The MIT Faculty Newsletter

Vol. II No. 2 November, 1989

Context Courses and Undergraduate Admissions

Vera Kistiakowsky

Two apparently unrelated events have stirred me to write this opinion piece, the news that three of the four Context courses offered this fall were cancelled because of lack of enrollment, and the opinions expressed in the discussion of undergraduate admissions at the October 18th faculty meeting. Both result from a common set of faculty values and Institute priorities, and have implications for the quality of students whom we will graduate. These are the aspects which I will address.

The three Context Courses that were cancelled because a minimum of twelve students did not enroll are (6.903J, STS 013J) **Automation, Robotics and Unemployment** led by Merritt Roe Smith and Louis Smullin, (8.202J, STS014J) **Life and Institutions of Science** led by Carl Kaysen and John G. King, and (2.95J, 16.996J, 18.096J, STS061J, TPP 09J) **Ethical Issues in the Work Life of Engineers and Scientists** led by David J. Anick, Stephanie J. Bird, Igor Paul, Leon Trilling, and Caroline Whitbeck. Since 6.903J was cancelled, four graduate students have expressed an interest in the topic, and a special problem course has been arranged for them. Similarly, the enthusiasm of the students who did enroll in 2.95J has led to the decision to offer it again in the spring, and an abbreviated version is being given this fall for the four students who will not be able take it then.

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Minorities and Women at MIT
Focus of Faculty EOC

Herman Feschbach

The Faculty Equal Opportunities Committee (EOC) was established to give support, coordination and direction to the Institute's programs for equal employment and educational opportunity. In recent years, while I have been the Chair, it has concentrated on faculty recruitment from the under-represented minorities. This year the emphasis will be on problems faced by women at MIT.

The underlying guiding principle behind MIT's efforts in this arena has been the belief that these groups, under represented minorities and women, contain many individuals of great talent who could contribute importantly to our intellectual disciplines, to MIT, and more generally to American life; that because of the prevailing social climate they have not received the education which would enable them to realize this potential.

MIT must assume a leadership role in the science and technology sectors, and one essential element is the recruitment of talented individuals from the under-represented minorities and women....

More pragmatically, the Bureau of Labor Statistics has made

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Why Species Are Special:
Admission Policy Implications

C. Counselman

An all-purpose form of life cannot be found. In biology, success is impossible without specialization. Every animal and every plant has learned the hard way (over generations) what it can do best, and each has succeeded by concentrating on doing that thing well.

MIT is an intellectual life-form, more akin to a species than an individual organism since individual members of our community come and go. The Institute has succeeded by concentrating on what it does best: science and engineering. These subjects, with mathematics, form a natural unit. By continuing to focus on these subjects, we will continue to thrive. If we try too hard to be an all-purpose university, we are likely to sink into the mud of mediocrity.

We are evolving into a second-rate imitation of an Ivy League school.

Over the last decade or two, the emphasis on mathematical, scientific, and engineering aptitude, motivation, and achievement which traditionally characterized MIT's admissions (and certain other) policies has diminished. Now we admit more all-purpose students in hope of becoming less an Institute of Technology, more an all-purpose university. Our Director of Admissions brags that more of our admittees reject us for Harvard,

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EDITORIAL

Making a Difference

When was the last time you attended a general faculty meeting?

At the last one, the small number present heard the faculty chairs of both the Committee on Undergraduate Admissions and Financial Aid and the Faculty Presidential Search Committee appeal for increased faculty participation in activities of obviously substantial importance to the MIT community at large.

As we all know, it has become quite normal (in the statistical, if not the clinical sense of the term) for MIT faculty members to exhibit a low level of involvement in Institute-wide affairs. Why don't more of us become actively involved in the undergraduate admissions process? How come so many of us have remained unmoved by the invitation to play a role in the search for Paul Gray's successor as president? And what accounts for the fact that, (as a contributor to this issue put it) "the current roster of authors [of the *Faculty Newsletter*] is exclusively 'old fogies' and Institutional voices?"

The Editorial Committee for this issue does not share a common perspective on this question. One viewpoint is that the lack of faculty participation is primarily the result of a strong sense of alienation from the process of governance. This results in feelings of frustration and powerlessness. The cause of this is disturbingly obvious to anyone who has experienced the arbitrary and unfair exercise of administrative authority. Though this may not occur commonly at MIT, when it does occur it has a particularly chilling effect on us all.

From this perspective, the nutritionists and toxicologists who found themselves caught up in the ABS affair and the members of our once-proud foreign languages faculty (see Chvany, *MIT Faculty Newsletter*, Vol. II, No. 1 (October, 1989)) are not the only ones who have been adversely affected. And, well-intended appeals to the contrary notwithstanding, the lesson for the faculty has been: "Don't bother becoming involved; there isn't anything that you can do to influence the course of events." And the compelling upshot for the junior faculty is: "Stick to your disciplinary niche and keep your nose to the grindstone; Don't get involved in activities that don't really count when it comes to tenure and promotion decisions."

Another perspective suggests that faculty aren't going to faculty meetings primarily because, given time constraints, teaching and research are more rewarding. This view emphasizes that there is no widespread alienation or general malaise; at worst there is only indifference, and this indifference cannot be blamed on the administration. In fact, the evidence shows that the ABS dispute has resulted in a net **increase** in faculty involvement in Institute-wide affairs.

The latter point of view implies that faculty do become seriously involved when doing so has direct bearing on teaching or research. The Admissions debate mobilized quite a number of faculty who normally are not active on Institute issues, because of its overwhelming and obvious relevance to the nature of our teaching. The comparative apathy with regard to the presidential search can be partially explained by the fact that the problem has been posed too abstractly. Asking "What kind of President do we want?" is not as provocative as asking "What kinds of research should we support most strongly?" or "What kinds of courses should we teach?". This is despite the fact that our next president will have enormous influence over both of those questions.

Neither of the above perspectives imply that we should passively await the consequences of administrative decisions. The time is ripe for a renewed effort at getting more faculty involved in Institute-wide issues.

What do **you** think?

Editorial Committee

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We encourage contributions of all kinds from the MIT faculty and related community: article, letters, cartoons, etc. Please mail your submissions to: **MIT Faculty Newsletter, 38-160**; or contact any member of the Editorial Board listed on page two.

> I know that most men, including those at ease with problems of the greatest complexity, can seldom accept even the simplest and most obvious truth if it be such as would oblige them to admit the falsity of conclusions they have reached perhaps with great difficulty, conclusions which they have delighted in explaining to their colleagues, which they have proudly taught to others, and which they have woven, thread by thread, into the fabric of their lives.
>
> **Leo Tolstoy**

Minorities and Women at MIT

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projections based on the assumption that employment in the years 1986 - 2000 will grow at the rate of 1.3% per annum to be compared with the growth in the 1972 - 1986 period of 2.2%. The Bureau has estimated that only about 9% will consist of the minorities (55%) and white women (35%). Under-represented minorities total about 45%. Moreover, a substantial fraction of these new entrants (~20%) will require advanced education, a bachelor's degree at least. Our universities must respond to these demographic trends. MIT must assume a leadership role in the science and technology sectors, and one essential element is the recruitment of talented individuals from the under-represented minorities and women into academia.

With the assistance of Provost Deutch, the EOC has set up a program for the recruitment of faculty. Although the program was moderately successful, the absolute numbers recruited were few, as the pool from which candidates could be selected was far too small. We found that far too small a proportion of the under-represented minority went into graduate work and only a small proportion of these went on into post-doctoral positions. Attrition occurs at each step in the educational process: high school → college → graduate school → post-doctoral positions.

But the attrition for the under-represented minorities is far greater than for the white population. This is clearly indicated by Table 1. From the table we see that, while 1% of the white recipients of bachelor degrees went on to obtain Ph.D.'s in natural science, mathematics and engineering, only 0.20% of the black graduates did so - only 120 in all. Most of this small group did not succeed in obtaining post-doctoral positions. Although 16% of the black Ph.D.'s wanted to continue in academic research only 8.4% (10 in all) obtained such positions. The corresponding number for their white cohorts was 22.9% and 17.4%.

With the help of the Provost, the EOC has submitted a plan which provides a clearly outlined career path which attempts to reduce the attrition at the graduate and postdoctoral levels. Importantly, this plan will be initially sponsored by a consortium of prestigious research universities. These are the University of Chicago, Yale, Columbia, Harvard, Cornell, Princeton, Stanford, and MIT. Hopefully, they will be joined by others in due course.

This initiative will not succeed without the dedicated interest and support of the faculty. The administration has been active and President Gray has spoken eloquently, but most of the faculty do not give these problems sufficient priority and are not aware of the programs now in place. The EOC is now formulating a program for increasing faculty awareness and involvement in equal opportunity activities. It is clear that we need to do more to ensure involvement than we have done in the past.

TABLE 1

U.S. DOCTORATE RECIPIENTS 1987*

DISCIPLINE	WHITE	BLACK	HISPANIC	TOTAL (u.r.m.)
Physical Science (+Math)	2,893	35	67	102
Engineering	1,453	25	34	59
Life Sciences	3,910	60	62	122
TOTAL	8,256	120	163	283
U.S. Bachelor Degrees**	826,106	57,473	25,874	83,347
% of Ph.D. in Science, Engineering and Life Sciences	1%	0.20%	0.63%	0.34%

*The table does not include non-U.S. citizens, Asians and Native Americans.

**These are 1985 figures.

FROM THE FACULTY CHAIR

A Prelude to November 15

Henry D. Jacoby

In the November 15 faculty meeting we will discuss proposals which could have a substantial influence on the Institute. Full understanding of the issues will require reading the reports (which are being circulated), but I would hope to stimulate involvement with some brief personal notes.

Lincoln Laboratory

Last January, the President appointed an ad hoc committee, chaired by Professor Joel Moses, to review our relationship with Lincoln. The committee considered a number of possible changes in Lincoln governance, ranging from revision of the Air Force contract to various forms of divestment. Ultimately they concluded that the current arrangement is best for MIT and for the nation. Subject, that is, to a couple of qualifications. The Committee's support for the current mode of governance is conditioned on changes in the internal management of Campus-Lincoln relations, and on a shift in MIT financial strategy to reduce exposure to events at Lincoln.

On the first point, the Committee worries that a "cultural gap" between Campus and Lab may stand in the way of effective exercise of MIT's management responsibility. It also may be costing valuable opportunities for research. Among the recommended solutions is to narrow the "gap" by encouraging more joint Campus-Lincoln research programs, and by seeking to loosen DOD review requirements so more of Lincoln's research (only 1/3 of which is classified) can be published in a normal academic manner without prior review. The question is, how does the faculty feel about closer working relations with Lincoln?

The second concern is the effect on the MIT bottom line of Lincoln's contribution to the overhead and benefits pools. The worry is two-fold: short-term vulnerability to variation in the scale of Lincoln operations, and the possible effect on our independence of judgment about Lab operations. Here the Committee suggests a long-term plan to incorporate shock-absorbing capacity into our fiscal structure. However formulated, such a scheme will have a budgetary impact, so this is going to be a difficult issue in our current fiscal environment. If there are faculty views about the importance of this problem, this meeting is an opportunity to express them.

At present, R/O week is dominated by the social maelstrom of fraternity and dorm rush and the choice of a place to live....The Committee recommends that all freshmen be pre-assigned to on-campus dorms for their first year.

R/O and Housing

Professor Molly Potter, chair of the Freshman Housing Committee, will present recommendations that could radically change an undergraduate's early impression of what MIT is about. At present, R/O week is dominated by the social maelstrom of fraternity and dorm rush and the choice of a place to live. Crucial early orientation to MIT as an academic community is lost in the shuffle. Also, the imprint of the R/O and housing choice is very strong. Most students remain in the same living group for their entire academic careers, and some observers believe this process contributes to a we-they relation between living groups and the academic enterprise.

The Committee recommends that all freshmen be pre-assigned to on-campus MIT dorms for their first year. (Through the R/O process about 1/3 of freshmen end up in the so-called Independent Living Groups or ILGs, including 27 all-male fraternities, one all-female house, and five coed houses.) In the sophomore year students could choose an ILG or move to some other dorm, with rush taking place some time in the spring. R/O would become "orientation," which could give more attention to the academic life of the Institute, provide a better introduction to the first year curriculum, and develop a sense of intellectual excitement. The change might also yield a few days of flexibility in the start of the fall semester.

It is a sound proposal, I believe, and the concept was well received in discussion with the Faculty Policy Committee. As is often the case for such change, however, the devil is in the details. The current rush system brings early interaction between freshmen and upperclassmen, and the ILGs are said to do a good job of supporting the new students. If these advantages are not to be lost, the quality of freshman life on campus, will need to be improved. This is a large order. Also, a more academic orientation would require increased involvement by faculty, also a substantial task.

The choice has implications far beyond the freshman year. The Institute will be some months working its way to decision on the issue, and this initial faculty discussion is an important step in that process.

Pornography

For several years the Institute has had a policy placing time and place restrictions on x-rated and non-

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The Loss of David Baltimore and the Role of the Dingell Hearings

Jonathan King

The departure of David Baltimore for Rockefeller University thins the ranks of scientific leadership at MIT and deprives the Institute of one of the most qualified candidates under consideration for MIT's Presidency; a scientific leader, skilled in the recognition of intellectual talent, and a national spokesperson for the applications of science to pressing social problems. Though Baltimore had his critics among the faculty, including myself, over the form of the Whitehead Institute organization, few in the current administration have his talent for fostering an environment of scientific productivity.

...why were aspects of the content of one ordinary scientific paper...raised to the level of Congressional scrutiny?

Consideration of candidates for the Presidency began soon after the hearings held by John Dingell's House Investigations and Oversight Subcommittee. Though the dynamics leading to Baltimore being President of Rockefeller and not of MIT are certainly complex, the Dingell Committee hearings probably were a factor in retarding Baltimore's candidacy here. This is singularly unfortunate, since in this affair Baltimore was made a scapegoat to an emerging effort to cut the growth of federal spending for biomedical research.

The Budget Battle

The Dingell Committee investigation has received more than its share of media attention. But the question remains: why were aspects of the content of one ordinary scientific paper - aspects properly handled by referees and editors - raised to the level of Congressional scrutiny? The public discussion, focused primarily on personalities, fails to place the events within the political context; the struggles taking place in Congress and the nation over the division of the federal budget.

Declining economic growth and the continuing increase in the federal deficit have put tight constraints on the cutting up of the federal budget. In a period of shrinking budgets, competition for shares of the pie becomes intense. **[See chart page 7.]** In the past decade the DOD budget has increased from $110 billion to $293 billion, driving the deficit up to its $240+ billion level. By contrast federal funding for housing over that period decreased from $27 billion to $8 billion, contributing to the housing shortage. The NIH budget during this period increased somewhat to the current $7 billion level. The rise has been negligible compared to the DOD R&D share of some $50 billion and considering the revolution in biotechnology, and the prospects of applying it to problems of health and disease. However, within the shrinking civilian fraction of the budget it has been relatively protected.

Casting Doubts on Popular Programs

The investigation of Baltimore can be most readily understood as the first salvo in the effort by some in Congress to shrink the NIH and related programs, in order to protect other sectors from cuts, the largest of which is the DOD budget. One traditional tactic in efforts to cut popular programs has been to discredit the program: First one charges fraud; if there is fraud clearly there is waste in the budget; if there is waste, cuts are in order. In some cases the approach may have a basis in truth; in others, such as the Baltimore case, it approaches the character of a witch hunt.

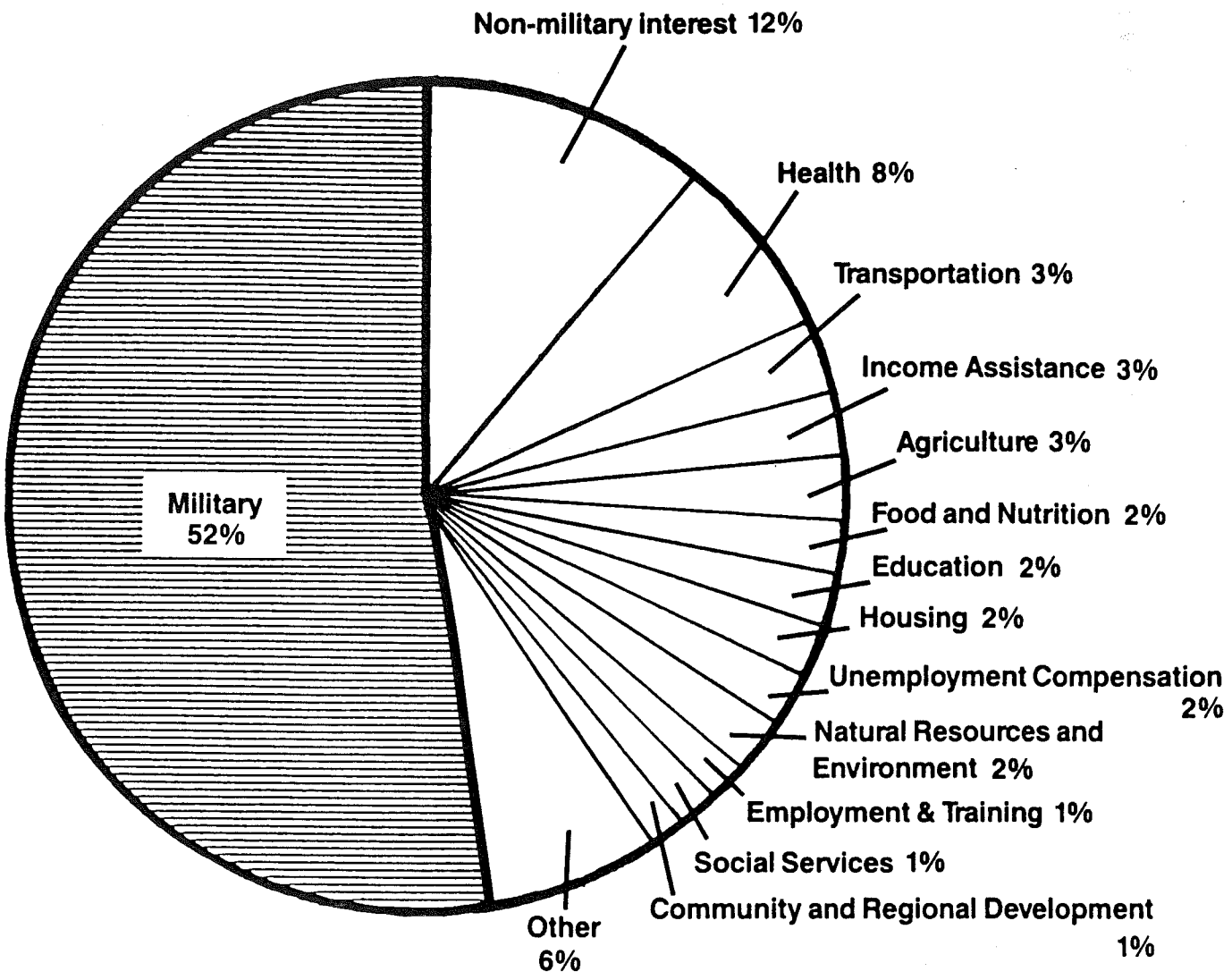
Given the underlying function of such hearings, it would not be sufficient to find fault with individuals at the fringes of the scientific community; besmirching the fringe does not discredit the mainline. Far more effective to attack a leader of the biomedical research community, somebody who serves as a model scientist in the public view. The discrediting of the leaders of any movement, organization, or institution generally discredits the entire institution. The motivation behind the attack on Baltimore represented the beginning of such a process.

The investigation of Baltimore can be most readily understood as the first salvo in the effort by some in Congress to shrink the NIH and related programs....

Baltimore was a natural target: Nobel Laureate, leading scientific administrator; spokesperson for more aggressive support for the R&D component of the AIDS effort; critique of the militarization of biomedical research.

It is unfortunate that MIT allowed Rockefeller to beat us to the punch. Let's hope we can find as effective a scientific leader for our own professional home.

Division of 1989 Federal Income Tax Dollar



Many military-related costs which are usually kept in separate categories are combined here to reflect the costs of total military spending. These costs include the National Defense Fund 050, military related interest on the debt, veterans, and International Securities Assistance.

Revenue from Trust Funds, such as Social Security, has been excluded from the calculation because these are paid for by taxes separate from the income tax.

Source: Calculations based on data contained in Budget of U.S. Government, FY 1989, Office of Management and Budget; Military Spending Research Services, Middleburgh, VA. Prepared by **Jobs with Peace Campaign.**

Warring With Ghosts:
Alternative Models of Management

Thomas H. Lee

Deep in rural China, far from the industrial centers of Shanghai and Nanking, there is a small factory that makes circuit breakers for medium voltage power systems. Solicitous hosts took me to this factory last summer (1988), their way of acknowledging my role in developing this device more than 30 years ago. They didn't know that this was the fourth such factory that I had seen in China.

They probably expected that I would be delighted to see my work so widely reproduced -- instead I was worried. China is far behind the U.S. in electricity generation, yet the American market for this type of circuit breaker can only support two suppliers. Similarly, the U.S. has only two major manufacturers of turbine generators; China has at least five. With a much smaller market and fragmented industry, there will not be enough resources to support the research and development work needed to establish an indigenous technology base.

My hosts explained that these factories were a response to a greater, historical need. "Chairman Mao said China must be ready for war," one said. "To do that, each province should be self sufficient. They must be able to make everything. Turbine generators are only part of the strategy."

Today, Mao is gone, but the consequences of his strategy linger on. Fragmented industrial structures continue, even though no one knows who the enemy might be. Chinese people and their children may continue to pay a terrible price for Mao's war against ghosts for generations to come. The price: lasting loss of international competitiveness.

The "warring ghosts" syndrome reached its peak during the last U. S. election campaign. We should be thankful that after the election, the Bush administration seems to be addressing more real issues instead of ghosts.

Two recent lectures by Professor Russell Ackoff and his associate Professor Jamshid Gharajedaghi to the "Leaders for Manufacturing" class put the "warring ghosts" issue in a different light. Russ Ackoff pointed out that there are three kinds of managers: the reactive type who loves the past; the inactive type who loves the present; and the pro-active type who looks toward the future. "Warring ghosts" is probably just one of those things reactive or inactive managers do.

> ***Fragmented institutional structures continue, even though no one knows who the enemy might be. Chinese people and their children may continue to pay a terrible price for Mao's war against ghosts for generations to come.***

Jamshid traced the history of the development and implementation of different management systems. The concept of a machine type of system was started in France but successfully implemented in England. (In the machine type of system, the organization is not supposed to have a mind of its own.) The concept of a biological type of system was started in England but successfully implemented in the U.S. (In this type, the organization is supposed to have a mind of its own but the mind is that of the top person.) The concept of a social management system (recognizing the fact that everyone in the organization has a mind of his or her own) was started in the U.S. but successfully implemented in Japan.

Jamshid pointed out that these historical experiences are a proof that "nothing fails like success." Do successful proactive managers gradually drift into the reactive or inactive types, when they are "warring the ghosts"?

I offer these thoughts to my friends in MIT as we are getting ready for a new administration. What type of managers (or leaders) will we have? Will our success be causes for future failure? These are things we should think about.

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Why Species Are Special
Admission Policy Implications

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Princeton, and Yale. We are evolving into a second-rate imitation of an Ivy League school.

Who decided to tilt freshman-admission priority away from science and engineering? Not the faculty. Few of us knew it was happening. We knew only that our students were having more trouble and we were having to water down our lectures. We didn't know why. We blamed political, social, economic, and demographic factors, and we were frustrated. The revelation by Prof. French's committee that our own Admissions Office has been contributing to the decline of our students' abilities is shocking but encouraging. Here is a factor we can control, through regular channels such as discussion in faculty meetings and this newsletter. Let's do it.

The Need to Know and the Right to Privacy:
A Delicate Balance

Fred Moavenzadeh

On occasion, the desire to better understand how we operate - to better protect the members of our Community, or to be of better service - inadvertently infringes upon the individual's right to privacy. As a member of the Institute's Privacy Committee for several years, I have become sensitized to this matter of privacy. In principle, there should be no contradiction between MIT's objectives to improve the operations of the Institute and make them more efficient - and the inadvertent consequence of sometimes violating the privacy of individuals in the course of such operations.

The core of the dilemma is the balance that must be struck between the *need to know* and the *right to privacy*.

For example, posting of student grades outside a faculty member's door is a way of communicating with students; however, it may also impose a hardship on those students who find a public posting of their names and grades to be embarrassing. So too, in order to improve safety conditions for the members of the MIT community, the Institute has used inexpensive yet effective electronic surveillance devices. This seems to be a very reasonable response, and possibly even an effective one, but it does not recognize that electronic surveillance systems are often a violation of the privacy of individuals - those bystanders and others who happen to be in the surveillance field and who do not know that surveillance is in operation.

The use of management information systems to streamline the Institute's operations and to provide more accurate, comprehensive, and up-to-date information is resulting in the centralization of our database which, in turn, if not well controlled, may lead to abuse of the system.

Among the less benign privacy predicaments are the following: handling of medical records and making information available to intermediaries, advertently or inadvertently, is clearly a violation of privacy. Forcing MIT athletes to undergo drug testing is also a violation. Keeping records of hidden grades for those interested in applying to medical school or for ROTC scholarship violates the spirit of our moral compact with students, and infringes upon privacy rights of hundreds of other students. Doing large-scale data analysis studies to determine the performance of particular ethnic groups which could lead to the identity of individuals within those groups is also a violation of privacy. Cases such as these have come to the Privacy Committee over the years.

The dilemma facing us is the possibilities for abuse versus not obstructing the legitimate activities of the Institute. The core of the dilemma is the balance that must be struck between the **need to know** and the **right to privacy**. That balance is basically a cultural matter, to be agreed upon by our own value system. The extent to which any individual discloses personal information needed for the functioning of the institution to which he or she belongs depends mostly upon the trust and confidence that the individual places in that institution.

Acceleration in technological change has brought to the forefront the conflict between the need to know and the right to privacy. Advances in automated computation, telecommunication, and information sciences and management have all created unprecedented opportunities for up-to-date, reliable, and accurate information on every aspect of MIT's activities - as an institution and as a community. It is possible to extract information from unrelated data sources that, viewed collectively, results in information and inferences for which none of the sources were originally intended. In addition, advances of technology have all but eliminated the barriers of high cost of data handling, exposing the MIT community in previously unanticipated ways to the problems of privacy issues. We need a new mechanism to protect the data not only from unauthorized users (a legal issue), but from misuse or abuse by authorized users (an ethical issue).

The crucial ethical concern for us...is to protect the rights of data subjects....

Until recently, the use and availability of information has been mainly technologically-constrained. Now that the technological barriers have been reduced or eliminated, we find ourselves in a position where we ought to become value-constrained, by specifying the guidelines and principles that shape our use and transmission of information. The fact that we have access to data does not necessarily justify the access itself.

We need to begin to articulate a

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Academic Honesty at MIT
A Report From the COD

Sheila Widnall

From time to time, the chair of the Faculty Committee on Discipline has made reports to the faculty regarding the specifics of cases that it has handled. Such a report is planned for a future faculty meeting in connection with a more general report on the various Institute mechanisms for dealing with harassment and other forms of grievance. However, because of the special responsibility that the faculty shares for setting standards of academic conduct, I thought it might be useful to report here directly to the faculty on the subset of issues concerned with cases of academic dishonesty.

As a faculty committee the COD is particularly interested in the responsibilities of the faculty both to set a climate which promotes high standards of academic honesty, and to provide mechanisms to deal with those cases of cheating that do arise from time to time. In 1985, the Office of the Provost and the ODSA working with the COD developed a set of guidelines relating to academic honesty, spelling out the responsibilities of individual faculty and the role of departments in dealing with individual cases, as well as the procedures for bringing a case to the COD. This policy in its entirety appeared recently in **Tech Talk** and is available from the Office of the Associate Provost and from your departmental headquarters.

The policy sets out several issues. First, that individual faculty have a responsibility to make clear their expectations regarding academic conduct in their specific subjects at the beginning of the term, particularly in such troublesome areas as to what degree of collaboration on homework assignments is permissible.

It also discusses what procedure should be followed should a faculty member have reason to believe that a violation of academic standards has occurred. Briefly, the policy urges that the faculty member arrange for a meeting with the student - preferably in writing - informing the student of the suspicion and allowing the student to bring with him/her any other member of the MIT community. If after such a meeting the faculty member concludes that the student has behaved dishonestly, he/she may decide to refer the case to the ODSA and/or the COD for a formal resolution. The faculty member may also wish to take direct action affecting the student's grade, giving the student a make-up assignment and so forth.

...individual faculty have a responsibility to make clear their expectations regarding academic conduct...particularly in such troublesome areas as to what degree of collaboration on homework assignments is permissible.

For less serious violations, if the faculty member decides not to pursue the case through the COD, he/she may wish to write a letter to the student setting out the facts of the case. A copy of this letter may be sent to the ODSA to be placed in the student's file. This letter would be accessed only if a subsequent offense occurs, for which it will be made available to the COD should that case go forward. The student may also write a letter to the file if the facts in the incident are in dispute.

In spite of the reputation of the COD for heroism and severe overwork, we in fact handle only about seven to ten cases in a typical year. Looking at the back records of the Committee, I noted four cases of academic dishonesty in '85-86, four in '86-87, and two in '87-88. During '88-89 we dealt with two such cases.

In the first, a student was charged and admitted to two occasions of altering quizzes after they had been returned and then resubmitting them for regrading to improve the score. This occurred in two separate courses within the same department. The student was sanctioned by the Committee on Discipline. In the second case, a student was accused of handing in a term paper that was a duplicate of another student's paper. This occurred in a course with multiple sections. In this case, there was also a letter in the student's file detailing an incident which occurred in another course, in another department that same semester in which an altered quiz had been submitted for grading. This student received a sanction from the Committee. Sanctions from the COD this year for the spectrum of cases heard ranged from informal probation to expulsion.

Many students at MIT are under considerable academic pressure. Service on the COD becomes most difficult when we must deal with some of the consequences of such pressure. We see our role as primarily educational and the length of our deliberations indicates our concern with the student(s) involved. We applaud the willingness of the faculty to carry through with what must seem a long and difficult process in cases where an occasion of academic misconduct has occurred.

Response to Professor Chorover's Comments on the MIT Commission on Industrial Productivity

Michael L. Dertouzos

In the October issue of this Newsletter, Professor Chorover criticized the MIT Commission for not having devoted greater attention to the ways in which our current economic predicament is systematically linked to poverty, hunger, population growth, excessive military expenditures and other geopolitical factors. He was especially concerned by the Commission's silence on the environment and on industrial practices and lifestyles that would be economically and ecologically sustainable.

First, let me confirm Professor Chorover's observation that the MIT Commission, indeed, did not address these issues. But neither did it address a long list of other important issues: For example, the mental and physical health of the work force; the effect of drugs on people who work; the impact on education of changing family values; the consequences of televised violence; the inadvertent uses of technology to increase rather than decrease human pain and suffering; the uses and abuses of information in the industrial world, ... and on the list goes.

There is, indeed, no shortage of such worthy topics nor an absence of resolve to link them together. After all, complex socio-technical problems bind, by definition, science and technology with nature, individuals and society. There is also no shortage of pronouncements on the causes and cures of these complex problems. This wealth of interrelated issues and alternatives puts a high premium on choosing the scope of any new study.

Scoping the Commission's work was an important and time-consuming effort that we did not undertake lightly. Our rationale is discussed in the Commission's book, **Made in America.** From the outset, we set out to answer the question of our charge -- What went wrong with U.S. industrial performance and what might be done about it? We concluded that we should focus on what we know best, on what had not been studied as extensively before, on what in the judgment of the commissioners was significant and on what had a chance of being tackled seriously, factually and in detail within a two-year period. This turned out to be the relationship between industrial performance and what goes on within companies, from shop floor to executive suite.

> ...the Commission's findings **were** the patterns that emerged, as opposed to the patterns that we or others might have **wished** had emerged....

The causes that the Commission identified and the imperatives on which it concluded did go beyond the technological nuts and bolts of manufacturing processes to raise broader issues of human behavior and societal interactions. -- A balance of cooperation and individualism, learning to produce well ahead of the manipulation of financial instruments, investing in education, learning about the cultures of other nations, nurturing and rewarding an involved and better educated work force were among the Commission's imperatives. Thus, breadth was not explicitly avoided. Nor was it pre-specified. In short, the Commission's findings **were** the patterns that emerged, as opposed to the patterns that we or others might have **wished** had emerged from our study.

Thus, the first answer to Professor Chorover's criticism is that we did not address how industrial practices should change toward ecological balance because this was not the question that we asked and because the environment did not turn out to be an answer to the question that we did ask.

I will now turn to why the Commission's central question and overall scope were not broadened to include the environment or other important related issues.

As things turned out, the chosen scope left out an issue directly related to the Commission's central question: We were unable, for lack of time, to examine why office productivity is declining, especially when the use of computers is rising. This phenomenon that popped up halfway through our study is one that may turn out to be a major culprit in the nation's weakening industrial performance. Several of us feel that this question alone is important enough to warrant a major two-year study.

The point I wish to make here is that great effort is needed to carry out serious studies on even apparently narrow issues.

Unfortunately, high quality is not in abundance among socio-technical studies, undoubtedly because of the difficulty of the issues, but also, perhaps, because institutions, like MIT, with strong underpinnings in science and technology, have been less frequent participants in such studies than non-scientific institutions, concerned individuals and the media. Take, for example, the early days of the Commission's work. As we were trying to learn what the hundreds of

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Context Courses and Undergraduate Admissions

(Continued From Page 1)

The fourth course, (7.00J, 15.60J) **AIDS: Scientific Challenge and Human Challenge** led by David Baltimore and Mary Rowe, has an enrollment of approximately thirty students and an attendance of as many as one hundred individuals at some of the lectures this fall, the second semester that it has been given. Rowe, who provided the impetus that brought the course into being, attributes its success to the brilliance of Baltimore's lectures and to the excellence of Leslie Perelman's organizational support. Without denigrating these factors, I think that the nature of the topic is the primary reason for the course's well deserved popularity.

In the last issue of this newsletter an article by Francis Low described the recommendations of the Context Review Group based on the subsequently released report of that group. As both article and report point out, there is a long tradition at MIT of courses similar to those in Context, and some 48 are listed in the report. What the Context scheme has attempted, in addition to a certain degree of standardization, is to give such courses increased official standing and wider visibility in order to attract a substantial enrollment. Why has this not worked for the three courses mentioned above? In my opinion, they are all on interesting topics, taught by informed and thoughtful people. I think that the reason is a perceived irrelevance of the subject material to the realities of MIT. Who cares about unemployment? In the culture of the Institute it is technical success in robotics that is important. Who cares about the social consequences of science? The overriding priorities at MIT are success in funding and research. Ethical issues? Aside from objectivity and completeness in reporting research results, ethics appear to have no place in the work life of scientists and engineers.

In contrast, the course that has attracted students is on a subject that is generally perceived to be of great importance, particularly to young people. As was the Vietnam War, AIDS is a national and international problem that has potential personal implications, and increasingly grim prospects for the future. The MIT community does not dismiss this, and, furthermore, the impact of AIDS on MIT itself is generally agreed to be a matter of legitimate concern.

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Lester Thurow is supposed to have said that you can't teach ethics in business school, that the ethical foundations of the students have already solidified by the time they reach that stage in their lives. On the contrary, I submit that students, both undergraduate and graduate, are taught the relative importance of ethics at MIT, although this is done by example and not through courses. There is a clear message that success, money, and power are important, not the well-being of society, other individuals, or one's own soul. There are, of course, exceptions to this sweeping generalization, both among the faculty and the student body, but in general ethics are reserved for intellectual discussion and possible application in private life. This is reflected in the decision of the Low committee that students should not be "burdened" with Context courses as an Institute requirement.

I will now turn to the commonality between these observations and the issues that have been raised about undergraduate admissions. At the October 18th faculty meeting, discussion of the report of the Committee on Admissions and Financial Aid released last May was resumed. Some faculty have viewed with alarm the four year old change in how a numerical score for the scholastic performance of applicants (the Numerical Index (NI)) is derived, and the relative weights given this and the non-numerical ratings assigned by the readers of the application folders (the Personal Rating (PR)). Over the same period there has been a decline in average SAT scores (Anthony P. French, *The MIT Faculty Newsletter*, Vol. I, No. 3 (March, 1989)), and a perception by some faculty that the academic performance of the students has suffered.

Students who are at the top in both the NI and PR ratings have always been enthusiastically admitted. Unfortunately, two-thirds of them are wrong-headed enough to go to the other top universities which have also accepted them. The disagreement centers on those applicants with a top NI, but a low PR, who are currently not admitted. (In 1986 through 1988, 63% of the top NI were admitted. In 1989, because of faculty pressure, 80% were admitted. Calculated from Table 3 of the CUAFA Report to the Faculty (May, 1989).) **[See M.I.T. Numbers, page 15.]** It was argued at the faculty meeting that we are

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Context Courses and Undergraduate Admissions

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missing narrowly focused potential geniuses, and should admit all in the top NI category, even if: "it means that we get a few more nerds." Adopting such an admissions policy might yield an occasional potential genius, but, having read admissions folders, I doubt it. The potential genius would have letters that would indicate this and would result in a good PR. On the contrary, accepting all the top NI students without regard to PR would admit individuals who did nothing but study in secondary school, and a high percentage of these would probably come to MIT because they would not be admitted to other top universities. And the thrust of the discussion extended beyond this top group, suggesting that admissions criteria should be based much more heavily on the NI than the PR for all applicants, a direct manifestation of the Institute attitudes that I discussed in previous paragraphs.

The issue again is what kind of prototypical human being should MIT graduate? The "nerd", narrowly focused on personal success, or the student who not only does well academically, but whose broader interests lead to an understanding of national and world problems and a commitment to contributing to their solution? The latter will be the leaders of the future, and the former will work for them. There will, of course, always be a distribution including these types, as well as the narrow geniuses and many others, but admissions policies will determine in which direction this distribution is weighted.

MIT will continue to be known by the students which it graduates, and thus the importance of admissions. But this is only the first step, and in educating these students to play vital roles in the enormous problems faced by the nation and the world, what we teach them about ethics and social responsibility is of utmost importance. If the Institute ethos does not change to inspire a broad interest in Context-like issues, MIT will continue to lose top applicants to other universities, and will diminish the horizons of the students who do come. The top priority in our choice of the next President of MIT, should be the personal and leadership characteristics that could accomplish such changes.

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Response to Professor Chorover

(Continued From Page 11)

published reports and other writings had to say on the subject of U.S. productivity, we were surprised by the large number of "studies" that were rooted on visceral beliefs and preset agendas rather than on any kind of solid evidence. If we had simply accumulated all the reported causes of weakness in U.S. industrial performance, we would have arrived at a huge and conflicting list -- and certainly not at the six major causes that emerged from our intensive bottom-up study of eight specific manufacturing industries.

This, of course, does not mean that we should avoid the study of broad and complex socio-technical problems. On the contrary, I firmly believe that MIT is long overdue in exercising precisely this form of sorely needed leadership. Fortunately, there are signs that we have tentatively begun to do so. Yet, as we embark on this new institutional role of speaking authoritatively on major problems of the world, we must be very careful on how we do it -- for we are setting an important precedent for the Institute.

To my thinking, if we wish to make MIT an indisputably credible and unique force in the study of complex socio-technical problems, we must do more than mouth platitudes, ride hobby horses and wave favorite banners. We must, instead, summon the MIT community's extensive and deep scientific, technological, humanistic and managerial knowledge and apply it creatively, incisively and impeccably to the investigation of key questions and to the justification of our conclusions.

To that end, the Productivity Commission experience suggests that, among other options, we should consider setting up additional commissions. One such commission could analyze the ways in which current and planned industrial activities adversely affect our environment, along with what MIT thinks should be done to improve the situation. Never mind that there may be already many related studies. If our productivity experience is any indication of what we can rely upon, then we should be prepared to do a great deal of our own extensive work on this and on each new important problem area that we choose to tackle.

Such a study, to be properly done, would require another two to three years, even if it did, as it should, capitalize on the results and methods of the productivity study. This should conclude the explanation of why important and related issues such as the ones raised by Professor Chorover were not rolled into one big bundle together with the MIT Commission's productivity study.

A Prelude to November 15

(Continued From Page 5)

rated sexually explicit films, and imposing a form of prior restraint through a requirement that films be cleared by a screening committee. That policy has been called into question in recent times, and an effort has been undertaken to find a better way to deal with this problem in our campus life. A new proposal has been formulated and circulated to the community for discussion. It has been reviewed by the Academic Council and worked over at some length by the Committee for Student Affairs and the Faculty Policy Committee. All these groups are supportive of the new policy, although members are not unanimous on every aspect. The issue now comes to the faculty for discussion before returning to the Academic Council for ultimate decision.

The proposal differs from previous policy in several respects. The focus is shifted from material that is sexually explicit to that which is judged pornographic, and guidelines are provided as to how pornography would be identified. This material would be banned from all public spaces at MIT. The restriction is imposed as part of Institute policy on harassment, which seeks to preserve a work place and educational environment free of intimidating, hostile, and abusive behavior. Enforcement falls under existing procedures for harassment and grievance, and the element of prior restraint is removed.

Opinions about the proposal divide along several dimensions, the most common being the extent of the restriction on the place of showing. The proposal now draws the line between private rooms and public spaces. Some prefer a restriction only in the dorms (avoiding invasion of the home); others would specify public spaces where pornographic films could be shown (a sort of "combat zone" solution). I prefer the language as proposed, but whatever is decided the policy needs widespread faculty support to be successful.

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The Need to Know and the Right To Privacy

(Continued From Page 9)

bold policy framework. Our reliance on sophisticated management information systems, sharing of data, elimination of duplicate efforts, centralization of data processing, are all examples of efficiency-driven steps. At the same time, however, we cannot ignore the ethical questions that are created by enhanced efficiency.

The crucial ethical concern for us as members of the MIT community is to protect the rights of data subjects and particularly to ensure that the data subjects are kept informed of information gathered and disclosed about them. Just because we are well beyond 1984, does not mean that we ought to relax our vigilance in this regard.

With the growth in both power and potential of information technology, the management of information is becoming increasingly important. Three issues must be resolved in order to develop a viable approach to the management of information: appropriateness of mode of governance; reliance on due process; and legitimacy of administrative mechanisms.

Mode of governance refers to how decisions are made, who decides who has access to information, and the basis upon which information is shared. Due process refers to formally recognized and agreed-upon procedures for access and sharing of information. Legitimacy refers to voluntary compliance to administrative procedures, based on trust and the belief that procedures are fair and equitable and will not penalize individuals who have made the information available.

The management of information is too important at MIT, and the Institute cannot continue to rely on ad-hoc (or partially thought-out) approaches. For a management information system to be effective, it must contain data and information with regard to individual and institutional units that are of a sensitive nature and may infringe upon individual privacy. A faculty body with oversight responsibilities would enable the MIT Community to be involved in the overall policy deliberation on information management and be aware of and supportive of the subsequent steps necessary for its implementation and operation.

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The *Handbook for Incoming Postdoctoral Associates and Fellows at MIT* was published in August by the **MIT Association for Postdoctoral Women**. Because there is no office at MIT responsible for postdocs, The Women Postdocs prepared this booklet in an effort to help orient new postdocs and compile information about working at MIT that is specifically of interest to postdocs. Each Administrative Officer in a department with 4 or more postdocs received copies of the handbook. Additional copies are available from Pat Kellet, Ph.D., Room 18-126, x3-1824.

M.I.T. NUMBERS

Trends in Score and Grade Categories of Individual Students (U.S. Citizens and Permanent Residents)

		1973	1978	1983	1984	1985	1986	1987	1988	1989
Applicants	Top	240	203	165	197	192	207	222	265	244
	High	431	457	538	560	580	573	726	690	679
	Mixed	2101	3105	3986	4044	3715	4176	4813	4745	4238
	Low	396	488	713	591	581	545	736	727	679
	Total	**3168**	**4253**	**5402**	**5392**	**5068**	**5501**	**6502**	**6427**	**5840**
Admitted	Top	227	183	131	153	169	137	146	150	195
	High	380	391	399	408	422	312	366	331	435
	Mixed	965	1234	1160	1182	1185	1165	1141	1168	1132
	Low	20	41	28	19	21	35	39	71	28
	Total	**1592**	**1849**	**1719**	**1764**	**1800**	**1651**	**1694**	**1720**	**1790**
Enrolled	Top	85	63	54	60	68	52	54	48	76
	High	171	197	199	208	205	138	174	140	175
	Mixed	581	730	749	725	713	709	658	671	706
	Low	13	31	20	9	14	22	27	53	20
	Total	**850**	**1021**	**1023**	**1003**	**1001**	**923**	**913**	**912**	**977**

Top Range: SATM, ACHM, ACHS $\geq$ 750
SATV, ACHE $\geq$ 650
All A's in math and science

High Range: SATM, ACHM, ACHS $\geq$ 700
SATV, ACHE $\geq$ 600
At most one B in math and science
Not a top student

Low Range: SATM, ACHM, ACHS < 700
SATV, ACHE < 600
More than one B in math and science

Mixed Range: Everyone Else

SATV: Verbal Scholastic Aptitude Test

SATM: Mathematics Scholastic Aptitude Test

ACHM: Mathematics Achievement Test (Level I or II)

ACHS: Science Achievement Test (Physics, Biology, or Chemistry)

ACHE: English or Social Studies Achievement Test

Source: CUAFA Report to the Faculty (May 1989); MIT Office of Admissions

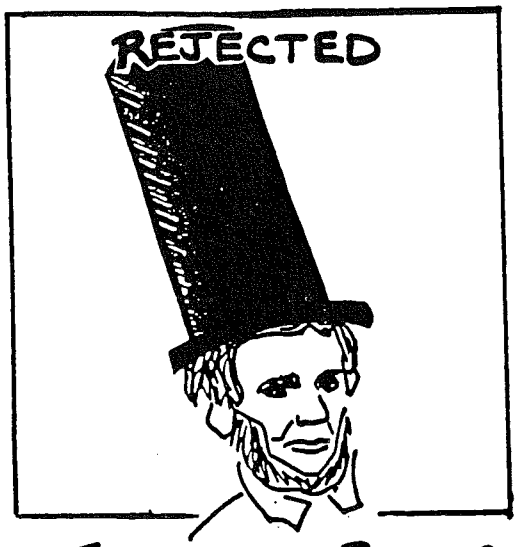
CONFIDENTIAL

NOVEMBER 1, 1989

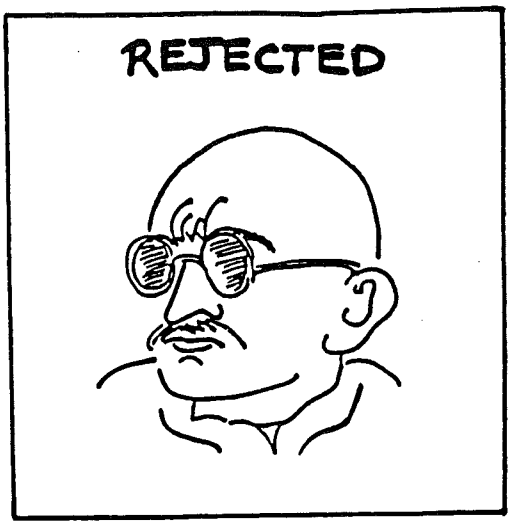
TO: [redacted]

FROM: [redacted]

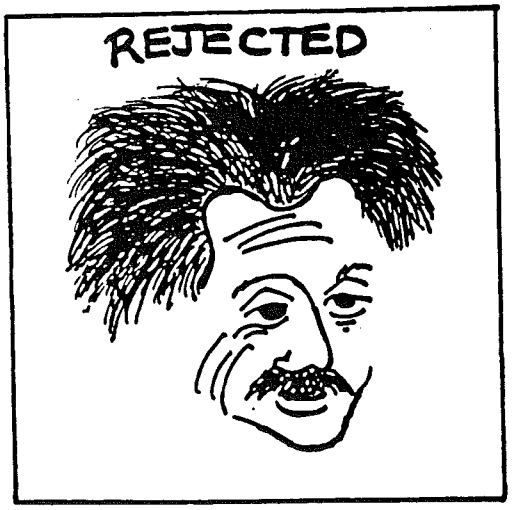
SUBJECT: POTENTIAL PRESIDENTIAL CANDIDATES



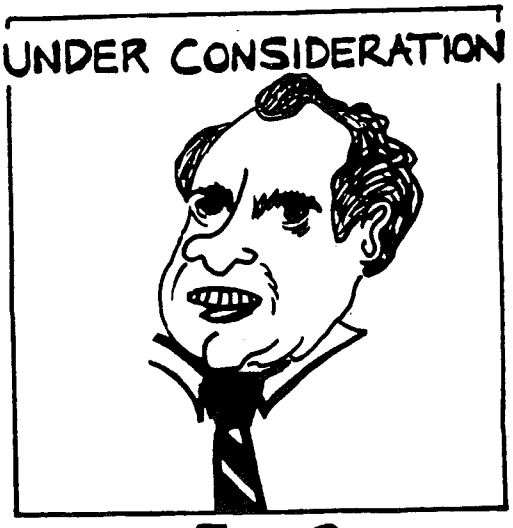
POOR EDUCATIONAL BACKGROUND



LACKS NECESSARY STATURE



INSUFFICIENT ADMINISTRATIVE EXPERIENCE



STRONG JOB-RELATED TRAINING

Thyne