the scientific community to these developments has been hopelessly fragmented. There is a small group that helps to conceive these policies, and a handful of eminent men who have tried but largely failed to stem the tide from within the government. The concerned majority has been on the sidelines and ineffective. We feel that it is no longer possible to remain uninvolved.

We therefore call on scientists and engineers at MIT, and throughout the country, to unite for concerted action and leadership: Action against dangers already unleashed and leadership toward a more responsible exploitation of scientific knowledge. With these ends in mind we propose:

1) To initiate a critical and continuing examination of governmental policy in areas where science and technology are of actual or potential significance.

2) To devise means for turning research applications away from the present emphasis on military technology toward the solution of pressing environmental and social problems.

3) To convey to our students the hope that they will devote themselves to bringing the benefits of science and technology to mankind and to ask them to scrutinize the issues raised here before participating in the construction of destructive weapons systems.

4) To express our determined opposition to ill-advised and hazardous projects such as the ABM system, the enlargement of our nuclear arsenal, and the development of chemical and biological weapons.

5) To explore the feasibility of organizing scientists and engineers so that their desire for a more humane and civilized world can be translated into effective political action.

As a first step toward reaching these objectives, we ask our colleagues -- faculty and students -- to stop their research activity at MIT on March 4 and to join with us for a day devoted to examination of the present situation and its alternatives. On that day we propose to engage in intensive public discussions and planning for future actions along the lines suggested above.

If you share our profound apprehension, and are seeking a mode of expression that is at once practical and symbolic, join us on March 4.