The Tech.

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MIT Commission's data to be released

By Michael Feirtag

A Factual Profile of MIT, the 327-page statistical study of the Institute originally prepared at the request of the Commission on MIT Education, is to be released today.

Circulation of the document is expected to be small as administrators assert that interest in the data is not likely to be great among the MIT Community in general. Copies will be placed in libraries.

The Profile was not readied until the final weeks of the Commission's tenure; at that time (spring of 1971), there was speculation that it would not be made generally available, "If anyone is sitting on this report," said Commission chairman Kenneth Hoffman, "it's me. And I'm not sitting on it. It's a large document, and we need feedback from all concerned if we are to avoid misuse of it."

The rough draft of the report apparently passed from the Commission to Vice-President Constantine Simonides at the conclusion of the Commission's efforts, where, after the belated decision was made to release the study, editing began.

A page containing professorial salaries by department was deleted, administrators asserting that, since salaries vary from department to department, making the figures public would adversely affect the ability of the departments to attract talented faculty as economically as possible. However, the Profile does not provide administrators' salaries or secretarial salaries either.

The greatest amount of editing appears to be in the study's first section, which contains financial data. Changes made here were for the stated purpose of bringing the Profile's figures into agreement with those calculated by the Institute's accounting methods; apparently MIT uses different accounting conventions and breakdowns than those utilized by the Profile.

The section on finance provides only the basic breakdown of MIT's worth that is provided in the Treasurer's Report, and the schedule of expenses is organized only by broad categories – no data is provided on the nature of MIT's investment portfolio beyond a distinction between real estate, securities, student loans, and other overall totals.

The Profile indicates that administrative costs multiplied nine-fold, from one to nine million dollars, from 1948 to 1969, while academic costs became six times greater, but research expenditures rose from 13.3 million (or 63 percent of the total expenses) in 1948, to 176.2 million in 1969 (81 percent). It seems that the administration expanded more to handle an expanding program of research than to run an expanding educational program.

Section Two, on employment and physical space, indicates that MIT employed 10,697 people in fiscal 1969 (excluding about 30 high level administrators, 50 medical staffers, 65 professors emeriti, and some 226 postdoctoral fellows, visiting scientists, and such). 962 are professors, but 3,965 are "directly associated with academic departments" according to the Profile, which allows such functions as athletics and ROTC as academic tie-ins. 450 perform "administrative functions" and 562 are in "financial administration"; thus administrators outnumber professors.

Among the data in sections Two (employment) and Three (academic staff):

Composition of academic staff varies greatly among departments. 13 percent of chemistry's academic staff are professors, as opposed to an average of 28 percent in the school of engineering. In other departments, the figures range from 30% in physics to 68 percent in humanities. The figures are for 1969-70.

That year full professors constituted half of those of professorial rank; the percentage has increased from 32% in 1948.

According to the accounting techniques used by MIT, professor's salaries can be seen as coming from three sources: research contracts, funds given to MIT to be spent for specific purposes, and undesignated gifts – "general Institute funds." By these accounting techniques, the School of Science can cover 34 percent of its professional salaries from sponsored research, engineering 35 percent, and, as one would expect, only 10 percent for the school of humanities and social science. Management professors pull in only 7% of their salaries from research, but another 40% comes from funds given to the Institute expressly for management, and that school makes the least percentage drain on the beleagured general funds (general funds are those that cover, among other things, all the humanizing frills and some of the educational "innovations" that MIT is so enamored of lately)– 53 percent. The School of Humanities and Social Science derives 74% of its professorial pay from general funds. A further breakdown by department indicates that percentage wise, Nutrition makes the least drain on general funds, obtaining 74% of its professors' salaries through research. Next best is Psychology, with 53 percent.

The Profile provides a more detailed analysis yet, further differentiating the percentages by professorial rank in each department. While in an Institute-wide average, all professors earn a bit lower than a third of their salaries through research, a department-by-department analysis shows considerable variation among the professorial ranks. In Humanities, full professors manage to obtain their salaries from sources other than general funds with considerably greater success than assistant professors, who require 28% more of their pay, on the average, from general funds.

Full professors in management, on the other hand, draw 87% of their pay from general funds, while associate professors take only eight percent. But one wonders what significance can be made of these statistics, dependent as they are on accounting techniques and assumptions.

Another accounting device, that of dividing professorial salaries into payment for instruction

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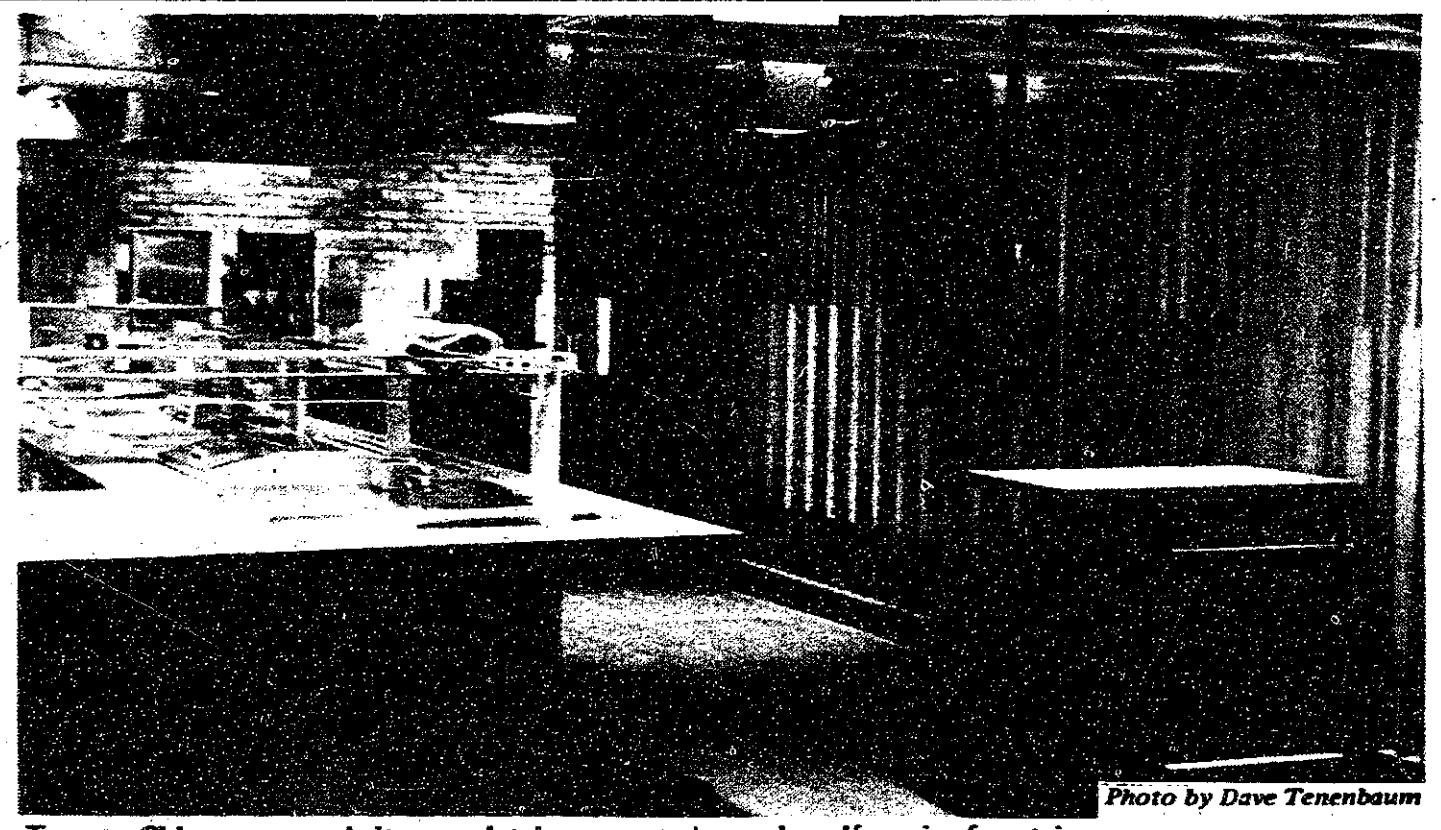

Photo by Dave Tenenbaum

Twenty Chimneys reveals its completely renovated serving area to the public today. The renovations, which took place over the Christmas holidays, feature a much cleaner serving area with a new grill and a self-service fountain area.

The renovations, which cost approximately $35,000, were done to offer better and more efficient serving possibilities for the customer.

No fuss over Rogers paper

By Alex Makowski

Reaction to the Rogers Report at an open meeting last December provided only a sparsely detailed picture of faculty opinion on this latest look at possible reforms within MIT's educational structure.

Gathered together for their regular monthly meeting, the 45 to 50 professors and administrators present asked task force chairman Hartley Rogers for clarifications and offered their opinions on the merits of the proposals. In the main the opinions voiced were favorable but skeptical, wondering if the admittedly progressive suggestions could be successfully implemented.

But the light turnout may not have been representative of the spectrum of faculty that will attend when the final vote on the recommendations is taken, and those faculty that were present last month were rather quiet. President Jerome Wiesner wondered aloud whether the faculty had neglected to read the report, or whether they might have read the report and formed no opinion. Chancellor Paul Gray feared the faculty might have negative opinions they deemed not worth voicing, but would nonetheless sway them to vote against the task force proposals.

This afternoon there will be another faculty meeting to both renew discussion on the Rogers Report and solicit comments on other documents now circulating among the faculty. Final action on the Rogers Report is not due until the regular faculty meetings during the spring term.

Running through much of the December discussion was a concern over finances and available resources. Wiesner had touched on the subject in his introductory remarks, noting that some of the proposals might be adopted without much disruption of the current budget priorities while others would necessitate a serious overhaul of basic monetary allotments, but Civil Engineering Chairman Peter Eagleson sharpened debate on the issue with a specific question. His calculations and estimates indicated that if half of the Civil Engineering undergraduates filled the recommended 25% of their course load with some seminar/research experience, five to ten percent of his department's faculty time would be involved. Would the gains for the undergraduates be worth the money? Would more resources be made available?

Rogers replied that a "redirection of faculty effort" might be possible within the existing framework and constraints; Wiesner proposed that the students might be drawn into work the faculty member was already doing, thereby reducing the drain on faculty time. Both agreed that some experimentation would be necessary as the program was gradually implemented.

Discussion also centered on the role the proposed dean for undergraduate education might end up playing, and whether the result would justify the needed redeployment of resources. Some faculty wondered whether the new dean would be able to assert himself by intellectual persuasion alone, or whether he might need the clout of a larger share of the budget for undergraduate education. Though the issue will prove crucial in establishing the effectiveness of the administrator, it could not be resolved at the meeting.

The Rogers Task Force was set up last spring to conclude the review of MIT's education begun by the MIT Commission in October, 1969. Originally scheduled to report to the faculty with specific proposals for implementation last September, publication of the committee's recommendations was delayed until late last term.

TEP freshman dies in fall

Early yesterday morning, an MIT freshman plummeted to his death down a four-story stairwell during a water-balloon fight at Tau Epsilon Phi.

According to witnesses, Thomas R. Olejarski, 18, of Rochester, New York, was alone on the fourth floor of the fraternity when, leaning over the bannister to drop a water balloon, he slipped on the wet floor and fell.

Olejarski's fraternity brothers immediately gave him first aid and an ambulance was summoned, but the youth was pronounced dead on arrival at Massachusetts General Hospital after the 1:10 am accident.

Associate Dean for Student Affairs Richard Sorenson reported that "We've looked at the accident carefully." (Both the Campus Patrol and the Boston Police have already investigated the incident.)

Sorenson, asked to comment on the death, said that if he had any message, it was to "lessen this kind of activity in dormitories and fraternities." The accident, he added, was "very unfortunate – we're all sad." Sorenson also noted that there have been a large number of "water fight" accidents, and also accidents at shower parties, but did not say whether the Institute would take any action concerning the matter either in the form of discipline proceedings or new safety regulations.

Water fights and shower parties have long been an element of undergraduate life at MIT, despite the dangers involved. Particularly during shower parties, when, if the "victim" resists, some amount of force may be employed, the danger is especially great due to the hard surfaces and fixtures in lavatories. In most MIT fraternities, this danger is compounded by the fact that the lavatories are on tall, open stairwells which are often protected by only the flimsiest bannisters. Inadequate bannisters, coupled with a wet, slippery floor, appear to have played a major role in Olejarski's death.

According to the News Office, Olejarski's body will be sent home for burial.

"1971: A good year... but not for much," an overview of the past year as it was reported in *The Tech* appears on page four of this issue.

Technology, research, and politics...

By Peter Peckarsky

(What follows is an interview, conducted shortly before the holidays, with Emilio Q. Daddario, former Democratic representative from Connecticut, and chairman of the Subcommittee on Science Research and Development of the House Committee on Science and Astronautics. Last fall, Daddario was a Visiting Lecturer at MIT and taught "Congress and Policy for Science and Technology.")

The Tech: Mr. Daddario, what are your views of the organization for science and public policy at MIT now that you have been here for a few months?

Daddario: Well, I see here at MIT tremendous possibilities for taking interdisciplinary considerations into account. That is one of the most important aspects of public policy really. How do you use science and how do you develop a workable relationship between the disciplines in the universities? These are so strictly placed into compartments for traditional and budgetary reasons that, as a result, they are much more inflexible than they ought to be.

I do think that we need to develop greater interdisciplinary capabilities, and I see that possibility here at MIT. I don't think at any university that this is as strong as it ought to be, but one positive development at MIT is the growth of the Department of Political Science, the Sloan School of Management, and the great strength I see here in Economics. All of this must eventually have some effect.

The Tech: There was a report, I think, a few weeks ago about a $900,000 basic grant made to MIT to aid in developing an interdisciplinary unit to foster technology transfer from the United States to the developing nations. Do you see significant additional amounts of money being made available in this area?

Daddario: I see the development of this in programs such as that; that is, the constant search that we have had to aid the developing nations: what technology can you apply; what technology is available to lift them up from nowhere to something better. Of late, the importance of development of research to meet national needs along interdisciplinary lines is one of the programs that is receiving additional support.

There is a program at the National Science Foundation called RANN – Research Applied to National Needs. It takes into consideration the necessity of taking knowledge and applying it to specific social, political and economic needs within the nation. It follows that if we're going to do that better here at home, and we must do so in order to solve our own domestic problems, we are then going to be able to develop other programs (of an international type) of the kind that you have just mentioned.

I do think that the tendency is in that direction and the momentum behind it is the only thing you have to question: can you get sufficient support over a long enough period of time so that you'll be able to develop the mechanisms to make this work effectively?

The Tech: MIT has been trying, as you have no doubt been aware, to shift from financial dependence upon the Department of Defense to dependence on agencies more concerned with urban and domestic problems.

Daddario: Well, of course, this is one of the great problems in our society. It's been unfortunate, I believe, that we haven't recognized this long ago. We have tried to point out in the Subcommittee on Science Research and Development for many years that there was a trend developing. The trend was away from military-oriented research. We indicated the need to develop, in the National Science Foundation, greater influence and more continuous budgetary support over a period of time so that we could get away from the problems that were inherent in the military-supported programs. It was not that we were being prophetic; there were just so many signs available over the course of these years.

The universities are necessarily moving away from military programs because the monies are not available. It's as simple as that. The shame of it is that the adjustments did not take place in a more orderly way, both by the government having better programs and by the universities establishing as a matter of policy how they would handle their relationships with the government so that this transition from military- to civilian-oriented programs, from the military type of agencies to the civilian ones such as the Department of Transportation, would have been much easier and without the jar that has occurred.

The Tech: Getting back specifically to the Congress, there has been some talk about the Congress requiring an analysis group to perform scientific and technical analyses independent of any other governmental agency in order to have some type of capability for evaluating an agency's program without relying on people who are dependent upon that agency. Do you have any ideas on how this could be organized?

Daddario: Yes. In fact, I was an original supporter of that program. It had a very interesting genesis because the idea of developing an early-warning system really came from within the committee structure and its relationship to its advisory groups. Your President, Jerry Wiesner, served on one of those advisory groups. He said one day, "What we need is an early-warning system." From that developed the idea of technology assessment.

We have here an antipathy to science and technology.'

Over the course of years, it has become quite apparent that the Congress needs to assess its programs and especially the technology which is going to be used within the programs so that it will know where it's going, so that it can better analyze what these programs will do, so that it can show the public what courses of action there might be other than the one that is being proposed, and so that a case can be made which will give a better understanding to the public and through which some of the great emotion that is attendant to many of the programs can be in some part lowered.

The SST is a very good example of a program which could have been analyzed. Alternative courses of action could have been discussed and the determination could have been made with real questions in mind rather than some that were more emotional than real. In the process of doing this [determining the SST's fate] great harm was done to the nation.

There are a multitude of examples. The fact that we need so much energy these days, the fact that we cannot build energy plants because people don't quite understand, rightfully or wrongfully what is involved. If these programs had been better understood, if we knew where we were going and why, what the cost relationships were, what the risks and negative side effects might be and how those problems could be cured over a period of time within these programs, the public might be in a better frame of mind than it is at the moment.

The Tech: Do you envision the establishment of something like the Legislative Reference Service of the Library of Congress?

Daddario: No. The proposal is to establish a Technology Assessment Board within the Congress. Your question is a very interesting one as it is proposed that the head of the Legislative Reference Service be a member of the Board, that the Comptroller General be a member of the Board, that there be two members of the House, two members of the Senate, and either four or five public members. The Board would then put together a staff, and have an executive director, who would then farm out research, but the Board would not develop an in-house capability. They would search for places where expert knowledge could be obtained on programs in which the Congress was interested. It would make independent studies and it would also take requests from the committees as to what those committees felt was necessary in order to analyze legislative programs presently being formulated.

The Tech: What budget is projected for such a group?

Daddario: The original proposal is something on the order of $5 million. That is without any question very low, but enough to get it off the ground. Somewhere down the line, to do the work that is necessary, it would most likely require a budget of close to $50 million per year.

The Tech: That would probably be enough money to have a fair number of analyses performed.

Daddario: Yes. If you had a budget of $50 million a year, properly done, and built up to that point as you developed the internal staff, you'd soon have a highly competent capability in the Congress that does not presently exist. They then would have to do an outstanding job in getting their work done in the private sector. If a staff were doing this year after year, spending that kind of money, it would develop a tremendous competence in the nation. In the process of developing that competence, they would also develop confidence in the people's minds about what was going on simply because the work would be given great public visibility through reports, committee hearings, and Congressional debate.

The Tech: Do you see that coming into being in the near future?

Daddario: Yes, I do, because the government has been properly prepared. There have been studies, there have been hearings in the committees, a feeling has developed about it not only in this country but abroad. The Organization for Economic Cooperation and Development [OECD], for example, has just recently held a meeting of the science and technology ministers of all of the OECD countries aimed at the development of a policy on science and technology and in its report stressed the need for technology assessment as an important key to science and technology.

The National Association of Manufacturers has just passed a technology assessment resolution with the idea in mind that the public interest has to be served.

There are technology assessment studies in various of the executive departments. The Office of Science and Technology has just had the MITRE Corporation do a study, which has just been released.

Beyond that, the legislation in the US Congress has reached the point where it has bi-partisan support in both the House and the Senate; the feeling I get is that the Congress recognizes that it must do a better job in this area and that a capability such as this will help the Congress to do just that.

The Tech: What was your view of the level of scientific analysis during the ABM debate? Specifically, the Operations Research Society of America just issued a report which was highly critical of some of the participants in that debate. I was wondering if you followed the debate and if you could say something about it.

Daddario: I followed it, of course, and I think more important than the quality of the debate is that it occurred; the idea that people did get interested in what is happening. One of the great problems has been that the academic community has not gotten itself involved in public matters. There has been a certain remoteness. There will be more and more involvement, and there should be. The SST is an example.

The debate, however, ought to be confined to the facts rather than to the development of an appeal based on emotion. What we need is a way to develop a rational approach to government generally and to members of Congress specifically. A technology assessment capability within the executive and legislative branches of government could help us here. It would allow for discussions earlier in the ballgame and would help to improve the level of debate.

The Tech: Do you see any changes being made in the structure of the Joint Committee on Atomic Energy?

Daddario: As of the moment I don't. The Joint Committee is very well entrenched. I've always felt that government laboratories, not only the Atomic Energy Commission Laboratories, but also some of the other great laboratories ought to be national- rather than sponsor-controlled. They ought to be much more flexible than they are in their capability to meet the demands of our people who are constantly calling for a better application of our knowledge to meet such problems as transportation, deterioration of the cities, environment, law enforcement – all these things.

We are certainly capable of doing this better than we have, but not unless we can make better use of our national laboratories than we have in the past. In a sense this gets back to one of your earlier questions, as such activity could lead to greater interdisciplinary development.

The Tech: The AEC is unique in some ways in that by law it is supposed to regulate and develop the same industry. There are a number of other agencies which are thought to be weak in fulfilling their regulatory function. What do you think the prospects are for splitting some of these agencies into a regulatory section and a development section?

Daddario: The regulatory responsibilities have been passed over by the Congress to the Executive through a whole series of acts over the course of time. It is probably right that that be done. The only problem is that, in the process of doing this, the regulatory agencies have not been given the tools they need to do the job properly. The Food and Drug Administration is, I think, a good example.

One recommendation I would make would be to improve the regulatory organization and give such agencies a better in-house capability. An agency can't regulate as it should unless it's given the kind of independence that will allow it to make independent judgements. It's got to have the kind of internal scientific capability and the ability to develop advisory relationships which will permit it to regulate efficiently.

Now, in the development aspect, how do you separate one from the other? This goes back to your question on the Joint Committee. You ought not allow such authority beyond a certain period, and I understand that is difficult to do. Some guidelines could be established, however, so that it could be determined when such authority should cease and when the overall activity of an agency should be integrated into the nation's private sector.

(Continued on facing page)

a politician discusses the connections

(Continued from facing page)

The Tech: Another public policy issue currently before the Congress is that of developing a task force to deal with the problem of cancer. Representative Rogers [D-Ill.] has sponsored a bill to expand the National Cancer Institute within the National Institutes of Health, and Senator Kennedy [D-Mass.] and the Nixon Administration have gone along with the proposal to set up a Conquest of Cancer agency. I would be interested to hear your analysis of the prospects.

Daddario: I think it's going to be awfully difficult to get the Congress to support an agency which is not set up as Congressman Rogers has proposed because there seems to be a strong feeling about its being structured within the National Institutes of Health. I would think that makes sense. It is most important for us to get at the problems of research in cancer and not get it mixed into medical care and treatment which is important but has different requirements. The program should be as precise as possible with the hope that such vast sums will not be spent over long periods of time with no results.

The Tech: In other words, false hopes might be raised.

Daddario: Yes, and the most important part of it is that it be structured in such a way as to accomplish that objective.

The Tech: Last spring when the Defense Department presented their fiscal year 1972 budget, Dr. John Foster, the Director of Defense Research and Engineering, and a number of others, said that the US was falling behind the Soviet Union in terms of the amount of money being spent on research and development, and that several years from now this might lead to the US falling behind the Soviet Union. Have you gone into this topic?

Daddario: Yes, I have gone into it. Over the past several years, there has been quite an obvious trend of diminishing support for research and development in this country and corresponding increases in the USSR. That's very important from a security point of view, and affects our competitive position in international trade as well. If one considers the efforts that have been made by the advanced industrial countries – the United Kingdom, France, the Netherlands, Finland, West Germany, Japan – you will find that they have spent a larger percentage of their federal budget on basic research than we have. The situation, in both economics and national security, is developing into a more comprehensive one than has existed since the Second World War.

The Tech: To what factors would you attribute this downturn in money going into research and development?

Daddario: It's awfully difficult to specify the reasons, but whenever you run into an economic downturn such as we have in this country now, programs which have tremendous public interest value – the humanitarian programs – take precedence over all other programs, and, even though they are short-range programs, they are very important. I think the big problem is our ability to support those objectives and long-range research and development goals as well.

Somewhere along the line there has developed in this country an antipathy to science and technology. Perhaps that comes about because when we looked to science and technology to overcome problems in the social, political and economic areas of our society the answers weren't forthcoming. All of this has led to less support for science and technology. That is, of course, unfortunate. We're not going to solve these problems unless we have more knowledge, and yet we have not developed an attitude within the nation that recognizes this to be the case.

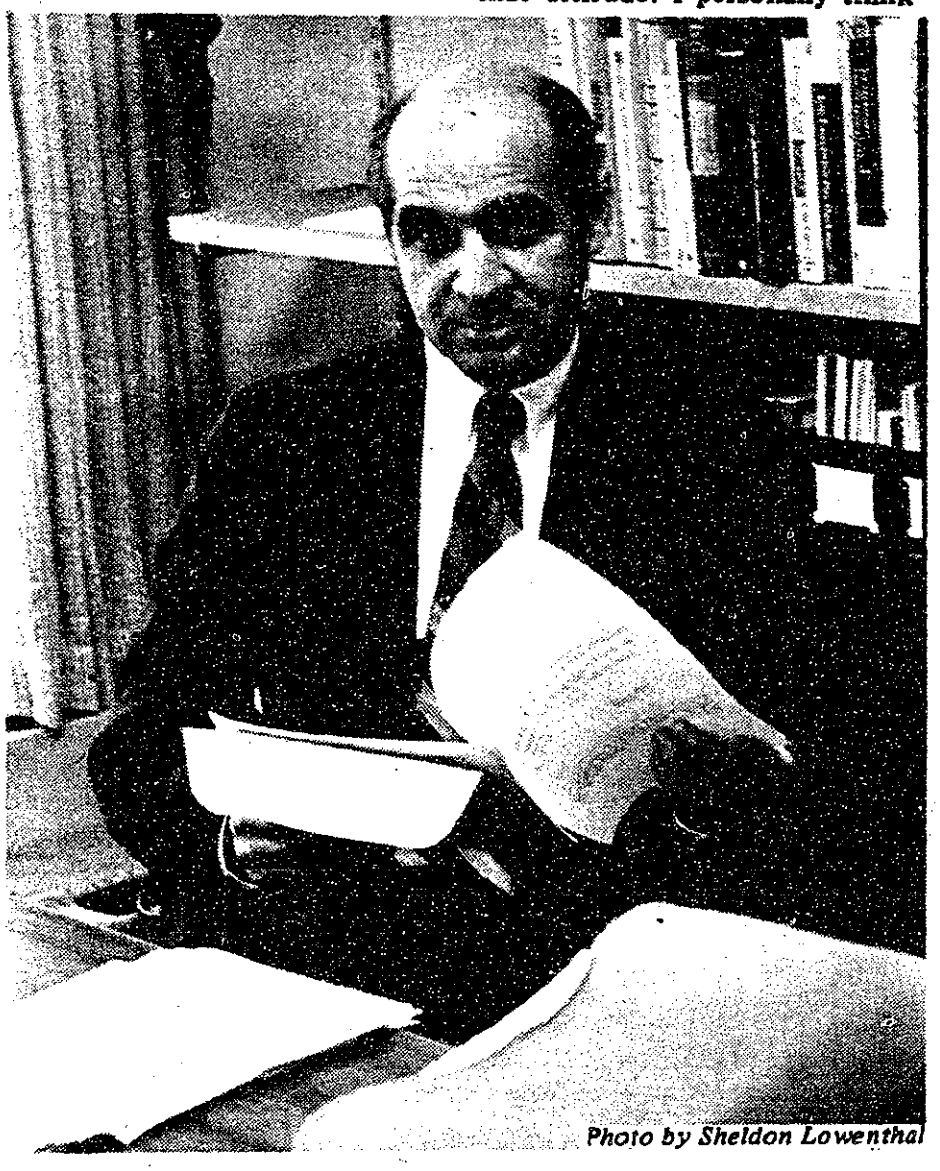

Photo by Sheldon Lowenthal

The Tech: What is your evaluation of President Nixon's New Economic Plan?

Daddario: First of all, something had to be done. The fact that he is taking positive steps is extremely important and appears to have general support within the country. Now, how it all works out is going to be the deciding factor; not a deciding factor as to whether it should be done or not, but as to how effective it will be.

It is unfortunate that we have these conflicts with labor and the President because the economic program is going to need everybody's complete cooperation. It is incumbent on the President as well as on labor to heal this split as soon as possible, because much of the success of any economic plan depends on the confidence people have in the plan itself.

The Tech: Last week the Senate passed a bill to allow a citizen to designate a dollar from his tax payment to pay for Presidential campaigns from 1972 henceforth. Do you have any reaction to this bill?

Daddario: I think it's a good proposal. Obviously, we have reached a time when the cost of a campaign is so great that it makes it difficult for the democratic process really to work. Unless someone has the support of the entire political system or all of the leaders of the political system or he has enough money to buy his way into it, it's difficult to praticipate. Part of which makes our democracy click is the ability of people to get into high public office without that kind of support. Ways and means need to be developed so that the burden of financing political campaigns is taken off the back of the individual candidates.

The Tech: Do you think the President will veto the bill if it passes the House?

Daddario: I have no way of knowing except that the tax program to which it is attached is imperative, and there appear to be other ways of fighting that part of it. My guess would be that he would not. Yet there are many people who feel that the President would veto it and who believe that the tax program is not vital to his economic program. I really can't understand that attitude. I personally think it is.

The Tech: A little while back we were talking about some of the problems inherent in the development of nuclear energy and the side effects from that. What types of solutions do you see to the problem of the US being an energy-dependent society and the ecological problems inherent in that? For instance, the more energy generated, the more pollution produced, in terms of thermal and atmospheric pollution. If we switch to nuclear energy those problems will largely disappear but there is the unevaluated radiological hazard over a number of generations.

Daddario: You have spelled out very well the dilemma we face. Whichever way we go there are problems. We desperately need an energy policy in this country. We must determine not only where energy-producing plants are to be located, as an example, but how buildings are to be air-conditioned and to what extent. There will obviously have to be new approaches to zoning and planning. I would guess that such an energy policy will, during the course of the next decade or two, lead to more efficient ways to use electricity – better light bulbs, more efficient refrigerators – a tremendous development of ways to cut down uses for energy rather than just to keep using as much as we can possibly produce.

The Tech: How did you initially become involved in this area of science and public policy?

Daddario: When I was first elected to Congress in 1958, I saw that the Committee on Science and Astronautics had just been formed. I wanted to be on it because I believed that it had tremendous potential for growth. I believed that because of the experience I had developed in strategic intelligence in both World War II and the Korean conflict. During that period I was impressed with the importance of science and technology, and of the uses to which they were put by the managers and administrators of government and industry. I was tremendously impressed by the strength Germany had because of a technological capability that depended on a relatively small number of people. I have come to believe that this is a very important part of the strength and economic potential of any nation. I have supported science and research in Congress with this in mind and I believe we have improved our national capabilities as a result.

The Tech: In as much as you have had this experience in intelligence, what is your evaluation of the reasons behind the recent shake-up in the US intelligence apparatus?

Daddario: I really don't know. My off-hand feeling is that the President relies so much on the intelligence community for facts on which he must base his decisions that something must have gone wrong. Obviously, he can't make a public statement about what went wrong but he can change things around – and every once in a while he does.

The Tech: The issue of civil rights has arisen with respect to the Nixon Administration. For example, during the May Day demonstrations in Washington D.C. last spring the government apparently made the decision to sweep everybody off the streets; that was one way of keeping the city open yet it apparently violated the rights of all the people there. What was your reaction to this event?

Daddario: It's unfortunate any time individual rights are tampered with. As our society becomes more and more complicated, the importance of maintaining individual freedom grows and those of us involved in public life have to recognize that this democracy of ours will only survive if we are able to develop ways and means through which individual freedom can be protected. The whole problem of maintaining a viable democratic society will ultimately depend on our ability to do this. We cannot expect that we will always make the right decisions and often people will give up their rights in a democracy, not recognizing that they are taking a short-term gain for a long-term loss, as is the case when the desire for law and order becomes more important than individual freedom.

The Tech: Do you think J. Edgar Hoover should be asked to resign as Director of the FBI?

Daddario: Obviously the problem there is that strange one that occurs in almost every society where a man develops such great public support that even the President hesitates to remove him. It boils down in most cases to a practical political decision where there is as much to lose as to gain – and in such instances the chance is that nothing will be done.

The Tech: What are your plans now? I recall that you ran for governor last year. Do you plan to run again?

Daddario: I don't know just what I'll do; it's hard to say. I've never been motivated from the political point of view that elective office is the only place where one can make a contribution. I think that there are many places in this society where meaningful activities can be performed. I am not of the nature where I can make politics a 24 hour-a-day activity, dominating everything. Neither do I believe it ought to dominate.

Again, I think that this is one of our problems. You have some people who make it their only way of life. Politics, on the other hand, is important only in its ability to elect people who will then perform so that you get good government. If you spend so much time at it that it becomes a way of life and the perpetuation of the political party to which you belong becomes more important than achieving good government, you run into trouble.

Somewhere along the line we're going to have to find ways and means, and you mentioned one of them when you asked about political finances, so that we attract good people to run for office who are more interested in making things work than in keeping a political party in power.

The Tech: What is your view of the current scramble for the Democratic Presidential nomination? The party's in debt, yet it seems as if they're chewing up millions of dollars with, at one point, ten people running for the nomination.

Daddario: We're at one of those times. It's hard to say, "There ought not to be ten people running." It would be nice politically if the Democrats could get behind one man. But we're living in difficult times and there are various philosophies chasing themselves around our society and under such conditions many candidates present themselves. The result will be the election of a minority President. There are some people who believe Senator Muskie could have sewn the whole thing up if he had taken more forceful steps in the last year. I doubt that is so.

The Tech: What do you think the effect of the 18-year-old vote will be on the election?

Daddario: It's hard to tell. I would hope that it would be that the 18- to 21-year-old bloc of votes would be a formidable bloc; that there would be great participation. Local elections up to now have not shown that to be the case.

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NOTES

* First term grade reports will not be mailed out until tonight.

* Stan Vanderbeek, film Artist in Residence at the Center for Advanced Visual Studies, will present a lecture and multi-projection showing of past and current works, Saturday, January 15 at 7 pm in 26-100.

* Doctors' theses are due on January 14.

* Would you be interested in helping organize an Open House so that our neighbors and friends can get to know us better? Such an event is being planned for April 15. If you would like to help out call APO at x3788.

* All-Tech Sing will be March 11, 1972. Now is the time to start planning and rehearsing.

* Mass Caucus '72, a statewide attempt to unite the new priorities vote in the April 25 Presidential primary by supporting a single peace candidate, will meet January 15 at Assumption College in Worcester. For information contact Dave Sullivan, DL0178.

* Joseph Rhodes, Junior Fellow at Harvard University and member of the President's Commission on Student Unrest, will be the speaker at The Ethical Society of Boston on Sunday, January 16 at 11 am, 5 Commonwealth Avenue, Boston, The topic will be "Racism: Victorian Response to Change."

The Tech policy concerning Notes:

Since Notes are published free of charge, *The Tech* reserves the right to edit, postpone, or refuse any announcement for any reason.

Only those announcements which are of general interest to the MIT Community will be run. In general, announcements must be from the MIT community. Announcements of events for which there is an admission charge will not be included.

Announcements must be short, with approximately 50 words the upper limit. The deadline for receipt of announcements is 5 pm Monday for a Wednesday edition. This deadline is not relaxable.

UROP

The Magnet Laboratory is a center for research in the science and technology of magnetism and magnetic materials. The laboratory's high-field magnets, producing fields up to 250,000 gauss, are used as tools for research in such areas as plasma physics, low temperature physics, magneto-optics, Mossbauer effect, amorphous semi-conductors, and soft X-rays. Other areas of research include magnetic separation for pollution control, magnetically guided catheters for brain surgery, magnetic levitation for high-speed ground transportation, and extensive research in superconductivity.

Research opportunities for undergraduates are available in several areas. Interested parties should contact the faculty or staff members listed below. Inquiries regarding subjects not listed should be made to Don Stevenson.

Professor Robert Taylor, NW14-2120, x5579, real-time computer programming for data acquisition and display, ALCATOR, a model thermonuclear fusion reactor.

Donald R. Nelson, NW14-5113, x5597, mini-computer programming for support of remote data terminal interfaced dirsctly with experimental apparatus, time-series processing, Fourer analysis.

1971:

A good year... but not for much

Compared with past years, 1971 was quiet: there were no large-scale demonstrations, no sit-ins, no disruptions of "business as usual." A bombing at the Hermann building this fall hardly caused the Institute to miss a step, and the selection and installation of a new president demonstrated, if anything, how smoothly the machinery of the Corporation and the MIT administration can function if allowed to operate undisturbed by "outside agitation."

The most all-pervasive question of 1971 was money: students, alumni and the Institute itself all faced the problem of meeting ever-growing financial demands from shrinking resources. For the first half of the year, the focus in the news seemed to fall on student problems: rising tuition, a tight job market, and decreasing aid from MIT. But by the beginning of the 71-72 academic year, the emphasis had shifted: "LIGHTS OUT" stickers appeared on light switches around MIT, and by the end of the fall term, *The Tech* was running a major series of articles about the MIT budget, plagued by an "operating deficit."

The very absence of vociferous radical dissent was part of the third most important thread in the 1971 news picture at MIT. Student activism had declined rapidly after several years of great intensity. The charismatic individuals who had earned the respect of students and, just as important, the sometimes grudging acknowledgement of MIT administrators were gone, and their once strong following had dissolved so that protests and demonstrations, rather than being an integral part of the year's fabric were never more than isolated incidents. Less militant forms of student action were also in for a decline.

In contrast to this thread of apathy in the fabric of 1971 was the ratification of the 26th amendment and the lowering of the voting age to 18. While the amendment seemed to grant students a new and greater role in government, its impact was lessened by residency requirements which stymied the right to vote by blocking students from registering as voters where they attended school. Massachusetts Attorney General Robert Quinn drew up guidelines which supported the student cause and in Boston, Mayor Kevin White's organization obligingly registered students with no contest, while Cambridge's government fought tooth-and-nail to block the registration of its student-residents.

In some quarters, the apathy of MIT's student body was tied to changes in MIT's admissions policies. Many students and even an occasional faculty member feel that MIT is consciously choosing hard-studying students rather than activists. The Admissions Office reported that applications had fallen this year, and further, that MIT's "yield," the percentage of those accepted who chose to come here, had fallen.

Discussion of the work of the Commission on MIT Education began in earnest in 1971; the Commission itself, however, simply faded away, never issuing a final report. Their work in the area of education was picked up by the Task Force on Education, whose final report, printed in *Tech Talk*, has not yet been fully considered. The Task Force, dubbed the Rogers Panel after its chairman, Professor of Mathematics Hartley Rogers revised the Commission's recommendations and added some of its own. The work of the Commission's Judicial Task Force, loosing its urgency in such a quiet year, has been considered by the CEP, but has not yet come before the full faculty. Student evaluation of instructors and courses, however, seemed to attract wider attention. Much of the discussion was prompted by our publication in late October of an evaluation of the professors of the History Section of the Department of Humanities.

The bombing of the Hermann Building in the early morning hours of October 15 was the most striking single event of the year; but viewed as a part of the year as a whole it dwindles to insignificance. The building was open for work Friday morning, with the exception of the damaged areas. The rhythm of MIT was only slightly disturbed.

The financial pinch

The news about MIT's financial condition would have gone from bad to worse this year except for one thing: it started out worse.

Tuition has continued its relentless increase, and while Vice-President Constantine Simonides has asserted that "tuition as a percentage of mean income has not increased over recent years," each August now brings a tuition increase letter, with next August likely to give MIT $3000 plus status (a category in which it will join that school up the river).

As David Searles put it in the summer issue, "job awards... a euphimism if there ever was one, for these students do not receive an award (as the word is usually understood), nor are they even guaranteed a job." Financial aid officers conceded during the year that if a student limits himself to the suggested maximum of 10-15 hours per week of term-time job at current rates of pay, he cannot cover his "personal deficit." In addition, it was noted that high quality jobs have not been available for at least three summers now: what jobs there are are generally for low pay, and hold little satisfaction for an MIT student.

MIT, as an institution, does have "unrestricted funds" with which it can cover its "operating" gap" and "other demands on unrestricted funds" which add up to the "total demand on unrestricted funds," in what quickly becomes an easily confused question of which funds cover what. MIT showed concern approaching alarm for a quickly increasing gap between certain incomes and certain expenses, mostly connected with the Institute's educational function (as opposed to research which, being self-supporting, is not affected). After much handwringing last spring, the job fell to the new administration, with Chancellor Paul Gray doing the detailed hatchet work needed to bring the budget in line. It was a painful job, but when the dust cleared, the budget looked promising, with its 10% cut in administrative costs, including a whopping 8% in the Dean for Student Affairs office (which supplies many student services that seem to be considered "amenities") and smaller cuts elsewhere.

The Presidency

The search for Howard Johnson's successor had, of course, begun in 1970, but the work was carried out in secret. On February 9, *The Tech* published CJAC's criteria for the new president, a lengthy document covering all possible characteristics, but revealing very little. From that point on, news about the selection process was largely speculation, with then-Provost Jerome Wiesner an ever-present figure. The issue dropped from view until Friday, March 5, when the announcement was made that the Corporation had named Wiesner the new president and had appointed Paul Gray to the newly revived post of chancellor. (*The Tech* was actually the first to break the story, beating MIT's official announcement with an early morning extra.)

Speaking that day, president-elect Wiesner stated that he didn't "see call for any change in direction." He and the chancellor, Wiesner noted, would "share the load." It follows that neither of the two new appointees announced plans for any radical changes in policy, personnel or structure, and in fact, their statements were generally no more than re-iterations of MIT's policies. The new administrators quickly dropped from prominence as the Institute continued functioning much as it had in the preceeding months.

Closely tied to the story of Wiesner's selection as president, although widely separated in time, was his formal inauguration on October 7. After reporting a series of public appearances by the new executive, *The Tech* focused on the two weeks of activity leading up to his inauguration — from an Institute-wide reception in the Great Court to the inaugural program itself. The Inaugural Events — a sort of MIT teach-in which included appearances by folksinger Pete Singer and poet Archibald MacLiesh — tried to examine, by means of panels and discussions, areas where MIT had already begun working and which were likely to grow in importance in the next few years. Professor of Electrical Engineering Peter Elias termed it a "celebration" focusing on "self-assessment and self-projection." The panels were poorly attended and seem to have had little effect on the Institute. The climax of the events was the inaugural program itself, featuring Wiesner's speech. In a fitting summary of the preceeding two weeks of introspection, Wiesner spoke: "[MIT's] first responsibility... is to learning itself. Our second responsibility, since ours is the world's foremost institute of technology, is to understand what our learning and discoveries may do to man and society, and to transmit that knowledge to new generations..." With that, the excitement died, and business as usual continued.

The decline of student activism

The demise of vociferous student activism at MIT was one of the most pronounced trends of the year. The charismatic figures of earlier years were gone, and those activists who remained applied their efforts along more traditional lines. The selection of MIT's new president was characteristic of this decline: student input was token at best, and very few undergraduates seemed to care who the Institute's new chief executive would be.

Student government, already a very weak entity, for all practical purposes vanished during the months of 1971. To be sure, the organization was still there, with office-holders and a budget of its own, but the the core of the HAC Constitution, the representative government, had collapsed. A collection of semi-independent committees continued to operate, carrying on many of the more important functions of the Undergraduate Association, but in spirit it was dead. Except for the needs of the MIT administration for token student representatives and token student power in certain areas, the office of the UAP itself seemed meaningless.

Education at MIT

1971 was a so-so year for educational reform, lacking both dramatic developments and any clear indicators to point the direction future educational growth will take.

The major item, of course, was supposed to be the report of the Commission on MIT Education. Released late in 1970, the document was the result of a year of review by a "blue ribbon" student/faculty committee. By the time the report was released, though, the interest in education that had helped to start the Commission going had slumped, and the response from the community was dissappointingly slight. Undergraduates might have been aroused by bold new suggestions for grades or requirements, but were too unfamiliar with the educational issues involved with the Commission's actual report to be interested. Faculty members reacted skeptically to the proposals, and administrators wondered whether the results had been worth the money (upwards of $240,000) spent.

The Rogers Task Force was set up in the spring to attempt to develop some proposals the faculty could act on, using as its foundation the Commission's report. The Task Force was comprised of faculty members only, and met over the summer to formulate its proposals. Though the fundamental issues were agreed on during the summer, no report was released until late in the fall term. The faculty response was rather ho-hum, so dispirited that it was hard to tell whether any of MIT's professors had even read the document, let alone formulated any opinions. The Student Committee on Educational Policy (itself all but dead from student apathy) ignored the report, and it's safe to say that most students did the same.

One of the more exciting moments was the circulation of student evaluations of history professors here. Though eye-catching and not without some student appeal, we wondered whether the results were worth the student effort invested. Though much less controversial, the report released by the undergraduate chemistry honorary reviewing that department's notorious lab sequence was probably a much more constructive attempt at student participation within MIT's educational process.

*Compiled by Lee Giguere, with Paul Schindler (*The financial pinch*), and Alex Makowski (*Education at MIT*).*

record:

Der Rosenkavalier

By Elizabeth Vogler

Richard Strauss, Der Rosenkavalier, Christa Ludwig, Lucia Popp, Walter Berry, Gwyneth Jones, Vienna Philharmonic Orchestra, Leonard Bernstein. Columbia.

For music lovers unsympathetic to the last gasps of romanticism at the turn of the century, Richard Strauss' rendering of the heroic spirit in his tone poems, and of sensuality and/or depravity in the operas, seems to have a certain aloofness about it, an icy detachment to the emotional excess. Salome danced seductively before her father to induce him to behead a saint that she might kiss his dead lips; the famous musical accompaniment has a slick, calculated quality, even in the reeling accelerandos, that to a degree negates the intended effect of moral recklessness. Old folks night in Sodom and Gomorrah, H. L. Mencken characterized the music's impact.

In 1910, Strauss' music changed. Deciding, after *Elektra* (which had followed *Salome*) that he now wished to write a Mozartian comedy, he and *Elektra*'s librettist, Hugo van Hoffmanstall, arrived at a witty, subtle satire of Austrian aristocracy of the preceding century that was as well a gentle Viennese statement of human passions.

Here, the ambivalence of Strauss' music worked *for* the operatic characterizations; the coldness at the heart of sensuality (in *Der Rosenkavalier*, a considerably milder sensuality, in upper-class amours, than the bloated obsessions of earlier works) in the music complemented perfectly the complex natures of the Marschallin and the adolescent she has taken as her lover; the more stereotyped male roles were given an appropriately sardonic accompaniment.

Strauss' musical writing was beginning in *Der Rosenkavalier* to move away from its heritage of Wagner and Liszt. The part writing became more complex, the romanticism was being superceded by a dry classicism that would culminate in later works: the *Second Horn Concerto*, *Metamorphosen*. In *Der Rosenkavilier*, the turning point, what had sounded false gained poignancy.

The new Columbia recording:

The stereo era has with only mixed success met the challenge of recording the human voice and balancing it against an orchestral accompaniment. Though recordings of choral works almost always do not satisfy, single voices have often enough been placed on discs fully modulated with a fully modulated orchestra so that one knows the feat can be accomplished. (London, which prides itself on its operatic catalogue, often does surpassingly well in this regard.)

Columbia has somewhat less experience in operatic recordings; they seem so proud of this release that they have placed the set's four records in plastic sleeves — an unprecedented step for them (but the set is packaged in a glorified shoe box, rather than a hinged container). Columbia's *Der Rosenkavalier* favors the orchestra with a crisp, transparent sound (whatever that means) that Columbia engineers became partial to a few years back, as in Boulez Conducts Debussy Vol. 1. The texture of the score is recorded with great clarity.

But the voices do not always seem distinct from the huge orchestra, which frequently drowns them out, and the same recording technique that makes instrumental timbres so clear for some reason tends to obscure human diction. With repeated hearings, though, this reviewer found it easier to make out the singers' voices.

And the performance:

Leonard Bernstein seems to behave himself in Vienna. His recordings with the New York Philharmonic are often as not interesting, if only for the few nuances in a score that Bernstein usually finds and emphasizes; but the problem is that Bernstein, as a name conductor, must record war horses.

In Vienna, Bernstein has recorded music he has a special affinity for: terminal romantic works, scored with great complexity for huge orchestras. His conducting of the Vienna Philharmonic (the world's greatest orchestra, perhaps tied with Berlin) is meticulous, managing to integrate satisfying musical wholes from a concentration on measure-by-measure detail. His decisions on, and control of tempi in, the fourth song of Mahler's *Das Lied von der Erde* are superior to those of Bruno Walter.

The Vienna Philharmonic plays superbly.

The leading roles are filled from the group that has collected around Bernstein. Christa Ludwig is fine as Marschallin, though not quite the equal of Regine Crepin in the recent London recording. Walter Berry is a satisfyingly boorish Baron Ochs.

In fact, the only disturbing voice is that of Gwyneth Jones as Octavian (the Marschallin's adolescent lover is sung by a mezzo-soprano). Assuming that Jones is not overplaying the role, that her unstable voice is not meant purposefully as an interpretation of the inexperienced youth, one is left with what is simply a disappointing performance. The voice, stable in mid-range and -volume, becomes painful in the high register, in large upward intervals. Jones sometimes avoids the usual fault of rising like a siren to the upper note, but invariably, having successfully arrived, she begins with an unpleasantly piercing head tone that broadens to what must be a half note vibrato.

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Not much new information is revealed:

(Continued from page 1)

and research, provides some idea of how professors' time is spent, department by department, though the Profile gives the *caveat* that these figures are approximations by department heads, involving "assumptions about what is instruction and what is research, a distinction which is often quite ambiguous." According, then, to these figures, Architecture and City Planning, with 82 percent of professorial salaries (and, by assumption, time) devoted to teaching, is high. Electrical Engineering professors devote 55 percent of their efforts to teaching, Physics professors 48 percent, tied with Humanities; Psychology, at 39 percent, is lower than all departments but Nutrition and Nuclear Engineering, both with 33% devoted to teaching. Averaged over schools, the School of Humanities and Social Science spends 50% of its time (and money) instructing. Science dedicates 49%, Engineering 56%.

Section four of the Profile covers research funding. Leading sources of money in fiscal 1969 were the Atomic Energy Commission ($9,299,000), National Institute of Health ($7,565,000), the Navy ($6,955,000), NASA ($6,127,000), NSF ($6,012,000), the Air Force ($5,538,000), the Army ($2,328,000), and the Advanced Research Projects Agency of the Department of Defense ($2,019,000). The Department of Defense provided 28% of the School of Engineering's research funding, 15 percent of Science's. 62 percent of Electrical Engineering's research support came from the Pentagon, 56 percent of research funding for aero and astro. 17 percent of Electrical Engineering's funds came from non-federal sources, and only one percent of money for Physics, which was heavily supported by the Atomic Energy Commission and the DOD, with about a third of its funds from each. MIT met about four fifths of its budget through federal funds. Biology received 73 percent of its funding from Health, Education, and Welfare.

The seventh, last, and longest section covers undergraduates. It includes the usual graphs of high school performance that are shown to arriving freshmen in Kresge Auditorium, and does not fail to mention the pleasantly astronomical scores entering freshman of a fews years ago achieved (on the average) on their *verbal* Scholastic Aptitude Tests.

But the section contains data in abundance even more remarkable than in previous sections. Most of the material here is taken from extensive studies made for the admissions office in recent years by Wayne Stuart, who compiled the Profile.

Among the undergraduate data:

The Profile provides a chart listing schools to which 20 or more persons applied, while simultaneously applying to MIT; in 1967, RPI heads the list; 576 persons applied to both MIT and RPI that year, of some 41% of whom MIT and RPI made the same decision on offering or not offering admission. MIT was willing to accept one person whom RPI rejected; RPI offered

but some interesting relationships are

admission to 340 persons whom MIT rejected. Of the 193 who were accepted by both schools, 141 chose MIT, 16 chose RPI, and 36 decided to attend neither.

The figures for the second-placed school are not quite as rosy: 524 persons applied to both MIT and Harvard in 1967, of whom 88 were accepted by both, 209 rejected, for an agreement of 56%. But MIT offered acceptance to 221 whom Harvard spurned, while Harvard was willing to admit six persons whom MIT rejected. And of those accepted by both, eight chose MIT, 72 Harvard, and eight neither. MIT and Cal Tech made the same judgement of common applicants 76% of the time, but those admitted to both schools preferred Cal Tech by a margin of two to one.

The Profile reports that the Freshman Advisory Council sent a questionnaire to freshmen in 1964-65 and the two following years, and in 1969-70, asking that class to report how many hours they spent per week on homework assignments. The percentages of freshmen responding are almost more interesting than the responses themselves; 85% answered the first year, 91% the second, 72% the third; only 43% bothered in 1969-70. The Profile, though, indicates that the figures should be "representative, if not exhaustive." The first year, freshmen devoted 29.5 hours weekly to homework. Freshmen of succeeding years grew increasingly indolent; in the final study in 1969-70, the figure was down to 24.8 hours, while their average course load had *increased* in the time period of the study by five units.

Other studies indicate that freshman attendance at lectures declined two percent per week in 1968-69; sophomores peeled off at 2.7 percent per week. The freshmen attendance level first term ranged from 81 to 86 percent, but dropped to 62 to 74 percent the second. Pass-fail (then in its first year) did not affect lecture attendance; rates of freshman attrition for 1964-65 were essentially the same as the rates under the pass-fail experiment. Further, in the first year of pass-fail, 8.03 (a sophomore subject) was more poorly attended than freshman physics subjects.

The Profile analyzes undergraduate grades separately for first and second terms. 19% of undergraduate grades were A's in the first term 1960-61, 23% the second term. By 1968-69, after steadily increasing percentages, A's represented 39% of the grades the first term, 40% the second. That second term, 35% of the grades were B's, 15% C's, the remaining 10% failures or minimum passes. While the Institute had moved in that decade from C-centering to B-centering, the percentage of failures had remained roughly constant.

The average cumulative average (cum) for a term's course work was a 3.2 in 1956-57, and had risen to a 3.9 by 1968-69. In the last year before freshman pass-fail, freshmen averaged 3.8, sophomores and juniors 3.9, and seniors 4.0, reflecting the tendency, noted by the Profile, for course grading to become increasingly lenient as more advanced material is taught.

The Profile is intended as a convenient information source for anyone wishing to prop up a theory. Thus it refrains from drawing conclusions of its own, beyond simply pointing out unusual deviations from average, or mentioning a nearly incontrovertible conclusion. The data is organized in what was felt to be the most convenient and valuable manner.

The Profile is not *Everything You Always Wanted to Know About MIT But Were Afraid They Wouldn't Tell You.* They assert that they were afraid you weren't interested. None of the data is in itself particularly startling.

But the Factual Profile of MIT is in a way provocative. On examining the Profile, one begins to dimly perceive MIT from a financial rather than an educational viewpoint. One studies several pages that indicate strong variations in the priorities each department attaches to research as opposed to teaching, and in another section, one notes the way the department budget is pieced together from sponsored research and general funds. Further, there are variations in the way the teaching and researching is divided among the professorial ranks and instructors in each department. One begins (though only dimly) to see how research (and thus, the interests of government agencies and to a much lesser extent, large foundations and corporations) has influenced the growth and structure of each department, and at least indirectly influenced the commitment a department can and will make to education.

But the growth is seen only in an implicit form, as it were: One senses relations between research, funding, and teaching. What one misses is the development in time. Research and instruction are interrelated in a complex way, but which forces created and shaped the post-war MIT?

Thinclads crush WPI, Brandeis for 3-1 mark

By Mike Charette

The indoor track team raised its record to 3-1, as it walloped Brandeis and WPI, 79-38-17, at Rockwell Cage on December 11. MIT showed all-around depth in both track (39-30-13) and field (40-8-4) events.

Scott Peck '73 achieved two first places by leaping 21'9" in the long jump and 6' in the high jump. Brian Moore '73 was also a double winner as he threw the 35-lb. weight a distance of 55'10" and the 16-lb. shot a hefty 48'9" John Pearson '74 took second in the weight throw while freshman Gary Wilkes was third in the shot. Junior Walt Gibbons returned to action after nursing an injured ankle and placed second in the high jump with a 5'10" bound.

Co-captain Dave Wilson '73 and Ed Rick '72 together swept the pole vault (by reason of their opponents' failure to clear 10'6") with springs of 14'6" and 12'6" respectively. Wilson failed three attempts at 15'.

Bob Tronnier '73 outclassed the competition as he zipped to a 5.8 clocking in the 45-yd. high hurdles, coming within 0.1 second of the Cage record. Craig Lewis '72 led the field of two-milers for the entire race as he ran a good 9:55.5. Improving frosh Lynn Davison crossed the finish line 25 seconds later in fourth place.

The one-mile run proved to be one of the most exciting events of the afternoon, as Bob Myers '72 took first place after a real battle. The story began after eight laps when junior Walt Hill took the lead from Myers, after both had set the pace. Myers, sufficiently inspired, then charged past Hill to take the lead for good, and it appeared that Walt had second place securely. Unfortunately he was not aware of Brandeis runner Frank Sardina's burst of speed to make up a 20-yd. deficit, and Hill was nipped at the finish line by a yard. Walt's time of 4:34.5 should bode well for MIT's long-distance future.

In the middle distances, Tom Hansen '74 and Bill Leimkuhler '73 took second and third respectively in the 600-yd. run, while senior Chip Kimball crossed second in the 1000.

The two MIT relay teams scored their first double victory of the season with time of 3:41.2 in the mile and 8:36.8 in the two-mile.

SPORTS

Defense fails in hockey loss

By Rick Henning

Had the puck not taken a bad bounce and fooled goalie Mike Schulman in the opening of the first period, had a third period shot from inside ten feet not just cleared the Queens' goal, had the defense been tighter, the story might have been different, but none of these things happened, and instead the MIT hockey team found themselves on the short end of a 5-4 score against Queens College in a game marred by fights.

The Techmen fell behind in the opening moments as a bouncing puck seemed to handcuff goalie Schulman. Queens moved to a 2-0 lead when, at 3:11 of the first period, their center was allowed to stand unmolested in front of the Tech goal. The result was a centering pass slammed home from point blank range.

After this second lapse, the Engineers' started to put it together, as excellent goaltending combined with good offensive pressure tied the game before four more minutes elapsed. Tech first scored on a great rush which culminated in a twenty-foot scoring shot by George Kenny at 4:35. Later, close forechecking allowed Jerry Horton to steal the puck for a breakaway goal from the left side at 6:11.

Photo by Dave Tenenbaum

Tech goalie Mike Schulman '73, goes to his knees to cover up on a loose puck beside the MIT net as defensemen Tony Luzzi '74 (crouching), and Rich McLaughry '73, help guard the Tech goal.

There was no more scoring until the third period, but in the meantime other activities of a violent nature were taking place. The referees seemed to lose control of the game early. Several elbowing calls were missed, resulting in the players "taking the law into their own hands." Several fights resulted; one, involving Bob Chase of Queens and Tony Luzzi of MIT, ended in ejections for both players. After this the game calmed down somewhat.

In the third period, Tech moved out to a 3-2 lead on Horton's second goal on a strong shot after a good pass from right wing. In the middle of the third period the Tech defense seemed to evaporate. Queens scored twice, at 10:19 and 12:56

A charging penalty at 16:03 gave Queens a power play advantage which they put to use as the center scored to make the final tally 5-4.

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