The Tech.

VOLUME 91, NUMBER 46 TUESDAY, NOVEMBER 12, 1971 MIT, CAMBRIDGE, MASSACHUSETTS FIVE CENTS

CCA endorsees take Cambridge elections

Candidates endorsed by the liberal Cambridge Civic Association (CCA) swept into control of the City Council and School Board in last week's elections.

Released about midnight Tuesday, the final count of ballots under the proportional representation system gave the CCA five representatives on the nine-member council: incumbents Barbara Ackermann and Robert Moncreiff, former School Board member Francis Duehay, and two blacks who are newcomers to local politics, Saundra Graham and Henry Owens.

Also elected to the Council were incumbents Walter Sullivan, Mayor Alfred Vellucci, Thomas Danehy and Daniel Clinton. All are established Cambridge politicians and ran as independents.

On the School Board, CCA candidates David Wylie (an incumbent), Peter Gesell and Charles Pierce captured three of the six seats. They are balanced by independent incumbents Donald Fantini, James Fitzgerald and Joseph Maynard.

The balance of power on the School Committee will thus be held by the mayor, who is its chairman by virtue of his office and is a voting member. Since the City Council selects the mayor from among its members, and since the CCA has a majority there, it is expected that the mayor will be a CCA endorsee. A CCA majority on the School Committee is thus assured.

Aside from election of a mayor, the new Council's first order of business will likely be the firing of City Manager John Corcoran, who was appointed to replace City Mgr. James Sullivan two years ago in what was widely regarded as a political maneuver by the outgoing Council. All CCA endorsees have pledged to remove Corcoran. His ouster would also endanger the posts of many lower officials appointed at the city manager's discretion, including the rent control administrator, who the CCA feels is biased in the landlords' favor.

A major appointment will also be a primary issue in the School Committee, which last year suspended the rules in order to elect Frank Frisoli school superintendent over several more qualified but non-local candidates. The CCA candidates elected have vowed to remove Frisoli.

The CCA also gained a five-of-nine majority in the Council after the previous election two years ago, but two of its endorsees – Edward Crane and Thomas Coates – broke with the others on the city manager question. Crane did not run again this year and Coates, who lost his endorsement, was defeated in favor of liberal (Owens) and radical (Graham) black candidates. (Graham is the only new councillor who could be described as anything left of "liberal.")

Incumbent Sullivan received over 4,000 first place votes, more than a thousand ahead of his nearest competitor. Duehay placed ninth, beating out independent moderate Leonard Russell by less than 100 votes.

MIT budget cuts upcoming

By Paul Schindler

In a series of related moves last week, the Wiesner-Gray administration acted to ease MIT's fiscal problems. On a total Institute budget of some $220 million dollars, cuts totaling $4 million are being proposed.

In actuality, according to Chancellor Paul Gray, the cuts are on an even smaller base, as they will not have any effect on the Lincoln Labs, the Draper Labs or on-campus research, which account for about $150 million of the total budget. "The labs are almost entirely concerned with [sponsored research]," said Gray, "and as such, bring in enough money to pay their own direct costs. These areas are not subject to major cuts."

The other $70 million dollars in the general Institute budget is subject to pruning, however, and the administration intends to cut where possible in order to reduce the drain on unrestricted funds generated by recent deficits. "We're going to halt the growth of the deficit, and if possible, reverse it," said Gray.

In three successive days, Chancellor Gray:

1) Instituted procedures for special review prior to appointment of new or replacement personnel.

2) Sent memos to the Deans of all five schools, asking that they try to meet specific budget cutting targets

3) Spoke to the Faculty Council on the general budget, the target cuts, and the rationale behind them

All of these moves are, according to Gray, made in the realization that "the Institute is in unsettling financial straits. We are nowhere near as badly off as many other private universities in this country." Gray also noted that he and President Wiesner are in constant consultation on such policy considerations as the location, nature, and extent of the cuts to be made.

Further analysis of Budget information appears on page 4.

The first action, a memorandum to all department heads and lab directors began by stating that forecasts of "future revenues make it imperative that we intensify our efforts to reduce our costs."

Feeling that an across the board freeze might cut into the vitality of educational programs, or undercut equal employment opportunities, Gray indicated preference for a system of review of new or replacement positions.

The memo made clear the administration position that this is a review of positions, not persons, and will be undertaken only at the time a new post is created or an old one filled. Requests for replacement appointments will now have to be accompanied by a brief justification of the need for such a position, which will be processed as quickly as possible by a special committee of the Academic Council (the Academic and Administrative Appointments subgroups).

Chancellor Gray, in discussing the memo with *The Tech*, voiced the hope that the Institute's total employment can be reduced "by attrition. We don't want to let anyone go." Some success may be achieved in this area, if one compares the 3% target for cuts with the roughly 15% annual trunover in non-academic personnel.

The four million dollar cut in

(Please turn to page 3)

Chomsky: Papers bare 'a picture of deceit...'

By Seth Racusen

Professor of Linguistics Noam Chomsky assailed government secrecy and urged anti-war sympathizers to re-examine their motivations in a speech to a receptive audience of 250 at the First Unitarian Church, Cambridge, Wednesday night.

Arnold Tovell, Editor-in-Chief of the Beacon Press, publisher of the Senator Gravel edition of *The Pentagon Papers*, in a speech preceeding Chomsky's, reviewed the publication of the *Papers*. The speeches are part of a lecture series sponsored by the United Ministry of Harvard and Radcliffe.

At the opening of his address, Chomsky considered the issues involved in the release of *The Pentagon Papers* its contents, and American objectives in Indochina.

"Why is America anti-communist?... Why is America anti-facist, but friendly to facist Greece? What is the principle that causes these decisions?" Chomsky answered his questions by explaining that American foreign policy is determined primarily by economic interests and that "policymakers often get caught up in their own fantasies," such as the decision to regard communism as a monolithic dragon, and treat the Soviet Union, North Vietnam, and mainland China as one.

Chomsky discussed the insights into the mentality of policymakers which the papers reveal. "It's a picture of deceit...and utterly callous regard for the victims of American terror." He dismissed America's justification of its Vietnam policy – that it is saving Vietnam from the clutches of Red China

(Please turn to page 2)

Tutors link living, learning

By Alan Precup

If you walk over to Turoring Plus at 183 Harvard Street in Cambridge some afternoon, you'll probably find some 25 children there, making candles, playing the piano, coloring, sawing and hammering in the workshop, or browsing through the small library area.

While it seems very disorganized, this is part of a well thought out approach to learning. According to a Tutoring Plus pamphlet, "The idea is to expose the student to the world, show him interesting phenomena and situations in the physical world of interaction between people, and allow his natural curiosity to motivate the student to learn. Make the learning experience part of living instead of something that is done only with dull books and punitive tests."

The tutoring itself is done on a one-to-one basis. This is the best way for tutors and tutees to become friends, and as Mrs. Mae D'Antona emphasized, "You have to be a friend before you can tutor effectively."

Tutoring Plus, aimed at kindergarten through sixth graders, was formed by the parents of the Area 4 community eight years ago. The tutoring is completely voluntary; the program relies on MIT and Wellesley students as well as neighborhood working people for manpower.

The program is run by an Administrator, who is chosen by the supervisors who, like Mrs. D'Antona, are area parents. Last year the program was able to match some 150 tutor/tutee pairs. The tutors are expected to devote 3-5 hours per week to their students. While this time may be spent on strictly academic tutoring, it often takes other forms. Music, sewing, cooking, horseback riding, visiting Logan Airport, going to see the eclipse at Cape Cod, and candy-making in McCormick Hall's Country Kitchen are some of the activities that have occupied tutors and tutees.

It's not as disorganized as it looks here; Tutoring Plus seeks to integrate living and learning rather than to segment them as most schools do.

Photo by Sheldon Lowenthal

Clearly, the child benefits from the experience. The tutor benefits in a different sort of way. As one tutor wrote of his experience in the program: "The greatest benefit is the mutual understanding that is derived from such an experience, especially since our backgrounds are quite different. I learned much from my tutee, his family, and his friends."

Unfortunately, Tutoring Plus is limited by a shortage of tutors. If you think you might have 3-5 hours (the time it takes for the averaged-sized problem set) to spend with a tutee, talk to some of the tutors at their meeting in the Student Center Monday, anytime between 5-9.

Lettvin looks at Faust; modern administrators

By Storm Kauffman

As chief speaker at the Tuesday "Faust and Faustian Man' Technology and Culture Seminar, Professor of Biology and Electrical Engineering Jerome Y. Lettvin presented a light but not frivolous criticism of Goethe's work and an analogy of his own about an MIT faculty meeting.

Prof. Lettvin began with the examination of some passages and of the character Faust as an administrator. Faust is not a man of knowledge, "he is a book reviewer. He never really does anything." Lettvin likened the takeover from Faust by the Homunculus to administrators' present use of the computer.

The standing-room-only crowd was then entertained by Prof. Lettvin's piece, set in Kresge, in which Faust is an administrator, Mephistopheles is an army officer, and Wagner is a provost-like official. Mephistopheles appears in three forms to make proposals and convoluted speeches on infinity, environment, and the homunculus. A soliloquy by Faust seems to warn of the social consequences of progress and so he utters the fateful, final words, "Stay awhile, you're so beautiful," likely referring to the status quo which all administrators prize. Before he can sink into hell, he is rescued by angels in the guise of the Board of Trustees.

The "stay awhile" line led to the subject of time and its reality. Prof. Lettvin, a former "shrink," to use his own words, has had experience with hallucinating patients, who appear to have their dreams instantaneously. Also, he has seen cases of Korsakoff's psychosis, caused by alcoholic or carbon monoxide poisoning, in which the individual can form no new memories. Any event longer than three minutes in the past is forgotten. This has led Prof. Lettvin to the conclusion that

(Please turn to page 2)

Chomsky: Papers bare 'a picture of deceit...'

(Continued from page 1)

— as "shocking ignorance" and the suggestion of one of President Kennedy's aides in 1961 to drop leaflets on North Vietnam to keep up the morale of the North Vietnamese as "remarkable foolishness."

The Pentagon Papers also serve to fill in gaps in historical knowledge and exposes the misleading nature of American policy statements since 1945, according to Chomsky. North Vietnamese aggression into South Vietnam was used as a basis for American intervention before the Defense Department knew of any North Vietnamese being in South Vietnam: "One battalion was detected April 21, 1965." The Tonking Gulf Resolution of 1964, another justification of Vietnam policy, was requested by President Johnson before the Pentagon knew if an attack had in fact taken place. The witholding of this information has vastly affected public opinion and government policy: "To have known this back then would have saved many victims."

"Vietnam protest re-opened the minds and consciences of the public. The release of *The Pentagon Papers* was a result and hopefully will be a cause." Chomsky stated that Nixon's policy to withold information from the public and Congress is more stringent and misleading than that of his predecessors.

However, Chomsky was still skeptical on opposition to the war: "The difference between hawks and doves until recently was that hawks were in favor of the war and doves were too, but felt it couldn't be won... Some Americans have turned against the war because it's costing too much. If that's the only principle upon which people base opposition to the war, then *The Pentagon Papers* might well be buried in the dust."

Tovell preceeded Chomsky with a presentation of the history behind the publishing of *The Pentagon Papers* by the Beacon Press.

Tovell stated that the government infringed on the freedoms of speech and the press when it prevented *The New York Times* and other newspapers from publishing the papers for 15 days last June. It was during this time that Senator Gravel read *The Pentagon Papers* into the official record of his subcommittee and it wasn't until June 29 that he actively sought to have it published.

Leonard Rodberg, an aide to Senator Gravel, contacted Tovell late in July and Beacon Press announced August 17 that it would publish the papers. Two representatives of the Defense Department visited Beacon Press one month later, a move which Tovell interpreted to be an aide to the DOD in its censorship of its own version of the *Papers*.

Wiretaps stall investigation

By Seth Racusen

Illegal and alleged illegal wire tapping are the key issues in two local cases evolving from the investigation of the Pentagon Papers.

The subpoenas served by the Boston Grand Jury to Professor of Linguistics Noam Chomsky and Harvard Professor Richard Falk were quashed Tuesday. The cases against Chomsky and Falk were dropped when the government failed to deny it had used illegal wiretapping in its investigations.

The case against Dr. Howard Webber, director of the MIT Press, and Leonard Rodberg, an aide to Senator Gravel, was recessed again until today. The first recess had followed an appeal of Judge Garrity's decision to deny Senator Gravel's motion to stop the subpoenas of Webber and Rodberg.

The second recess, lasting one week and ending today, was to allow further investigation of an appeal by the defense, although witnesses could not be questioned during this time. The appeal was based on allegations of illegal wiretapping which the government has yet to confirm or deny.

Chomsky contends that the government is fishing for a case. He explained that the entire investigation is based on an espionage act which states that it is unlawful to aid a foreign power or injure the United States in any way, or to endanger national defense. Chomsky argued that Ellsberg's act did not aid a foreign country or injure America, but that it helped America. It did not endanger the national defense, but rather spoke out against American agression, an act protected by the first amendment.

The grand juries in Boston and Los Angeles are calling as many witnesses as possible in the hopes of putting together a case and indicting many of them on conspiracy charges, according to Chomsky. "There's an element of absurdity in the government's efforts to bring indictments— it's trying to punish individuals for exposing the government's crimes."

Much of the controversy surrounding the publication of the Papers is the result of claims of free speech based on the first amendment, which reads: "Congress shall make no law... abridging the freedom of speech, or of the press..."

China watchers meet; expanding role topic

Leading China scholars will address the issue of China's status as an emerging power in a day-long series of seminars tomorrow, jointly sponsored by the Center for International Studies and the Chinese Students' Club.

The "China Symposium," which will open at 10:30 in 10-250, features discussions on both internal Chinese affairs and her relations with the US, as well as films on the country.

The first seminar at 10:30 is entitled "Medicine and Science" and features Paul White and Ethan Singer. At 1 pm, the topic will be "Trends in Chinese Society," with Ezra Vogel and Thomas Bernstein. This will be followed at 3 pm by "US-Chinese Relations," with Ishwer Ojha, Daniel Tretiak, Ying Mao Kaw, and Peter Tang.

The film "China" by Felix Green, as well as several other films, will be presented at 12:30, 3 and 6 pm in the lecture hall of the Center for Advanced Engineering Studies, (Room 9-150) as another aspect of this seminar.

The concluding event will be a lecture at 8 pm in 10-250, with the widely respected correspondent Stanley Karnow of the *Washington Post*, speaking on the topic "China After the Storm." As a recent visitor to Red China, he will have a refreshing perspective to present.

There is a widening interest in accurate information about the Chinese mainland due to China's expanding role on the world stage. Her recent admission to the UN, and the unexpectedly decorous behavior of the delegates who have arrived to date indicate an increased desire on Peking's part to take part in meaningful diplomatic exchange with this country. Now, more than ever before, understanding of this Oriental Giant is important.

For further information, contact William Ku (661-3358).

Lettvin and Faustian man

(Continued from page 1)

there is no subjective "now," only the specious present which is the temporal order of experience. An extension of "now" as Faust wished could lead to the difficulty of "unendurable pleasure prolonged for an indefinite time."

Continuing, the point was made that we always think ahead of the actual now; in other words, anticipate our actions. We can recall buried memories immediately but it takes a good while to describe them to someone else.

The questions at the end led to a deeper criticism of Goethe, especially when a German Professor protested that such remarks against Goeth's work would make it difficult to get students to read it.

Prof. Lettvin replied with a deeper look at the Goethe who wrote *Faust*. At the time when Part II was written, he was old and carping about disagreement with his theories. Faust is "overly contrived: an overlong practical joke." Granted, Goethe was a scholar and an experimenter and did much with his developmental anatomy, but largely he failed as a scientist and acted like a "burhger with pretensions." His torturous argument for his depositional theory of mountain building as opposed to the upheaval theory was out of place in *Faust*.

Faust was written during the 18th century at a time when the "Administrative Era" was just beginning after the great strides of Newton and others. German and English Universities were suffering "a calcification of learning" and from the rediscovery that "knowledge is a form of power."

Poorly written sections of *Faust* are found mainly in Part II where the verse often does not work, especially when Goethe has the Greek gods speaking in doggerel. In another part, "God's language is that of a tradesman." Concluding his reply to the protest, Prof. Lettvin said that the possibly ironic *Faust* was really out of character for Goethe, and it does no harm to look at anything — including a Nixon speech — creatively.

Two lines in reference to Mephistopheles and Faust are too good to be omitted: "Hell runs itself; it is a bureaucracy" and "People who attend conferences are rarely people who do work."

Physics professor wins teaching award

MIT physics professor John King is one of four Boston area professors to receive the 1971 E. Harris Harrison Award for Gifted Teaching.

The award, judged on the basis of capability as "an articulate, passionate teacher who views education as a spiritual affair . . . with an incredible ability to impact enthusiasm and to teach the very essence of his subject," carries with it a $10,000 grant to be used at the teacher's discretion in furtherance of his academic career and interests.

Winners of the awards are chosen annually by panels of educators who make their selections from nominations submitted by colleagues, students, past award winners, and college and university presidents. Each nominee must be "a universal teacher who cares about values, society as a whole, and human beings . . . not merely a gifted teacher, but the most hard-working teacher imaginable who believes in the value and goodness of what he is doing and sees it as a necessary task of the spirit."

The awards, presented last Saturday in St. Louis, went to Professor King, Professors William A. Arrowsmith and Freda G. Rebelsky of BU, Professor Michael Waltzer of Harvard, and six other teachers from other parts of the country.

Grad students to stand trial

By Robert Fourer

Two MIT graduate students arrested last May at a demonstration against Medicaid cuts will come to trial on felony charges in Superior Court next Tuesday.

Tony Kroch, a graduate student in linguistics, and Eric Prahl, a graduate student in electrical engineering last term who now works in the area, are charged along with eight others from Northeastern and Harvard with unlawful assembly and assault and battery with a dangerous weapon (namely, a shod foot).

The assault and battery charge, a felony, stems from allegations that demonstrators kicked a policeman; it can carry a sentence of as much as ten years.

The defendants consider themselves innocent of the charges, and plan to call witnesses to prove it, according to Kroch, who like the others will act as his own lawyer.

In addition the ten hope to present a "political defense." They will contend they were attacked by police because the state did not want people protesting publicly against Medicaid. (Two days after their demonstration at the Roxbury Crossing welfare office, the legislature temporarily restored Medicaid cuts.)

The defendant's insistence on representing themselves in court has been largely responsible for the half-year delay in bringing the case to trial. When it was first brought before a district court judge in June at a hearing for probable cause (a necessary step in a felony case), he refused to continue the proceedings if the defendants were not represented by counsel.

The police thus had to go to a grand jury for an indictment; as a result the case now comes up in Superior Court.

The trial is slated to begin next Tueaday, November 16, at 9 am, on the seventh floor of the Suffolk County Courthouse in Government Center, Boston.

MIT budget cuts upcoming

(Continued from page 1)

Expenditures, which is the overall target, will be divided unequally among the three broad areas of Institute activity outside of the laboratories: the smallest cuts in the academic-teaching areas, moderate cuts in physical plant, and greater cuts in general and administrative areas.

The general and administrative areas are the support functions: medical service, athletics, Dean for Student Affairs, accounting, and housing. Budgets in this area are about 80% salary, but there are possible economies that can be realized without releasing employees. In order to keep morale and efficiency up, any personnel reductions will be due mainly to attrition.

The second largest cut (as a percentage of its budget) will be made in physical plant, although here too, economies will be difficult to realize. The major item in the budget is purchased energy; oil for steam, or electricity. The cost of both of these has risen precipitously in the last few years, due to the increased cost of fuel oil (from $1.50 to $5/barrel) because of Middle East political crises and the need for low-sulfer oil.

The smallest cuts, as a percentage of total budget, will be made in the academic-teaching area. Within this area, the cuts will be distributed unequally from school to school, depending upon each school's abilities to absorb the cuts with minimal disruption of the educational process, with the smallest cuts in the School of Architecture and Urban Planning (due to the rapid growth of its enrollment in recent years).

There are several factors which have resulted in MIT's economic troubles, according to Gray: inflation, the reduction of federal aid (to the university as a whole and to graduate students), and the uneasiness of the economy. These combined with continuing Institute growth after a leveling off of support, and a shortfall in current income resources, have led to the spectacular increase in deficits which the new administration is attempting to turn around.

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NOTES

* The Undergraduate Association is sponsoring a meeting open to all students, at which members of various decision-making factions around the Institute (e.g., deans, faculty committee chairmen, etc.) will be present. The meeting will have an informal, question-and-answer structure. It will be held in the Student Center next Tuesday, November 16 at 4 pm. Refreshments will be served.

* GAY DANCE – There will be a gay dance tonight at the Arlington Street Church, Arlington St. and Boyiston St., Boston, from 9 pm to 1 am. Gay members of the MIT community are invited. Admission is $2, and is for the benefit of the Homophile Community Health Service. MIT/SHL members will go to the dance directly from the SHL meeting; other gay students are cordially invited to join us.

* The MIT Black Student Union is holding its regular general assembly meeting this Sunday, November 14. The meeting will be held in the BSU Lounge (50-104), at 4 pm.

* The MIT Community Players needs help locating props for its production of "The Sea Gull." If you would like to lend or know where to find the following items, please call Jan Wiley, 734-2228 (home) or 482-2800, x2466 (work): an old wooden wheelchair that works, shotgun used for hunting, bugle, stuffed seagull (limp), walking cane, antique jewelry, fans.

* The Julliard String Quartet will perform at a memorial concert for the late Professor Gregory Tucker in Kresge on Saturday, November 20 at 8:30 pm. Free tickets are available by mail only from the Music Office, 14N-233B. Limit of two tickets per person.

* A memorial tribute to George Seferis, Greece's Nobel-Prize poet who died in September, will be held Sunday, November 14 at 5:30 in Harvard's Memorial Church. There will be readings from Seferis' poetry and diaries, as well as tapes of the author himself reading from his own work.

* "Which Way Vietnam?" A panel discussion with Noam Chomsky, Cynthia Frederick, and Ngo Vinh Long followed by a meeting with Peace Action Groups on what can be done, is being sponsored by the MIT Peace Action Coalition in Kresge next Tuesday, November 16 at 8 pm.

IAP

Students interested in study abroad or at another school in the US over IAP should contact Connie Zelin in the Foreign Study Office, Room 10-303, x5243, for further information.

The National Science Foundation has reinstated the Undergraduate Research Participation "URP" Program to provide support for college-level activities that increase the opportunities of undergraduates for direct experience in the sciences. Such experience may take the form of research, research participation, or independent study. The programs' purpose is to foster a more open approach to the education of young scholars and to lead institutions to incorporate opportunities for research participation and independent study into their normal curricular patterns.

Fields eligible for support are the biological, engineering, mathematical, physical, and social sciences, and the history and philosophy of science; included are interdisciplinary fields which comprise overlapping areas of two or more sciences: "e.g., biophysics, geochemistry, meteorology, and oceanography."

The closing date for applications is Dec. 1.

Provision is made this year for IAP as one means of providing opportunities for participation.

To receive a copy of the 20-page NSF booklet describing this program, call David E. Burmaster x4849 or Amy Metcalfe x6044.

Deficit: it's not quite so simple

By Paul Schindler

You can't talk about Institute finances these days without talking about the Institute deficit. What's more, many people wouldn't be talking about Institute finances at all were it not for the deficit, which is responsible for further economy measures announced last week.

What *is* the Institute deficit? Does a $4 million deficit mean a gargantuan pile of unpaid bills at the end of the fiscal year? Or did the Institute borrow those millions from a bank to pay off its debts from last year?

It's not quite so simple.

The D-Labs, L-Labs and on-campus research cover all of their own costs. The Institute's other functions are paid for through a variety of funds which are reasonably well-defined. When *these* well-defined funds do not cover certain well-defined expenditures, then other funds can be diverted to cover the gap. It is this gap which MIT refers to as its deficit. The expected total deficit for the current fiscal year (FY '72, ending on July 31, 1972) approaches $6 million.

According to an analysis provided by Chancellor Gray's office, the deficit breaks down like this:

Educational and General Operations Budget, 1971-1972

Expenses	$ thousand
Academic (5 schools plus the libraries)	30,384
General and administrative	18,504
Student-related G&A	2,146
Physical plant	13,094
Auxiliary services (housing, dining, and MIT Press—offset by income below)	7,600
Contingency reserve	178
Total expenses	**71,906**
Revenues and funds	
Tuition (including medical fees and Summer Session)	21,982
Endowment income for general purposes	6,032
Other investment income and funds	9,488
Contract allowances from indirect charges	21,233
Auxiliary services (see note above)	7,600
Total revenues and funds	**66,335**
Excess of expenses over revenues and funds	5,571
Adjustment for unexpended budgets, non-recurring operations, and cost sharing with private foundations	1,550
Operating gap	**4,021**

These figures make little sense without a good deal of explanation. They are only a portion of the total Institute budget of $220 million, and represent the residue after deduction of the D- and L-Labs. Even then, they do not fairly represent the total budgets of the five schools.

This is the budget for Institute general funds. Each department has other resources beyond these funds, including restricted endowment, current gifts, and research income. These other incomes cover a large share of the faculty salaries which are, far and away, the biggest budget component. General Institute funds can be used to cover administrative and secretarial costs, as well as other support functions; but no school lives on them alone.

"General and administrative" (G&A) represents the central administrative and support function of the Institute. The figure here covers almost all G&A functions included in the full $220 million Institute budget. Excluded are those portions of the administration relating solely to students (including the Dean for Student Affairs) which are entered on the following line.

"Physical plant" is the MIT maintenance item: employees, purchases, and remodeling, with the largest share of that being energy purchase (oil, electricity, steam).

"Auxiliary services" are very nearly self-sustaining, as noted (their income very nearly equals expenses).

A "contigency reserve" is kept to cover unexpected expenses.

On the revenue side, the item requiring greatest explanation is the "indirect charges" figure. These are monies which come to the Institute from sponsored research (SR) contracts, which have very specific formulas that determine a contribution to the Institute for the provision of such support services ("overhead") as administration, libraries, physical plant, and medical services.

The adjustment for "cost sharing with foundations" is significant: unlike research sponsors, most foundations do not pay overhead. For purposes of analysis, Chancellor Gray includes this cost in other places.

In point of fact, the "operating gap" used by Gray is in the actual budget for purposes of analysis. It is not normally determined at year's end by the treasurer, although Gray had him compute it for two recent years, showing that the budgeted gap and the actual are not often in exact agreement. Its purpose is to show the "hard gap. The most basic incomes and expenditures."

To determine the actual deficit, the "demand on unrestricted funds," one adds to the operating gap effects totaling some $1,869,000 for the current fiscal year. The major components of this, in order of size, are cost sharing with foundations, tutiton loss on federal fellows, and curriculum development.

Tuition loss on graduate fellows is about $400 thousand a year. The federal programs of aid to graduate students place a limit on annual funding which is below MIT's tuition. The budget item for tuition assumes full payment, so MIT must account for the difference.

Curriculum development funds are available to any school, on request. Requests usually outrun available funds as departments attempt innovations in the teaching process.

These items, and several other miscellaneous ones, raise the total deficit to the budgeted figure of $5,890,000 for FY '72.

"We can hope that the deficit will not be that large," said Gray, "but rational budgetary considerations force us to plan for worst case conditions.

Six-Year History of Operating Gap and Demand for Unrestricted Funds

Operating Gap ($ thousand)

Fiscal year	Budget	Actual
1972 (projection)	4,021	—
1971	3,079	1,883
1970	1,968	1,206
1969	682	
1968	400	
1967	410	
1966	0	

Total Demand for Unrestricted Funds in Operations ($ thousand)

Fiscal year	Actual
1972 (projection)	5,890
1971	4,907
1970	4,636
1969	2,203
1968	841
1967	806
1966	703

"The purpose of the separation of the operating gap and the total demand is to allow a clearer analysis of the sources of the deficit," according to Gray. The extra demands on unrestricted funds are separated for several reasons. Their separation eliminates non-recurring items (such as the Commission on MIT Education, a minor facet this year, but larger in the past), unpredictable items, and somewhat discretionary items (such as curriculum development whose loss, while severe, would not be devastating).

The elimination of these items in determination of the operating gap yields figures which are more comparable from year to year, Gray stated.

This separation also underlines some costs the Institute now bears which could, hopefully, be assumed by others, such as the foundation share of indirect costs, and the graduate fellow tuition gap.

The major problem, according to Gray, is that the funding, especially in sponsored research (which, through indirect expenses, pays for a large portion of the Institute's central functions) leveled off in 1968, after a steady 10-12% per year climb through the 1960's. The Institute kept growing after the income stopped growing, and the result is the ever-increasing deficit. It is this trend that the administration wishes to halt.

In particular, the Administration is looking to a "dynamic budget" which has a greater component of long-range planning. A desirable goal is considered to be a budget which is flexible enough to expand and encompass increased funds in such a way that one is not caught short if funds level off; but the concrete changes needed to meet this goal are still some distance from final formulation.

Sources of Unrestricted Funds ($ thousand)

Source	1971 (actual)	1972 (budget)
Patent resources fund	1,105	1,200
Use of facilities funds	739	700
Unrestricted gifts	721	1,300
Total current funds	**2,565**	**3,200**
Prior year balances	2,880	0
Total unrestricted funds	**5,445***	**3,200**

**Includes $538 used for current non-operational needs.*

The types of monies used to cover deficits in the past are listed above. The major difference between this year's resources and those of years past is the final reduction to zero of "prior year balances" which were the accumulated operating surpluses of past years. The loss of this buffer necessitates the use of other, more sensitive funds to cover the total demand on unrestricted funds; funds which the Institute does not want to deplete

In addition, some of the unrestricted funds have known end dates. Most of the patent money comes from 2 patents held by MIT: the Forrester magnetic core patent (the basis of much of the computer industry) and the Sheehan patent on artificial penicillin. The Forrester patent runs out in 1974, and the Sheehan patent is under heavy attack by a British firm, so the income from them will not last forever. This is, however, one aspect of the situation which chance could substantially improve: a great new invention made at MIT could increase these funds and reduce the pressure on other sources of money.

The administration does not feel it sufficient to rely on chance, and thus its insistance on substantive cuts in the short-range budgets, and long range efforts to stamp out the deficit trend.

Endowment

In broad terms, the total endowment of the Institute, including restricted and special purpose funds (such as building maintenance funds) was about $302 million at the end of fiscal '70, and about $328 million at the end of fiscal '71 (the increase being mainly due to the receipt of the K. Dexter McCormick estate). S.H. Cowen, the Institute Comptroller, supplied these approximate figures, which indicate the extent of the various categories of endowment funds:

Endowment Funds

Pool A:	True endowment	$149,000,000
Pool B:	Funds functioning as endowment	37,700,000
Pool C:	Invested funds	89,000,000

Pool A consists of funds which were designated as endowment when they were given to MIT. These are basically held in trust by the Institute, and are protected by the laws of the Commonwealth. They cannot be spent; only the income may be touched.

Pool B is another matter: these are unrestricted funds which, by Corporation action, have been designated for endowment purposes. Corporation actions can be undone by the Corporation without recourse to any outside agency; but it is very unlikely that this money would be re-designated except in case of dire emergency. (Most of the McCormick estate, about $15 million, ends up in this pool.)

The Pool C funds are intended to be spent more quickly and are invested for appreciation rather than return. Thus, while A and B return about 4% (long run), C returns 5% (short run).

That portion of Pool C money which is unrestricted could be used in addition to already listed sources to cover the deficit. It provides a substantial buffer which protects the endowment capital at the higher levels.

It is this very buffer which schools such as Yale and Princeton have run through: they now face the drastic alternatives of either extensive reduction of staff and services, or depletion of endowment capital. MIT wishes to avoid this situation at any cost.

ARTS

book:

Einstein as tragic hero

By Alex Makowski

For the mature intellectual lifetime of all of MIT's students and most of her faculty, Albert Einstein has been the most important feature of the world scientific picture. Securely enshrined within a mix of rational recognition and emotional legend, the fame of the man will no doubt endure with the memories of a select group of other thinkers heralded for their contributions to the knowledge and understanding of the human race.

Yet, though the legend and the reputation persist, the intimacy of Einstein's life and accomplishments has evaporated. He has been dead some 16 years now, and the sage scientist, epitome of the absent-minded professor, outspoken defender of Zionism and pacifism, excites a bare handful of science students where his appeal once reached millions of people. Since Einstein died, science, in the popular imagination if not in fact, has been depersonalized and deinvididualized. Einstein was content with a pencil, paper, and reference library; modern physicists seem to work to the background whirr of computers. Team thinking has replaced hero worship, and the eccentric bravely challenging new frontiers seems slightly out of place.

Ronald Clark's *Einstein, the Life and Times* is a refreshing and important review of the decades when Einstein shook the scientific world and rose to an eminent position of public esteem few men of any calling could match. Extensively researched and painstakingly documented, the book moves across the entire scope of Einstein's career: his personal life, the legend, the scientific achievements, the step outside of science to champion pacifism and Zionism. Though the presentation of the material could be faulted, the value of the insight it offers into Einstein's life and, perhaps more important, the questions it raises about both the involvement of scientists in extra-scientific affairs and the popularity of science, make it a book for intellectuals of all disciplines to consider.

* * *

The inaccuracy of popular or current versions of Einstein's life is staggering. Many people could identify him as the most important scientist of modern times; they would be dimly aware of his European background and subsequent immigration to the United States. Such a man, they would guess, no doubt lived a satisfying and pleasant life, passing his last years at Princeton to the accolades of his scientific peers and the best wishes of the pacifists and Zionists he had supported. Students at such technical schools as MIT, the citadels of American science, could be more specific about his theoretical achievements, but few have noticed, I would guess, Einstein's absence from their courses on quantum mechanics and atomic theory, a stark contrast to 8.02's relativity. They would probably share with everyone else the same hazy view of his personal life.

Yet Clark refers to Einstein as "a man who can, without exaggeration, be called one of the greatest tragic figures of our time." The man before whom the towers of classical physics crumbled found himself unable to accept the new developments of quantum mechanics and, as science progressed, was separated and isolated from the newer work in physics. The involvement in pacifism and Zionism was ill-starred: the genius for physics did not carry over to human affairs. His personal life was troubled by divorce from his first wife, struggles with a failing health, and the restrictions on living and loss of privacy common to all famous men. He was a hero, certainly, and a saint of sorts rewarded for his struggles with physics and Hitler. But it was a difficult 76 years.

Einstein provides a detailed picture of the scientist's intellectual development. A common myth is that Einstein was a scientific failure, a college dropout (that's the story I heard as a boy) who sought refuge in a Swiss Patent Office. Then one day God tapped him for greatness, the pentecostal flame danced on his head, and overnight he developed the scientific genius to overturn nineteenth century physics. In reality, Einstein from his earliest, pre-school years was interested in science; by the age of 15 he was writing short explorations into theoretical physics; and he graduated from the esteemed Zurich Polytechnic Institute. The patent office job followed two or three teaching jobs and a research post — his chief failing as a teacher seems to have been his insistance on doing things his own way, incurring the displeasure of the schools' officers. By the time he reached the patent office, then, he had already decided on a career in theoretical physics, and had steeped himself in the current discoveries and past foundations of that discipline.

The aura of invincibility and saintliness both had their flaws as well. Einstein's agile mind could grasp the complexities of problems dealing with theoretical physics, hull design for sailboats, and the consistency of sand at the beach. But a complete formulation of a unified field theory eluded him for 30 years, and he refused to accept what most physicists regard as an inescapable feature of atomic theory, statistical rather than causal laws. The sainted image was reinforced by Einstein's physical appearance and public statements, and even Clark never disagrees. But the detailed biography reveals a vindictiveness to the German people and animosity toward a few personal enemies.

Yet the flaws are minor, and the picture that emerges shows a genial, humanistic, brilliant, and eccentric man who saw the way to clear away the old scientific precepts and create a new, more useful, body of knowledge. Though many of the details are wrong, the substance of the legends are correct. For practical purposes, after all, Einstein was touched by a heavenly fire, since his scientific knowledge and ability knew no parallel among his fellow men. And the saintly image was appropriate for a world troubled by war and international strife casting about for idealistic men.

* * *

The telling of Einstein's life raises two important issues. Perhaps only casually connected, and certainly of disparate importance, the two nonetheless are significant for modern science. On the one hand, Einstein's involvement in political causes raises in a different context the currently fashionable dispute over what role is appropriate for a scientist outside the limits of his discipline. Does scientific eminence qualify a man to speak, as Einstein did, on such issues as Zionism and pacifism? Should a scientist be responsible for directing society in the application of the knowledge he has placed in its hands? And the public reaction to Einstein's discoveries and the man himself raises a set of questions about society's image of science and scientists. What was it about Einstein's work that captured the imagination of millions of people who had no grasp of what it really meant? What touched off the explosion of interest ("Einstein cigars" on the

(Please turn to page 7)

movie:

Murmur of the Heart

By Emanuel Goldman

Although I've never met director Louis Malle, I'm almost certain he would vigorously deny that *Murmur of the Heart* advocated any sort of moral position, one way or another.

He has a case, for the film is indeed constructed as a careful memoir, a period piece of adolescence set in central France, 1954. Unlike Eric Rohmer's moral fables (*Claire's Knee*, *My Night at Maud's*), the mood here is one of recollection, not reconsideration. It is treated quite simply as a story to be told, for what it was, with a studied moral neutrality.

The very neutrality of the film, of course, is bound to be taken as being in *itself* a moral statement, since one of the few remaining generally accepted social imperatives is the taboo on incest. From Sophocles to Freud, copulation with one's mother has not been taken lightly. That's quite a tradition to go up against, but Malle just about carries it off. Neither for it nor against it, *Murmur of the Heart* developes into a persuasive tract for a different approach to experience: a perspective based first and foremost on observation.

Nevertheless, moral questions do remain for the general viewer. The film traces the developing intimacy between 15 year old Laurent and his stunning, sexually uninhibited mother, who is only in her early 30's. The observations on abolescent sexuality between Laurent and his older brothers are priceless; the mentality of this age group is rendered so well, that this may be the most impressive accomplishment of the film.

Laurent develops a heart murmur, which leads to a vacation at a resort-spa, in which he, because of a booking error, shares a suite with his mother. On Bastille Day (which celebrates the falling of *that* bastion of the old order), Laurent's mother drinks too much, and they wind up in bed together. After, she says "It will be our secret — it will never happen again — remember it without remorse, tenderly." Laurent promptly leaves and proves his new-found virility with another young woman staying at the resort.

Is it credible? Can someone raised in contemporary society walk away from this intact, unscarred? It's not just the incest that challenges us, it's the fact that it is apparently a successful experience. And yet, the fundamental moral posture of the culture is clearly acknowledged, by having the mother declare it will never happen again. If it's all right, why can't it happen again? If it's not all right, how can it seem so healthy, for both of them? Is it all right only once? This is the moral dilemma facing any would-be interpretation of the film.

At the Plaza

movie:

Bless the Beasts, et al.

By P. E. Schindler, Jr.

The message is a bit overdrawn. The characters tend to be exaggerated. The cinematography is not what one normally calls "inspired." But, in spite of its faults, *Bless the Beasts and Children* is not a good film. It is a great film.

Others may pick at Kramer's grasp of the cinematic art; they may draw unflattering comparisons between *Beasts* and his other films, including *Caine Mutiny*, *High Noon* and *The Wild One*, and they may be right. Taken alone, however, I find this film to be an outstanding, engaging, worthwhile practice of the storyteller's art.

I have not seen more than a handful of movies in the last few years that affected an audience as deeply as this one did. Everyone, both at the preview showing and the opening performance at the Abbey Theatre, was drawn deeply into the film. In some undefinable way, they became part of the story itself. A sigh of relief spread through the hall on those occasions when the main characters succeeded. An "oh, no" moan followed disasters, and I would not have been surprised to hear a cheer at the seeming triumph in the last scene.

The film is remarkably true to the book of the same name by Glendon Swarthout. Contrary to the trend of author's discontent at screen versions of their work, Swarthout called the film "a small miracle made by Stanley Kramer. I am profoundly grateful to him."

Swarthout also described what he saw as the two main themes of the book (and the film): "that all living things are kin, and that by freeing others, we free ourselves." With unswerving dedication, the film made crystal clear its point through painful, but engaging storytelling technique.

It is the story of "bedeviled boys and great ungovernable beasts," (the author's words) set in the here and now in the western United States. After a slightly confusing dream sequence at the start, the story settles down into a narrative epic, with flashbacks to fill in the details of motivation.

Six boys, all emotionally unstable in one way or another, share a cabin at a boys' ranch with a counselor named "Wheaties." After seeing Wheaties take part in a legal buffalo shoot, the boys decide to sneak out of camp and set the buffalo free. They begin on horseback, switch to foot, and finally steal a pesticide company truck (whose antenna sports a dead bug emblem) which carries them for most of the trip.

Along the way, they encounter a pair of hicks at a country restaurant who appear, for a time, to be the likely ruination of the project. Surprisingly, they are dispatched, but only so that the group can run out of gas in the middle of nowhere.

To tell much more of the story at this point begins to give it away, but a few more words of praise should be thrown to Kramer and screenwriter Mac Benoff. The ending of the film is outstanding; the people involved bypass an obvious opportunity for the "easy way out." The story has a harsh ending, but it should.

The particular hang-up of each of the six boys is explored to some degree in flashback, as are the perversions of the counselor, Wheaties. Even the camp is made out to be a bit odd, a sort of psychological torture chamber for the mentally instable. But some camps are like that, and they are reputedly worse in reality than in this piece of fiction.

A few words about the actors who portray the boys. They are uniformly adequate, although two performances stand out a bit from the others. Billy Mumy turns in a surprisingly good performance as Teft, the rebel of the group. He has grown considerable hair, and a bit of acting talent, since the days when he was "Lost in Space." Darel Glaser, who plays the little kid, doesn't have much of a role, and reciprocated by not giving much to it. Little can be said for the others, except that they deliver their lines in a clear intelligible fashion, and remarkably do not dilute the enjoyability of the film.

The film received acclaim from the Moscow Film Festival, and has done well in other cities. For some reason, attendance has been marginal at the Abbey to date, possibly due to advertising budget problems.

The film deserves better. When a good film comes out, people should endeavor to see it: *Bless the Beasts and the Children* is a good film.

At the Abbey II

BRIDGE

By Daniel Remnarth

Keeping the so-called "dangerous" opponent out of the lead is an important feature of many game contracts, especially in notrump. A first glance at the North and South hands in today's deal would lead to an estimate of a diamond trick, two spade tricks, and lots of heart and club tricks.

The picture changes, however, when West leads the eight of diamonds, which is covered by the nine, ten, and ace. West's lead is clearly a "top of nothing" lead, and were he to regain the lead he could wreak havoc by leading a diamond. It is safe, on the other hand, to let East win a trick or two, for he can take only one diamond trick from his position.

Declarer must therefore disdain two otherwise normal plays: the club finesse, and playing ace-king-queen of hearts, hoping for a three-two split. If either play were to lose to West he would lead a diamond to set the contract.

Consequently, the correct play after winning the ace of diamonds is to lead a low heart, and then cover West's card with the lowest possible card in dummy. If West plays low then East will win with the seven of hearts, but he will have nowhere to go and the contract will be assured.

Interestingly enough, if you switch the king and queen of diamonds, six notrump can be made by a double squeeze. It is clear rather early that West stops hearts, East stops diamonds, and both stop spades. After taking the club finesse, running off the diamonds followed by the clubs will effect the double squeeze. South's six of spades will take the last trick.

NORTH
♠ A 7 5
♥ A K Q 5 3
♦ Q 9 6
♣ 10 2

WEST
♠ Q 10 9
♥ J 10 8 4
♦ 8 7 2
♣ Q 9 7

EAST
♠ J 8 4 2
♥ 7
♦ K J 10 5 4
♣ 8 6 4

SOUTH
♠ K 6 3
♥ 9 6 2
♦ A 3
♣ A K J 5 3

South	West	North	East
1 club	pass	1 heart	pass
1 NT	pass	3 NT	pass
pass	pass		

Problem No. 2:

Dummy	You
AQ10xx	xxxx

What is your best play for (a) 5 tricks (b) 4 tricks? Answer: (a) finesse the queen (27%); (b) play the ace and lead toward the queen (83%).

record:

Sly: too little, too late?

There's a Riot Goin' On — **Sly and the Family Stone (Epic: DE30986)**

The title cut of the new Sly and the Family Stone album *There's A Riot Goin' On* is listed on the album jacket, on the lyrics sheet, and on the record label. But for publisher it lists "none." And its timing is given as 0:00.

Sure enough, it takes no time at all to catch on. The song compares unfavorably with John and Yoko's *Two Minutes Silence*, since it's over almost before it begins, and whatever Sly is trying to say, he doesn't give himself much of a chance. I suspect that *Riot* (the song) may be a live recording culled from a recent Sly concert.

Anyway, I *am* intrigued by the concept of an album cut with zero length, but I can't help wondering if the next step might be a cut which not only takes no time, but also isn't refered to anywhere on the album or its packaging. It would certainly make my job a bit harder.

All seriousness aside, however, I never expected anything so philosophical on a Sly record, and I dwell on this point simply because the rest of the album is so uninteresting. The high points are but two: "Family Affair" is a gentle cooker with a "Somebody's Watching You" rhythm base, concerning the fact that blood is thicker than mud. It's been released as a single. "Runnin' Away" is a truly inspired burlesque on the Latin shlock-rock Brazil '66 sound.

Then there's "Thank You For Talkin' To Me, Africa," interesting only because it is what "Thank You Falettinme" etc. might sound like played at 28½ rpm. The rest is merely a lot of filler, rehashing old Sly riffs, with nothing even remotely resembling the energetic genius of "Stand," "Hot Fun In The Summertime," or "Everyday People." It's competent, unoffensive, but uneventful; decent background music but little else. In short, an off album for Sly and his Family Stone.

—Mark Astolfi

Workers' Playtime — **B.B. Blunder (Polydor)**

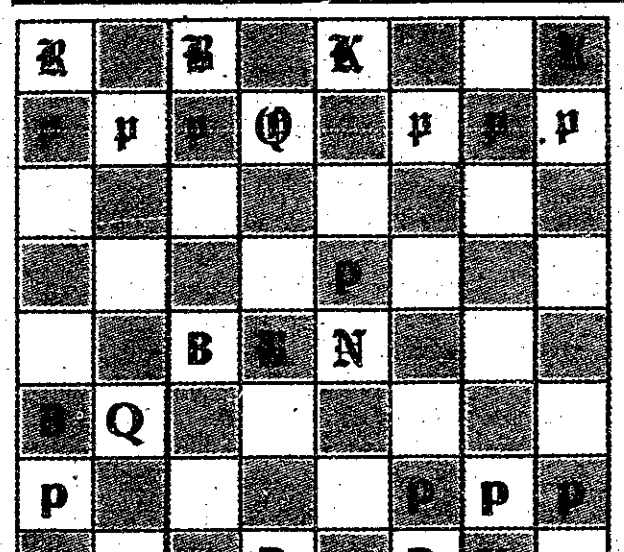
This record accomplishes its goal, which is to divert. It is basically a loud, mindless, hodge-podge, competently performed with a very spacey-swirly sound mixture. There's nothing earth-shattering here, but it is fun. And for those of you who have been wondering where Julie Driscoll has been, here she is singing backups, octaves above anybody else.

Rosemary Lane — **Bert Jansch (Reprise)**

Reflection — **Pentangle (Reprise)**

These two albums point up the strength of the Pentangle. The Jansch solo album is very, very folky and almost esoteric (like the Renbourn solo issues this spring). But when the two guitarists combine with the bass and drums, just the right touch of jazz is added and it sounds worlds different. Each of these records is great in its own right.

CHESS



Position after 14 . . . BxN

Black's fifth and sixth moves only help white gain control of the center. Notice how the absence of the QN enables White to gain swift control of the queen file. After the pawn queens, white has at least an extra piece.

—Walter Hill

Evans Gambit
Queen's Knight's Odds
(Remove White's QN)

Morphy	F. Perrin
1. P–K4	P–K4
2. N–B3	N–QB3
3. B–B4	B–B4
4. P–QN4	BxP
5. P–B3	B–B4
6. O–O	N–B3?
7. P–Q4	PxP
8. PxP	B–N3
9. B–R3	P–Q3
10. P–K5	PxP
11. Q–N3	Q–Q2
12. PxP	N–K5
13. QR–Q1	N–Q5
14. NxN	BxN
15. RxB	QxR
16. BxPch	K–Q1
17. R–Q1	N–Q7
18. q-b2	B–Q2
19. P–K6!	B–R5
20. RxN	BxQ
21. RxQch	K–B1
22. P–K7	P–QN3
23. P–K8(Q)ch & wins	

Rain returns

By Lee Giguere

The second issue of *Rain* indicates that its staff has learned from experience and that having passed the trial of producing their first issue, they are beginning to attract more and stronger contributions.

The most noticeable improvement is the photography. Last year, the prints seldom complemented the works, and seemed included only for the purpose of breaking the visual monotony of pages of printed matter. In this issue, however, the photographs are creative and they are effectively used to help reinforce the images and moods conveyed by the works they appear with.

The writing is not exciting, but it is good and generally readable. Some of the poems, particularly four at the beginning, written by Wendy Einhorn, Rick Romea, Jane Condon, and Esther Hu, are very strong pieces (two of which, "The Woman" and "Walk Softly, Nightfall," are complemented by Jonathan Dietz's and John Ning's excellent photographs). An untitled prose piece by David Berghofer rounds out the highly-effective opening section.

The force of the works included seems to fall off after the first few pages. A brief poem entitled "Nonsense" is, however, particularly catchy. Another rather interesting, although at first glance unusual entry is an essay on the Nobel Prize and the reaction occasioned by its award to certain Russian authors, the most recent being Alexander Solzenitsyn. Its inclusion suggests that the editors of *Rain* are hoping to make it into a serious literary journal.

In general, the second issue of *Rain* is well done, exhibiting a fairly wide range of styles — wide enough, it would seem, so that almost everybody should be able to find something to their liking.

Einstein: scientist, culture hero, tragic figure

(Continued from page 5)

storeshelves, and the like), a popularity sustained for several decades?

Einstein's life really does little to resolve the first series of questions. He championed two broad cases, but the results, as Clark suggests, were disillusioning. The pacifism he espoused, for example, was a vague doctrine lacking the coherency featured in his physical theories. Firmly opposed to compulsory military service, re-armament, and similar militaristic features of the twentieth century, he did an abrupt about face when Hitler rose to power, both urging his fellows to support the struggle against Hitler and criticizing those who by their misguided efforts had led the Germans to believe they could succeed by wielding armed might once again! Similarly he reluctantly supported the Israeli decision to resort to force to protect the Zionist state. He maintained that these two cases were merely exceptions that proved the rule (of pacifism), but it seems unlikely that he had formed a consistent rule that would deal with future incidents more impressively than by creating exceptions.

The effect of his personal style was more apparent in his efforts on behalf of internationalism and a community of nations. The straightforward attack so appropriate for his scientific work assumed an air of tactlessness that ill-suited him for the diplomacy necessary in human affairs. No doubt Einstein was bewildered to find, if he ever realized it, that honesty was not always the most important asset for a champion of social and political causes, but his stubbornness countered any mellowing influence passing years might have had.

Was he an asset or a liability to his causes? The answer seems to be a qualified asset. His scientific achievements had caught the imagination of the world, the humble sincerity he radiated captivated many audiences, and the name was important. However endearing his naivety about world affairs, though, it did prompt him to make statements or adopt positions that added to the problems his supporters were tackling.

Because it arose so late in his life, the issue of social responsibility for research did not trouble Einstein as much as it did his younger colleagues. His work in Germany in the first World War was of no immediate practical consequence, and during the second World War his pacifist background isolated him from the work on the atom bomb. Einstein seemed to accept the role of scientists as advisors to government, while conceding that it was not their place to make the final decision. He harbored none of the serious qualms currently felt about "war research:" he numbered among his friends the German scientist who spearheaded that country's World War I gas warfare effort, and he did a few peripheral jobs for the US atom bomb project.

Perhaps the best conclusion to draw on the relationship between scientists and social issues is that the true genius will invariably find himself in an unfamiliar and difficult environment when he tackles world affairs issues. For Einstein the most important cause would always be not pacifism, internationalism, or Zionism, but theoretical physics. Nothing could stand in the way of his research, and he had little time left to learn the amenities and procedures of the rest of the world. Maybe a slightly less gifted scientist would feel more comfortable in the outside world, wouldn't feel so guilty about developing the talent for working with people. Certainly J. Robert Oppenheimer, for example, was able to move in society while pursuing his scientific career. The world got the most out of Einstein on social issues it could have, and if his fellow men did not respond to the logic that proved so successful in the realms of physics at least they appreciated his sincerity and basic humanity.

Einstein: science unraveling 'the Fabric of the Universe'

The other intriguing aspect of Einstein's relationship with the public was the interest and enthusiasm for his work that swept the masses both in Europe and in the United States. Here was a scientist-philosopher whose work was so esoteric that only a very few top physicists felt comfortable discussing it, but his tours through the United States touched off overwhelming demonstrations and he found himself besieged with requests for support and endorsement of various popular causes. Without a doubt the public response to Einstein has been unmatched in the history of science.

The popular acclaim was the result of a fortuitous connection between the right moment in history and the right man. One important factor was the timing of the Wars – the full import of Einstein's discoveries developed after World War I.

Everyone looked for a new era of peace, and wanted to forget the war. Here was something which captured the imagination; human eyes looking from an earth covered with graves and blood to the heavens covered with the stars. Abstract thought carrying the human mind far away from the sad and disappointing reality. The mystery of the sun's eclipse and of the penetrating power of the human mind. Romantic scenery, a strange glimpse of the eclipsed sun, an imaginary picture of bending light rays . . .

There was Einstein himself, and when the great scientist had walked to the public stage, "the curtains had parted and behind them was seen, not the austere and aloof leader of science, but an untidy figure carrying his violin, the epitome of the world's little man . . . " There was something Chaplinesque about Einstein the world took to its heart, and the crowning white hair lent the necessary offset of dignity and otherworldliness.

And Einstein happened on the Western World just before television ushered in, in McLuhan's terms, a media revolution. Fifty years earlier Ralph Waldo Emerson had earned his living lecturing, and the masses were still receptive to straight visual persentations. Einstein was a perfect fit for this sensatic emphasis, evoking a "hot" response. The rapid communication provided by radio and television ensured that his image could simultaneously reach large audiences. But television has changed Americans' perceptions of people, and Einstein would not come across on TV as he did on the front page newspaper photo or in public appearances. The public could only appreciate Einstein on one sensual level; the more engaging television image of such a complex man as Einstein would no doubt have frustrated, rather than excited, the masses. TV has erased the appeal of such eccentrics as Einstein, and the chances of a similar figure capturing the public fantasy now are slim.

Furthermore, in science as well as other fields, the public has come to expect team play. The astronauts who touched down on the moon, for example, were feted not as individuals but as members of the NASA (American) team. The days of heroic explorers are past, taking with them another element of Einstein's appeal. Finally, science has become much more commonplace. Where once abstract scientific research was fresh and exciting, developing events have fostered a blase attitude tinged with fearful respect. The phenomenon of Einstein's popularity is not likely to be duplicated.

* * *

Chronicling Einstein's life and times was a monumental task, and it isn't too surprising that the book has its flaws. Much of its content has already been discussed, but certain elements of the presentation itself have important effects on the book's overall value.

Ronald Clark's facility with physics is a case in point. Although the overleaf testifies to some scientific writing experience, Clark's attempts to explain some of the physics involved are clumsy at best. Avoiding the physics issues is impossible: illustration is necessary to underline the import of Einstein's work. It would have been possible to present the key elements to the wide audience the book is meant to reach, and it's unfortunate that Clark wasn't capable.

Another weakness is Clark's style. Without a doubt the author judges Einstein's life a dramatic subject: titles for various sections of the book include "The Voyage of Discovery," "The Sensorium of God," "The Fabric of the Universe," "The Hinge of Fate," and "The New Messiah." But Clark's attempts to build sections of the book to a climax – the confirmation of Einstein's hypothesis predicting bending of light near the sun is a case in point – are ineffective. Apparently he was content to let the subtitles provide the dramatic framework, sparing him the necessity of exciting writing.

Indeed, the dramatic quality of Einstein's life suggests that it might have been better treated in a theatrical production. Much of the book's detail would have to be left out, but the key elements of Einstein's career and times could be easily captured. A visual presentation would do much to capture an essential element of Einstein's appeal, the image he presented to the public, and it would force the writer to adopt a more dramatic style. Such a painstakingly documented work as *Einstein* need not be the only way to popularize the important issues.

Whether or not the story should be presented in book or drama form, of course, depends on the audience Clark hoped to reach. The book, in spite of its somewhat unwieldly size, should reach a considerable portion of the populace, *(The Rise and Fall of the Third Reich*, after all, was successful.), a number of people no play could hope to reach (an effect of the media revolution again).

Would the book appeal to the MIT community? Getting through the entire volume takes some doing, but the effort is well rewarded by the insight provided into both the life of a fascinatingly complex genius and the interface between science and social or human concerns. The issues are sufficiently close to students and faculty here to make *Einstein* worthwhile.

At the Tech Coop

SPORTS

A well-known yachting newspaper recently ranked MIT's men's varsity sailors as the number one team in the nation. The top ten squads, as rated by *Soundings* are: 1. MIT, 2. Tufts, 3.Kings Point, 4. U.S. Naval Academy, 5. University of Michigan, 6. Yale, 7. University of Southern California, 8. University of Rhode Island, 9. New York Maritime Academy, and 10. San Diego.

Tom Bergan '72, Alan Spoon '73, Larry Bacow '73, and Steve Cucchiaro '74 have represented the Tech mariners in most of this fall's major regattas.

Photos by Dave Tenenbaum

BENCHWARMER

By Randy Young

A building, far from being merely a physical structure, embodies a spirit which is not so apparent to the casual observer as is the actual brick-and-mortar. An edifice often reflects the drive and determination, the perseverance and dedication, of the men behind the project. MIT's newest construction effort, the indoor tennis center, stands as a monument largely to the efforts and concern of one man, J.B. Carr '16. His patient lobbying and effective prodding, not to mention his generosity, have, over the past five years, led to the final realization of his dream for a year-round tennis facility at MIT.

Sports have played a major part through Jap Carr's life. As an undergraduate at MIT, he was active in track and tennis, and was a member of the tennis team as well as vice-president of the MIT Tennis Association. He was also a member of *The Tech* news staff, and served as sports editor and chief news editor during his undergraduate days. In addition to his athletic and newspaper activities, he was a member of the editorial staff of the yearbook, *Technique*.

His tennis career has spanned a large portion of the sport's history in the United States. As he ably demonstrated in the exhibition matches following the Center's dedication ceremonies, he remains an active player, following his own advice of "never give up."

The center provides a valuable addition to the various phases of MIT's tennis program – intercollegiate, intramural, educational, and recreational. It moves the Institute's tennis facilities, seriously inadequate for the size of the student body, a step closer to the point where they will better accomodate the needs of the MIT Community.

It is hoped that the opening of this facility will set an example and lead the way for the continued expansion and development of MIT's athletic plant, an area in which user demand is fast advancing beyond present capabilities.

PBE defeats Latino for volleyball crown

Phi Beta Epsilon won the Intramural Volleyball trophy last Thursday night in a tight match with Club Latino. The victory marked the end of several years of frustration for the Phi Betes who finsihed tied for third last year and second the year before.

Seeded third in the playoffs, PBE moved through the early rounds and into the final without losing a game or being in any serious trouble. The defeat of second-seeded Phi Sigma Kappa by Theta Chi in the second round helped make PBE's way into the finals easier.

In the other half of the draw there were several very close and well-played games. In the quarter finals, top-seeded Westgate was defeated by eighth-seeded Chemical Engineering in a game marked by superb spiking on both sides and many spectacular saves.

In the semifinal match it was the hard spiking of Chem. E against the defense and steady play of Club Latino. Latino consistently returned Chem. E spikes with excellent placement of the ball. Towards the end of the match the Chem. E setting and spiking started to deteriorate and Latino was able to pull out the victory.

PBE played fairly solid, consistent volleyball throughout the playoffs, led by the setting-spiking combination of Bruce Weinberg '72 and Don Arkin '72. With Roger King '73 and Gary Ezzell '73, as well as Arkin, the Phi Betes had one of the few teams with three good spikers. Setting for these two were Ken Hules '69, Bruce Penman '72 and Jon Fleming '74. All seven had played together last year and thus experience and team work were a big help in the PBE victory.

Jock Shorts

Thinclads beat Brandeis

Cross Country

The MIT cross country team ended its regular season with a win over Brandeis and Boston University to give the squad its best record in four years. The final 11-2 slate is the best recorded by Tech harriers since the undefeated season in 1967. Senior captain Bob Myers and John Kaufmann '73 consistently lead the team, and were backed up by Peter Borden '72, Craig Lewis '72, and Terry Blumer '73.

Soccer

This fall's soccer season was marked by shutouts, as the Tech boosters were involved in eight blankings during their 5-8 campaign. Tom Aden '72, the squad's top goalie, held Amherst, Brandeis, and Boston College scoreless, receiving fine support from the engineer defense.

Senior co-captain Rick Eskin and John Kavazanjian '72 tied the MIT single game scoring mark of three goals set by All-American Bob Mehrabian '64 in 1963. Eskin and Kavazanjian scored their "hat tricks" against Brandeis and WPI, respectively.

Intramurals

The intramural hockey season will begin next Saturday, November 20, with 38-40 teams expected to participate. Games will be played through February, with the exception of finals week and IAP.

The IM basketball program is successfully underway, with games commenced this week.

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