



Left to right: Howard Webber, director of the MIT Press, discusses the new book with Professor Weisskopf and Dr. Walter A Rosenblith, Provost. —Photo by Russ Clark

New Books Published By Weisskopf, Lettvin

Two new books made news at the Institute last week.

One, *Physics in the Twentieth Century: Selected Essays*, by Institute Professor Victor F. Weisskopf of physics, was formally introduced at a celebration in honor of its publication by the MIT Press.

The party at the Press was attended by a number of Professor Weisskopf's faculty colleagues including Institute Provost Walter A. Rosenblith and Dr. Robert A. Alberty, dean of the School of Science. Professor Weisskopf autographed copies of his book for several people present. He also expressed gratitude to Barbara Anekny and Tom McCorkle of the MIT Press, who edited the manuscript and to Muriel Cooper who designed the book.

Also recently issued is *The Beautiful Machine*, a guide for exercise by Maggie Lettvin, whose exercise lessons here have become a popular noon-hour recreation for many members of the Community.

In beginning a nation-wide promotion, Maggie spent one day last week autographing copies of her book at the Coop. She will leave

this week for a series of interviews and appearances across the country.

The Beautiful Machine was published by Alfred A. Knopf, Inc., and is available at the Coop.



Maggie Lettvin, signing autographs. —Photo by Margo Foote

Who's New in the News...

Professor Raymond L. Bisplinghoff, who is on leave from the Institute serving as deputy director of the National Science Foundation, will receive the 20th annual Godfrey L. Cabot Award of the Aero Club of New England for outstanding contribution to the development of aviation and aerospace science at a luncheon June 9 at the Faculty Club.

Lowry Burgess, a Fellow at the Center for Advanced Visual Studies, recently received a \$3,000 prize from the American Academy of Arts and Letters and the National Institute of Arts and Letters for a series of eight drawings entitled "Star Pits."

Dr. Roy Lamson, Class of 1922 Professor in the Department of Humanities, received the Doctor of Humane Letters honoris causa from Oklahoma City University at its commencement ceremonies on May 20.

At a recent reception and dinner honoring Professor Klaus Liepmann on his retirement, past and present members of the Choral Society gathered together and presented him with a spectrum

clock and the complete scores and recordings of Verdi's operas, *Falstaff* and *Othello*.

A report on environmental control prepared under the direction of Professor Dennis Meadows of management has become a best seller in the Netherlands, selling more than 150,000 copies in two months.

Miss Margaret Otto, Assistant Director of Reader Services in the MIT Libraries, has been awarded a fellowship by the Council on Library Resources to study selected cooperative library programs on the local, regional and national level in an effort to determine the appropriate role for each with respect to each other and to research and academic libraries.

Robin A. Remington, a staff member at the Center for International Studies, has been awarded a postdoctoral research grant by the American Council of Learned Societies and the Social Science Research Council to study constitutional amendments and the nationality question in Yugoslavia.

Retirement Dinner

The Institute-wide annual retirement dinner will be held on Tuesday, June 6, in Walker Memorial, with cocktails at 5:30 pm and dinner at 6:30. Chancellor Paul E. Gray will be master of ceremonies and President Jerome B. Wiesner will present certificates to the retiring personnel.

Course 10 Announces Annual Prizes

The Department of Chemical Engineering held its annual awards presentation recently.

In a special presentation, graduate and undergraduate students in the department presented the Outstanding Faculty Award to Professor Edward W. Merrill for excellence in teaching and research. A new award this year, students plan to present it annually to a member of the chemical engineering faculty.

Professor Raymond F. Baddour, head of the department, presented several awards to students who have made significant contributions to the Department of Chemical Engineering.

Nadir B. Godrej, a senior from Bombay, India, received the Haslam Cup, awarded annually to a senior for outstanding professional promise in chemical engineering.

Kenneth R. Weisshaar, a senior from Cincinnati, Ohio, received the Hunneman Prize, the oldest department award established by William Hunneman in 1927 in honor of his son.

Ronald P. Leemhuis, a senior from Erie, Pennsylvania, received the Alpha Chi Sigma Prize, in recognition of distinguished scholastic achievement, originality and breadth of interest in chemistry and closely related fields.

Raymond M. Mayer, a senior from Attleboro, received the American Institute of Chemists Award for displaying outstanding promise through demonstrated scholarship and leadership for advancing the professional aspect of the scientific community.

Charles T. Johnson, Jr., a junior from Allston, received the Standard Oil Company of California Undergraduate Scholarship in Chemical Engineering, an annual award established in 1955.

Student Teachers Receive Awards

Five graduate instructors in the Department of Electrical Engineering received Supervised Investor's Services, Inc. Awards for excellence in teaching at a departmental party held at Endicott House on Sunday.

Professor Louis D. Smullin, head of the Department of Electrical Engineering, announced the recipients. They are: Charles W. Lynn, of Boston; Norman D. Punsky, of Cambridge; James M. Tien, of Cambridge; Hoo-Min D. Toong, of Livingston, New Jersey; and Ernest D. Vincent, of Haverhill.

The awards, cash prizes given to graduate students on the teaching staff of electrical engineering, honor those who have demonstrated an interest and proficiency in the field of teaching and to help defray the expenses of graduate study for advanced degrees.

106th Commencement to Be Held Friday

(Continued from page 1)

former chairman and later honorary chairman of the Corporation and one of the nation's leading science statesmen; Dr. Paul E. Gray, who was elected chancellor a year ago and who will be taking part in his first commencement as a principal; and Rabbi Herman Pollack, who retires this year after 20 years as director of the Institute's B'nai Brith Hillel Foundation and who was asked to give the commencement invocation.

Chief marshal will be, by custom, the president of the MIT Alumni Association. He is Paul V. Keyser of New York City, a 1929 graduate of the Institute and retired executive vice president of Mobil Oil Co. He is completing his second term as alumni president and this will be his second consecutive year as commencement chief marshal.

Also marching in the academic procession will be more than 100 representatives from the 50-year reunion Class of 1922. This will be the largest number of 50-year class members ever to return for commencement at MIT. Marshal for the class will be its president, Parke D. Appel of Dover, Massachusetts.

Other class officers participating in commencement will be Albion R. Fletcher, Jr., of Braintree, Massachusetts, secretary; John C. Scalea of Rochester, New York, treasurer; and Riccardo J. DiCapua of Bogota, Columbia, executive committee member.

Of the 650 graduate students who will be receiving advanced degrees at this commencement, some 230 will be receiving doctor of science or doctor of philosophy degrees and the academic hoods emblematic of doctoral achievement. Included among the advanced degrees will be six advanced degrees being awarded jointly by MIT and Woods Hole Oceanographic Institution under a cooperative program offered by the two institutions. Taking part in the conferring of the joint degrees will be Dr. Paul M. Fye, Woods Hole president.

Commencement week activities will begin at 11am Thursday, June 1, with the annual commissioning of officers from MIT's Army, Navy and Air Force ROTC units. Principal speaker will be Brig. Gen. Charles D. Daniel, a nuclear physicist and director of Army research in Washington. Eighteen graduating students will be commissioned in the Army, 14 in the Air Force and four in the Navy.

At 2pm Thursday, also at Kresge Auditorium, Chancellor Gray will present the principal address at the senior class convocation. Convocation speakers are selected by the seniors themselves.

Babysitting Exchange

The Technology Dames will continue their Babysitting Exchange throughout the summer. Members who will not be using the service should notify the appropriate secretary to avoid being charged monthly dues. Secretaries for the summer are: May, Rosemary Hinteregger, 924-1997; June, Virginia Renich, 489-0173; July, Paula Suvanto, 266-1154; August, Anne Johnson, 396-5786; and September, Dorothy Kroll, 646-4499.

Friday's graduation will be preceded Thursday evening by the annual graduation eve party at the Stratton Student Center attended by seniors, their families and guests, faculty and staff.

The graduation exercises will be followed by the commencement luncheon in the Great Court. Selected by his classmates to speak for the 50-year reunion Class of 1922 will be Donald Fell Carpenter of Mendenhall, Pennsylvania, a life member of the Corporation and a retired senior executive with E.I. duPont de Nemours. He was president of the student body when he was a senior. Miss Wiener, the president 50 years later, will speak for her graduating Class of 1972.

Over the weekend and on Monday, June 5, the focus of attention will shift from graduates to alumni. Alumni classes spaced at five-year intervals will hold reunions on campus and at New England resorts, then join other alumni on campus Sunday evening for the start of MIT's annual Alumni Days. The Alumni Days Committee planning these events is headed by Marvin C. Grossman, '51, of Waban and Bradford Bates, '59, of Framingham.

Peace Picnic Raises \$110

More than 100 persons gathered in the Great Court last Friday noon for a picnic sponsored by the MIT Employees for Peace.

The picnic was held to raise funds for medical aid for Indochina. Altogether \$110 was collected, which will be sent to various Red Cross agencies by the American organization Medical Aid to Indochina.

Speakers included Dr. Peter Wolff, a Harvard psychiatrist who worked with Medical Aid to Indochina in Vietnam, and Nguyen Hoi-Chan, a Vietnamese who is studying at Harvard.

Dr. Wolff discussed various medical problems of the area which have been aggravated by the war. Miss Hoi-Chan spoke about US intervention in Vietnam.

Obituary

Dr. Stephen Nagy

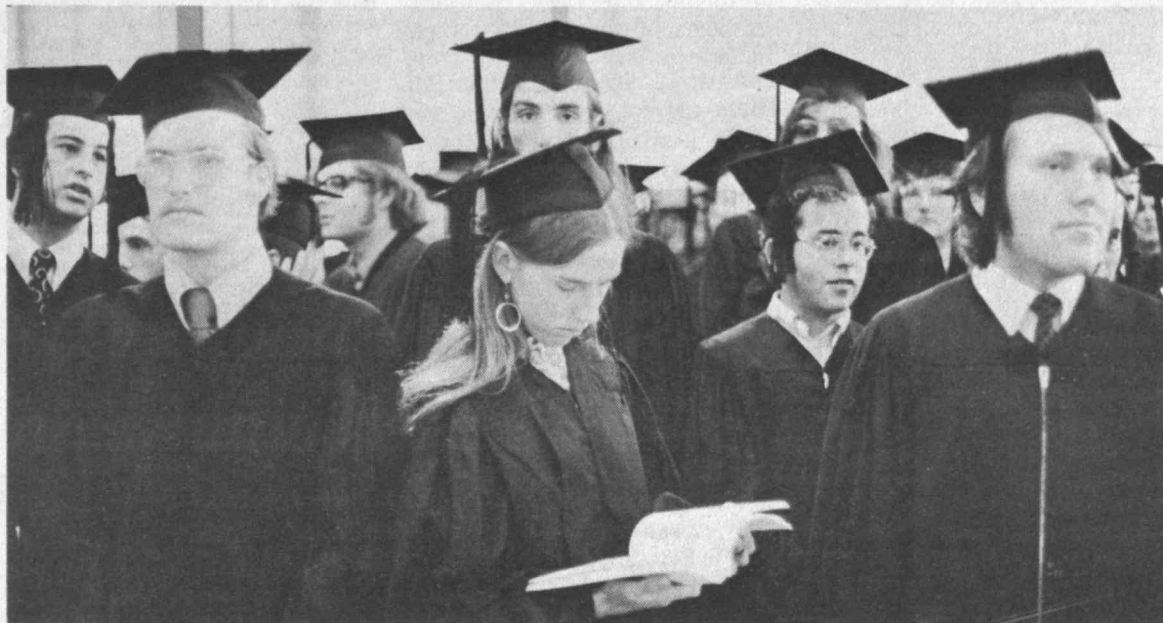
Dr. Stephen M. Nagy, 61, of Belmont, a staff member of the Institute's Division of Sponsored Research since 1945 and a microanalyst who made numerous contributions in the field of atomic energy, died at his summer home in Hampstead, New Hampshire, on Monday, May 29.

Dr. Nagy joined the DSR staff in 1945 as director of the Micro-Chemical Laboratory. Since 1969 he has been associated with the Center for Materials Science and Engineering.

He was a member of the New York Academy of Sciences and the American Chemists Society, a charter member of the MIT Faculty Club and the Quarter Century Club.

He leaves his wife, Olga (Zaboruik); a son, Dr. Stephen Jr. of Woodland, California; a daughter, Mrs. Bryan Johnson of Birmingham, Alabama; two brothers and a sister.

Funeral services will be held at 1pm tomorrow, June 1, in Plymouth Congregational Church, Belmont.



Varying moods are reflected in the faces of members of the Class of 1972.

—Photo by Margo Foote

Johnson Announces Ten Elected to Corporation

Ten persons—including a 21-year-old woman who has just been graduated, an internationally-famed architect, a prominent surgeon and seven distinguished leaders in business and industry—have been elected to the Corporation of the Institute.

Announcement of the formal elections was made by Howard W. Johnson, chairman of the Corporation.

The new members bring total membership of the Corporation to 87 including life and term members. The new elections were by the present members of the Corporation at their regular quarterly meeting last Friday. The elections become effective July 1.

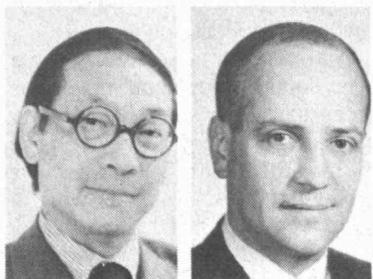
The architect is I.M. Pei of New York City, a principal in I.M. Pei & Partners (formerly I. M. Pei & Associates) since his founding of the organization in 1955, who was elected to a five-year term membership on the Corporation. A native of Canton, China, Mr. Pei came to the US in 1935 to study at MIT where he received the bachelor of architecture in 1940. He practiced architecture in Boston,

New York City and Los Angeles, then became assistant professor of design at the Harvard School for Design where he received the master of architecture degree in 1946. He was director of the architectural division of Webb & Knapp, Inc., from 1948 until he began his own firm in 1955. He was a member of MIT's visiting committee for architecture from 1956 to 1959. His architectural works include the 22-story Cecil and Ida Green Building for the Center for Earth Sciences and the Camille Edouard Dreyfus Chemistry building; the Mile High Center, Denver, Colorado; the National Center for Atmospheric Research, Boulder, Colorado; the

East-West Center at the University of Hawaii; University Plaza at New York University; the National Airlines Terminal at New York's Kennedy International Airport; Washington Square East in Philadelphia; the East Building of the National Gallery of Art in Washington, D. C.; and the John Fitzgerald Kennedy Library in Cambridge.

The surgeon is Dr. W. Gerald Austen of Winchester, a 1951 graduate of MIT in mechanical

(Continued on page 8)



Pei.

Austen.

Employees to Receive Identification Cards

Later this month all MIT faculty, staff and employees in the Cambridge area will be issued an identification card similar to the one shown.

The cards will be of standard size (2 1/8 by 3 3/8 inches), made of solid vinyl plastic. They will bear the individual's name and social security number in embossed characters suitable for use in counter-top imprinting machines.

Over the past few years many have urged that the Institute provide a means by which their affiliation with the Institute could be evidenced. "Not only will the new card provide for this, but it

will also contribute significantly to a number of administrative processes at the Institute," stated Mr. Kerry B. Wilson, Assistant to the Director of the Office of Personnel Relations.

"One of the primary administrative users of the card will be the Medical Department," Mr. Wilson said. "As soon as imprint devices are installed at appropriate places within the Medical Department, the normal check-in procedure will be geared for card use.

"This will simplify the appointment procedure for the visitor to the Medical Department and at the

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Browne Urges Federal Protection for Airlines at Alumni Seminar

The chairman of the Civil Aeronautics Board, speaking at MIT's Alumni Days Monday, urged that the federal government take over responsibility and costs of a total anti-hijacking system to protect domestic and foreign air carriers operating in the US.

Secor D. Browne, a former MIT professor of aeronautics and CAB chairman since 1969, said responsibilities and costs presently are spread among air lines, airport operators, local and state law enforcement agencies, and several federal agencies, such as the FBI and the Department of Transportation.

Britain, he said, recently started a system operated and paid for by the government and covering all aspects of protection including passenger and baggage searches as necessary, aircraft security on the ground and security in the air.

"Hijacking is a problem that we have by the ankle, not by the throat," he said. "We probably will never eliminate all hijackings, but a centralized total system—paid for by all the people through the government and not just by

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4,500 Attend Commencement

Last Friday's commencement ceremony was Dr. Jerome B. Wiesner's first as President of MIT. Last July 1, he succeeded Howard W. Johnson, becoming the Institute's 13th president while Mr. Johnson became Chairman of the Corporation. Dr. Wiesner has been at MIT as a teacher and a scientist for a quarter of a century, with the exception of a three year leave of absence, in 1961 to 1964, to serve as science advisor to Presidents Kennedy and Johnson.

More than 4,500 persons, including graduates, parents, relatives and friends of graduates, filled MIT's Rockwell Cage for Friday's commencement. A total of 1,459 degrees were conferred, since some of the graduates received more than one degree.

The text of Dr. Wiesner's commencement address appears on page 3.

All told 814 bachelor degrees, 68 engineer degrees, 429 masters' degrees, and 148 doctorate degrees were conferred.

Included among the graduates were 86 women—49 undergraduates, 37 graduate. This is the highest number of women graduates in the Institute's history since the first woman graduated 99 years ago. Last year women graduates received 45 undergrad-

uate degrees and 26 graduate degrees.

One woman graduate, Sandra G. Wiener of Forest Hills, N.Y., was president of this year's class and earned two degrees during her four years at MIT, a Bachelor of Science degree in life sciences and a Master of Science degree in nutrition and food science.

Other class officers of the Class of 1972 participating in commencement were Albion R. Fletcher, Jr., of Braintree, secretary; John C. Scalea of Rochester, New York, treasurer; and Riccardo J. Di Capua of Bogata, Colombia, executive committee member.

Speakers at the President's luncheon, by tradition, are members of the classes 50 years apart. Speaking for the Class of 1922 was Donald Fell Carpenter of Mendenhall, Pennsylvania, a life member of the MIT Corporation and president of the MIT student body when he was a senior. Miss Wiener spoke for the Class of 1972.

Friday's commencement was presided over, as is customary at MIT, by the Chairman of the Corporation, Mr. Johnson. Dr. James Rhyne Killian, Jr., MIT's 11th president and now honorary chairman of the Corporation, marched with the principals in the academic procession and occupied a seat of honor on the stage.

The procession included not only

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Paul V. Keyser, former president of the Alumni Association, carried the MIT mace in the academic procession at commencement.

Rare Event

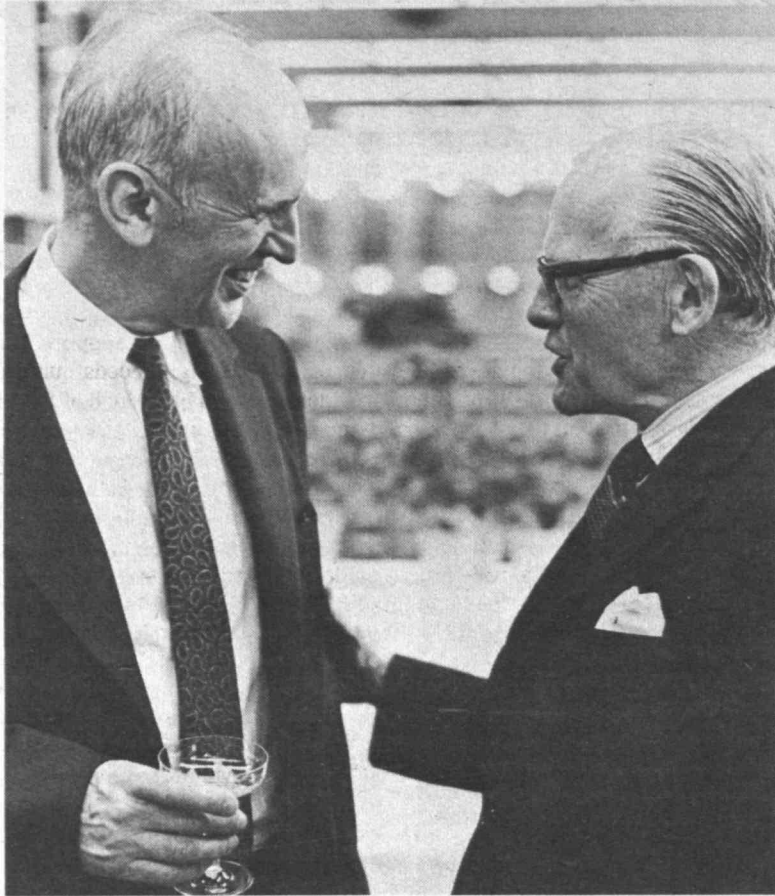
Last week on the second floor of Hayden Library a host of book-lovers gathered to hoist a glass and wish well to William Locke, who after 16 years is retiring as director of Libraries at MIT this spring. We too were there, hoisting and wishing with the best of them, for we had been forewarned by Professor Locke's colleague, associate director of Libraries Natalie Nicholson, that an event of some significance to MIT was to take place. Mum was the word, Miss Nicholson added, because Professor Locke knew nothing of it, and so, our lips sealed to everything but an occasional sip of champagne, we waited to see what we would see.

We saw President Wiesner and Chancellor Gray stop by for a few minutes and chat with Professor Locke before going off to the pre-commencement faculty meeting. I. Austin Kelly, III, a member of the MIT Class of 1926, a benefactor of MIT in a variety of ways, and an old friend of Professor Locke's, turned up and was greeted warmly. "Why I had a letter from you just yesterday, and you didn't say you were coming this afternoon," Professor Locke exclaimed. As people circulated about the space that had been cleared by Miss Nicholson and her cohorts for the party, we took the opportunity to observe its guest of honor. William Locke is a tall man whose face is serious in repose but has the easy habit of sudden smiles. He was smiling a lot and his penetrating eyes contained many a twinkle. He was wearing a dark conservative suit with slightly baggy pants, a dark tie and white shirt, and he seemed to be taking every wish well in stride.

When conversations were humming nicely, Miss Nicholson rapped for attention--on, we happened to note, a nearby book-case appropriately enough. As people gathered around in a semi-circle, Miss Nicholson cited a few of William Locke's accomplishments, recalling how he early saw the importance of computers to the library trade, how he established an exchange with the Soviet Union after Sputnik, how he initiated the always-open library in the Student Center. "And he has been," Miss Nicholson concluded, "a kind boss."

Associate director of Libraries Myer Kessler next took the stage. "Bill, come here. I need your help," he said, and Professor Locke obligingly stepped forward and stood by. "When faced with something such as your retirement," Mr. Kessler began, "the question is what do you do? And so of course we appointed a committee." A ripple of laughter acknowledged the inevitability. "This committee, however, was different," Mr. Kessler continued. "We didn't call for a study or a report or another committee. We wanted to find a way to convey a message of affection to Bill from his staff. One suggestion, I recall, was a life-time subscription to the bulletin of the Library of Congress." This was generally appreciated, as were a number of other suggestions that were also not acted upon. "Finally," Mr. Kessler went on, "in keeping with Bill's interest in the development of land, someone suggested trees, and the idea of trees took root. So what we did, Bill, was to make a model of trees, and we are counting on you to turn the model into the real thing."

At this point there materialized a small potted plant, gaily decorated



Professor Locke, left, receives good wishes from Mr. I. Austin Kelly.

—Photo by Margo Foote

in colors and sporting clusters of bills of various denominations. Professor Locke, expressing his thanks, inspected the gift. "I see there are apple trees here, and cherries--and lots of green leaves," he said. "Well, all I can say is you were successful. I didn't guess what it was going to be."

Miss Nicholson then introduced Mr. Kelly, who said he had an announcement to make. He did indeed. It was that he was giving to MIT in William Locke's name the whole of the remainder of his collection of rare books, some 30 in all, including some of the most valuable and sought after that he had collected over the years.

Mr. Kelly, who has served MIT on several Visiting Committees and on the Development Committee, has made giving away rare books as much a pattern of his life as collecting them. In the past he has given MIT 17 rare volumes, mainly in the history of science, including such works as Galileo's *Discorsi . . . a due nuove scienze*, printed in Leyden in 1638, and Isaac Newton's *Mathematical Principles of Natural Philosophy*, printed in London in 1729. At Professor Locke's suggestion he also gave the MIT Library its millionth book. It turned out to be a first edition, in perfect condition, of Walt Whitman's *Leaves of Grass*.

"The books I'm giving today in the name of Bill Locke--all the ones I have left--are I think the hardest to part with of those I've collected, and I'd like to say a few words about some of them," Mr. Kelly said.

"As a collector, I set two standards for the books I wanted. First, they must be in absolutely pristine condition. And second, I wanted to collect books that had an important intellectual effect, books that have had an impact on our culture and our way of life.

"The first book I'm giving in your name, Bill, is an illuminated *Book of Hours*, one of the best examples of French work, that dates from the middle of the 15th Century. Next is an absolutely pristine page from the Gutenberg Bible. If you put that page next to the *Book of Hours*, you can see the effect Gutenberg was aiming for. It's beautiful work."

Mr. Kelly went on to enumerate some of the other works: an

example of incunabula, books printed between Gutenberg's development of movable type in 1455 and 1500, whence derive printed versions of much of our classical heritage; a page printed by Caxton, the first printer of the English language; a copy of Hakluyt's *Voyages*--"one of the greatest real estate promotions of all times; Hakluyt was selling the new world to the old;" John Eliot's *Indian Bible*--"an incomparable feat of scholarship, in which Eliot created a written Indian language and then taught the Indians to read it;" *The Journal of Major George Washington*, printed in Williamsburg in 1754, and another book, *The Letters of Junius*, which came from Washington's library and bears his signature and bookplate.

"One thing I always wanted--and considering the big-league competition for truly rare books it is perhaps not surprising that it took 39 years to get--was a first edition of Tom Paine's *Common Sense*," Mr. Kelly said. "It isn't too much to say that the Declaration of Independence owes more to this little pamphlet than any other single piece of writing. Over 300,000 copies were sold in a period of three months, which would be the equivalent today of a book's selling six to seven million copies, and within six months the Declaration of Independence was signed."

There was a visible stir at the idea that a copy of this famous work should come to MIT, and after Mr. Kelly had described several other books included in his gift, Professor Locke made gracious acknowledgment of the tribute. "It is truly important for MIT to have these monuments of human thought," he said. "I can scarcely express our gratitude. And I have only one further announcement to make. Just yesterday I received a letter from Mr. Kelly, which made no mention of this tremendous gift, but which did say, I'm happy to report, that Mr. Kelly has acceded to our request that he become curator of rare books at MIT." The applause was general.

Before we left we had the chance to ask Professor Locke what was involved in Mr. Kelly's curatorship. "Well, among other things," he replied, "I hope it means he'll go on giving us rare books."

PBK Honors Bottiglia, Elects 58 Students

Dr. William F. Bottiglia, professor and head of the Department of Foreign Literatures and Linguistics, was honored last week for his leadership in founding the Institute's Phi Beta Kappa chapter, now in its second year.

At the MIT Phi Beta Kappa annual dinner, 58 undergraduate students also were elected to the national honorary. The new members, of whom 12 are women, include: four seniors from chemistry, eight from life sciences, 28 from physics, three from earth and planetary sciences, three from economics, eight from mathematics, three from humanities and science or engineering, and one from philosophy.

Stepping down as first president of the MIT Phi Beta Kappa Chapter, Dr. Bottiglia was cited by President Jerome B. Wiesner for his "remarkable accomplishment in succeeding in obtaining the charter for the first institute of technology which does not offer an A.B. degree since the founding of the Phi Beta Kappa Society in 1776.

"I am told that MIT first tried to initiate a chapter of Phi Beta Kappa as far back as 1895, but it required your energetic leadership during the past few years to persuade the National Organization that scholarly attainment in the liberal arts and sciences by the undergraduates at MIT should be recognized by membership in the Phi Beta Kappa Society."

Dr. Wiesner presented a plaque

Fish Protein Conference Being Held

Scientists from throughout the world are gathering at MIT for a conference on the stable food additive known as fish protein concentrate (FPC), from Tuesday through Thursday, June 6-8.

Protein from fish is an important part of many people's diets. But only about two-thirds of the present harvest is used for direct human consumption. One way to increase the part of the annual catch that can be used for human food may be to convert the fishes into protein concentrate (FPC).

For 20 years, scientists have been doing research on means for processing and using fish protein concentrates. They have developed many different methods for producing FPC--starting with a wide variety of basic raw materials, using various techniques for separating and concentrating the protein, and obtaining final products with differing characteristics. The costs of the final products also vary.

On June 6, papers and discussions will cover fishery resources and FPC processes. On June 7, the subjects will be nutrition and the technology of utilization. The session on June 8 will be concerned with marketing and economics.

Sponsors for the Conference are the Malnutrition Panel of the United States-Japan Cooperative Medical Science Program, the Committee on International Nutrition Programs and the Committee on Aquatic Food Resources, the National Academy of Sciences-National Research Council, and the Sea Grant Programs of MIT and the University of Rhode Island.

The conference is open by invitation only.

to Dr. Bottiglia with the following inscription: "William F. Bottiglia, Charter Member and First President, Xi of Massachusetts Chapter, Phi Beta Kappa Society, Massachusetts Institute of Technology, 1971-1972."

Undergraduate students elected to Phi Beta Kappa this year are:

Course V: Eugene C. Butcher; Bernard Gitler (also Course VII); Jeffrey L. Kaufman; Lawrence E. Klein.

Course VII: John R. Edgar; Norman H. Erenrich; James N. Heller; Larry C. Lasky; Margaret S. Livingstone; Lynn Mahony; Susan Steinberg; Sandra G. Wiener (also Course XX).

Course VIII: Valdis A. Berzins; Peter G. Borden; Chuck K. Chan; Stephen A. Chessin; Virginia A. Clark; Vickey Diadiuk; James I. Donna; Margaret A. Frerking; Bruce A. Gordon; Sol M. Gruner; Irving P. Herman; Mark A. Hlatky; Alexander G. Jacobson; Marcia J. Keyes; Hiroshi Komine; John H. Lacy; Craig R. Lewis; Hung C. Ling; Donald K. Marsh; John M. Nuetzel; Richard E. Robinson; Steven R. Rogers; Robert S. Roth; Lynn M. Roylance; Michael M. Salamon; Anne Marie P. Serighelli; Harry W. Thorn; Roy S. Tuggle.

Course XII: Andrew R. Huber; Leonhard Pfister; Leonard H. Sigal.

Course XIV: Allan Drazen; Donald A. Wassall; Allan S. Detsky.

Course XVIII: Don Coppersmith; John B. Horton; Mark Koenigsberg; Mrs. Mary P. Leland; Nathaniel J. Mass; Joel M. Rubin; Karl A. Van Bibber; Stanley Zietz.

Course XXI: Jane Matriciano; Kenneth N. Musen; Hadley M. Smith.

Course XXIV: Gary P. Waxman.

Winston Wins Tucker Award

Dr. Patrick H. Winston, assistant professor in the Department of Electrical Engineering, recently received the department's Carlton E. Tucker Teaching Award for developing and teaching the undergraduate subject "Introduction to Artificial Intelligence."

Professor Winston is a member of the Artificial Intelligence Laboratory, working particularly with robotics. He received the S.B. degree in 1965, the S.M. degree in 1967, and the Ph.D. degree in 1970, all from MIT.

The teaching award was established in 1962 to honor Professor Carlton E. Tucker upon his retirement. He had been executive officer in the Department of Electrical Engineering for 24 years and was dedicated to the training of good teachers. Upon his death, Professor Tucker's family expressed a desire to continue granting the annual award.

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Please address all news and comment to the editorial office, Room 5-111, Ext. 3277.

Commencement Address

(Following is the text of the address delivered by President Jerome B. Wiesner at Commencement exercises on Friday, June 2.)

Good morning. Welcome to this 106th MIT graduation ceremony. A hearty congratulations to students receiving degrees this morning and to all of their guests. Welcome, too, to Dr. Johnson, Dr. Killian, Governor Ferre, Mayor Ackerman and honored guests.

I would like particularly to recognize the families and friends of these men and women on whom we confer degrees today. There is no adequate way to recognize what you have done to help make this day possible. I congratulate all of you who are mothers, fathers, brothers and sisters, wives, husbands and sweethearts, young children, grandparents and aunts and uncles. This is the one day of the year when our favorite expression, "the MIT family," takes on its deepest possible meaning. The old graduates used to have a saying: "Tech is Hell." Now, we say, "It's great—but it's expensive!"

I would like to ask the Corporation and Faculty to join me in giving you our applause.

Accustomed as I am to public speaking. I have worried and thought a great deal about this moment—and found myself hard-pressed to know what to say. Not because this is my first graduation address on home territory—though that in itself might explain why I am a bit nervous—but for more serious reasons.

Traditionally, graduation is a joyous occasion—as well it should be, for it celebrates the successful completion of a difficult and important course of personal development for a new generation of students. And although it may be unfashionable to talk of excellence, on this occasion it is appropriate to congratulate you whose accomplishments we recognize today.

On the other hand, I know many of you are more troubled than happy—relieved, perhaps, to be finished—but worried. Many of you have become close friends of mine, and I know firsthand your questions about the future. I know, too, that some of you have been upset—if that is a strong enough word—by the high priority the administration has felt it necessary to give to the survival of MIT. You have been upset over the enforcement, in these troubled times, of rules of appropriate conduct—and because I, personally, have remained silent when you suspected that private-citizen Wiesner would have been protesting with you. These matters have heightened your distress about the society into which you are emerging.

In recent months, many of you have talked to me about your unhappiness at the prospect of a technical or scientific career—and you have given me some understanding of the cause of your disenchantment with a vision that was once so exciting. I realize that by no means all of you share this view. Still, it is widespread enough to make me want to try to counteract it—or at least put it in perspective. Yours is a questioning, open generation, and the world, especially the world of science and technology, needs your challenges.

And while some of your concerns are related to the Institute itself, they in fact reflect the deep suspicion, among many people, over the role of science and technology in our society. Driven into our consciousness by the war in Vietnam, this is the widely held suspicion that most of society's serious difficulties stem from the careless or malicious exploitation of technology—and that this condition will continue in the future. Furthermore, these concerns are amplified for you by current economic difficulties and the predictions that the country will not need as many engineers and scientists in the future as it has in the past.

I believe both of these views to be wrong. Many of the problems our nation—and, indeed, the world—faces will require substantial doses of new technology—sensitively relevant technology—conceived and developed by a new generation of applied scientists and engineers. I realize these questions may seem only ability to estimate rationally and to choose among alternate courses of action, particularly when new technology is involved. We need to develop the means the country. I hasten to say that I don't think that a relevant technology alone will suffice. We need other things equally desperately—perhaps even more, and these involve the broadest spectrum of interests in the humanities and social sciences. We need to develop the of communicating the range of available choices—and the reasons behind them—to all members of our society. We need to achieve a deeper mutual respect

among individuals and nations, and an admiration for the other fellow's differences, rather than a suspicion of them. Above all, we heed the humility to admit that we will not find any absolute answers or permanent solutions.

It is fair to ask how I reconcile an essential need for engineers and scientists for the future, with the many bitter criticisms of the past roles of science and technology, and of their practitioners. Although I cannot agree with all of the current criticisms, I believe that many, though not all, of them are identified with real problems, and that working them out will often require that we modify our behavior and priorities. However, my fundamental disagreement with the antagonists of science and technology is in their projection of a future which is a linear extrapolation of the past. I think there is ample evidence to show that modern man can learn to modify his behavior fast enough to avoid the catastrophic disasters of the predictors. There are many examples to prove this point.

In "Silent Spring," Rachel Carson warned of the danger from persistent pesticides. Today, scarcely more than a decade later, those chemicals are severely controlled. Only 10 years ago—before the partial nuclear test ban effectively halted large-scale radioactive poisoning of the atmosphere by the United States and the Soviet Union—mothers feared giving milk to their children because of the strontium 90 from fallout that it contained. Today, one is no longer regarded as a crackpot if he advocates nuclear arms limitations or international arrangements to outlaw wars. And these are but a few of the many responses that can be seen in our society. It is even possible to argue the case—and Alvin Toffler has—that much of the turmoil in the world is due to the fact that so many things are changing at once.

It is obviously important to listen to the critics and try to understand them, for they are part of the process by which we learn. It is even more important to institutionalize the critical function in our society so that we don't have to depend upon the chance appearance of a Rachel Carson.

The issues critics of science and technology raise can be put into two categories: those that are essentially pragmatic problems, and those more philosophical in nature. In the first category, I put pollution, the dangers of the arms race, the fear of exhausting the raw material supplies of the planet, urban blight, and the many other problems we are talking about today.

In the philosophical category, I place the concerns of such scholars, among others, as Professor Mendelsohn of Harvard, Louis Mumford, and Professor Marcuse. These men essentially claim that modern science is a false god that must be eliminated because the scientific method will inevitably lead to a dehumanized society and possibly even total destruction.

Most of the pragmatic issues are directed toward the unexpected and serious side effects of the application of technology—including growth and complexity made possible by technology—and particularly by the accomplishments of modern medicine. These effects became major threats because we didn't fully appreciate the power of exponential growth. In the past we responded—or did not respond—to problems as though we lived in a linear world with plenty of available time in some distant future to correct the little troubles we preferred to ignore today.

But, we have learned a basic lesson—that we can't charge along, applying technology blindly and capriciously, without getting into serious trouble. We now recognize that we have the capacity to affect our environment in all of its aspects with such power and on so large a scale that the results threaten our very existence. But, as I have shown, our society is learning how to deal with these problems.

One of the major tasks for us, as an institution and as individuals interested in the application of scientific knowledge to human welfare, is to improve upon the learning and feedback process, to make it more sensitive and more responsive.

This won't be easy. It requires bringing together people from many disciplines, as well as representatives of consumer groups, that is everybody. It involves new technology coupled with conscious experimentation with the social process—in contrast to the unrecognized experimentation we have been doing on a grand scale right along. The important fact, however, is that we now fully recognize the need for it. In the past, although a few farsighted individuals anticipated most of the problems we face today,

society could not respond at any level—university, local or national government. No one was concerned.

Today the situation is very different. A wide spectrum of citizens, governmental agencies, foundations, academic institutions and think tanks are aware and do care. But we need a new generation of broadly qualified experts to staff these organizations—and we need an adequate level of basic scientific research for underlying support. Unfortunately, at the moment our caring exceeds our understanding and our ability to manage. Much of the challenge of the next decade lies in learning how to use our capabilities and resources in a constructive and responsible manner.

Turning to the philosophical questions, the one I find most troublesome is the challenge to scientific method itself. The issue was stated very clearly by Professor Everett Mendelsohn, Professor of History of Science at Harvard in a recent talk.

Using Hernstein's work on intelligence and heredity as a launching pad, Mendelsohn said that: "Science as we know it has outlived its usefulness." Of scientists, he said, "The set of values that guides their activities, the scientific way of knowing which they are using and which they are acting by is basically flawed. The assumption is made that all else should stand aside for science and its form of knowing." "Science," he goes on to say, "makes an additional claim which allows it to stand almost free, it feels, and this is a claim for a superiority for its own normative structure, its own value set." My basic argument with Mendelsohn is that he lumps together the role of the scientist seeking knowledge with that of the applied scientist and the engineer. He also confuses the discipline and the role of the practitioner. To say that knowledge is neutral or valuefree does not imply for a moment that the pure scientist, applied scientist or engineer should himself be "valuefree." Put simply, it does not imply that he should absolve himself of the consequences of his actions either in the name of science or some higher authority. Much of the confusion arises because it is impossible to maintain neat divisions between pure science—science in its search for knowledge—and applied science. In fact, many scientists go back and forth across the imaginary boundary between these two worlds. And while there are clear professional rules of conduct for a scientist in the quest for knowledge, we are still groping for the moral principles—the equivalent of the hippocratic oath of the medical profession—that should govern the actions of those who would apply scientific knowledge.

It is in crossing this boundary that we have often gone astray. Here, it seems to me, is the grave error of Jensen, Shockley, Hernstein, and the many others involved in the bitter debate over the relative importance of environmental effects and heredity on intelligence. It is one thing to speculate about and test inadequate theories by means of research and to debate such ideas among scientists. It is quite another thing to use fragmentary and questionable knowledge and unproven theories in public debate as the basis for advocating specific social actions.

It is precisely because substantial uncertainties in technical knowledge always seem to exist—at the very moments when critical decisions are necessary—that the humanistic values are so important. Compassion, an historical perspective, patience, and the so-called irrational elements of the mind must all play a role in judgments and decisions affecting other people, especially in the face of uncertainty. Herein lies the danger of too narrow a life experience, whether in the university or in one's work.

Kurt Vonnegut once said that as an adult he has become a confirmed pessimist, so he is never disappointed anymore—things always turn out as badly as he expects, in fact usually worse. I have the opposite trouble. As a congenital optimist, my experience is also that things usually—though certainly not always—turn out worse than I expect. But I have learned not to feel too bad about this, for optimism has given me the courage—sometimes called foolhardiness by others—to begin projects or to support causes that most of their disappointments do not indicate failure but only that one has fallen short of his most ambitious hopes.

There is plenty to be done. You have the ability and the education to see what needs doing and to do it. Certainly there is validity in much of the doubt and questioning of your chosen careers—but there is doubt and questioning of every career today.

There are as many constructive, creative and important opportunities in science and technology as you will find in any field if you only will be optimistic enough to try them.

THE INSTITUTE CALENDAR

June 7
through
June 16

Seminars and Lectures

Friday, June 9

Committee of University Industrial Relations Librarians**
26th Annual Meeting. Friday, June 9, 9am-5pm; Saturday, June 10, 9am-12n. Rm E53-220.

Monday, June 12

Radioisotope Techniques in Biomaterials
Prof. Gordon Brownell, nuclear engineering. Harvard-MIT Biomaterials Seminar. 4:30pm, Burns Institute Auditorium, Massachusetts General Hospital. Coffee, 4:15pm.

Tuesday, June 13

Laser Applications**
Dr. Aram Mooradian, Lincoln Lab. Lincoln Lecture Series. 3:30pm, Lincoln Cafeteria.

Women's Forum

Women's Forum**
Every Monday, 12n, Rm 10-105.

Student Meetings

Student Information Processing Board Meeting
Every Monday, 7:30pm, Rm 39-200.

Thursday Staff Meeting**
Every Thursday, 8pm, 2nd floor, Walker.

Technique Staff Meeting
Every Saturday, 11am, Student Center Rm 457.

ERGO Staff Meeting
Every Sunday, 6pm, Student Center Rm 443.

MIT Club Notes

Classical Guitar Society**
Concert guitarist Hugh Geoghegan is available for private instruction for intermediate and advanced students. Call Vo Ta Han, 661-0297.

Baker House SPAZ Jogging Club**
Daily, 10:45pm, Baker 2nd Floor West.

Hobby Shop**
Open weekdays, 10am-4:30pm, duPont Gym basement. Fee: students, \$6/term or \$10/year; community, \$15/year. Call X4343.

Tiddlywinks Association*
Every Monday, 8-11:15pm, Student Center Rm 491.

Soaring Association**
First and third Mondays every month. 7:30pm, Student Center Rm 473.

Classical Guitar Society**
Special summer lessons for beginners, group and private. Mondays and Tuesdays. Call Vo Ta Han, 661-0297.

Judo Club**
Every Monday, Wednesday, Friday, 5pm; every Saturday, 1pm. duPont Gym Exercise Rm. Beginners welcome.

Outing Club*
Every Monday, Thursday, 5pm, Student Center Rm 473.

MIT/DL Duplicate Bridge Club**
Every Tuesday, 6pm, Lobdell.

Fencing Club**
Every Tuesday, 6-9pm, duPont Fencing Rm.

Glee Club**
Every Tuesday, Wednesday, Thursday, 5-6:30pm, Kresge. New members, especially tenors, welcome. Call Cyril Draffin, 247-8691.

Rugby Club
Practice. Every Tuesday and Thursday, 5pm, Briggs Field.

Urban Vehicle Design Competition
Volunteer meetings. Every Wednesday, 3pm, Rm E40-250.

Nautical Association**
Basic Sailing Shore School, repeated every Wednesday throughout the summer, 5:15pm, Sailing Pavilion. Non-members welcome.

Table Tennis Club***
Practice session, every Wednesday, 7:30-10:30pm, T-Club Lounge, duPont.

Science Fiction Society*
Every Friday, 5pm, Student Center Rm 421.

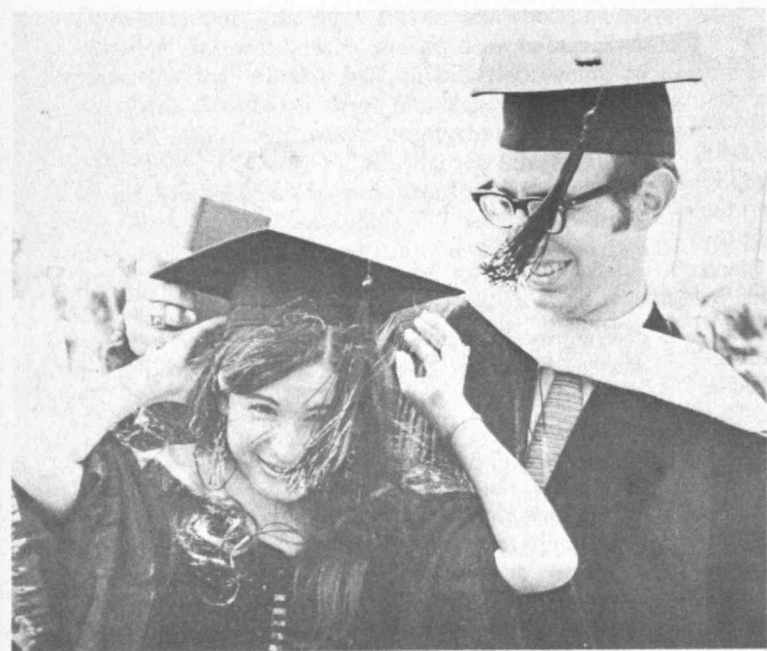
Student Homophile League*
Meeting and mixer meets Fridays, 7:30pm, Mission Church, 33 Bowdoin St., Boston. For gay help (anonymous) at MIT, call the student gay tutor, 492-7871 anytime.

ACBL Duplicate Bridge*†
Bridge Club. Every Saturday, 1:30pm, Student Center Rm 473. Members, free; non-members, 75 cents.

Chess Club**
Every Saturday and Sunday, 1:30-5:30pm, Student Center Rm 491.

Social Events

Muddy Charles Pub**
Join your friends at the Muddy Charles Pub, 110 Walker, daily 11:30am-7:30pm. Call X2158.



Dr. Gail Marcus gets a hand from her husband, Dr. Michael Marcus, following Commencement exercises at which both received doctorate degrees.
—Photo by Margo Foote

Husband and Wife Are Invested Together

Husband and wife team Michael and Gail Marcus marched together in last Friday's commencement exercises to receive Doctor of Science degrees from the School of Engineering.

Mike received the Sc.D. degree in electrical engineering, while Gail was awarded the doctorate in nuclear engineering. She is the first woman to receive a doctorate from the Department of Nuclear Engineering in the history of the Institute.

The Marcuses actually completed requirements for their Sc.D. degrees earlier this year, but returned to MIT for commencement. They were both invested with academic hoods—lined with cardinal red and silver gray and trimmed in yellow—

designating the Doctor of Science degree.

In 1968 Mike and Gail marched in MIT commencement exercises for the first time. Mike received the S.B. degree in electrical engineering and Gail received both the S.B. and S.M. degree in physics. They served as joint secretaries of the Class of 1968. Mike and Gail were married on June 9, 1968, two days after commencement.

Now living in Falls Church, Virginia, Mike is project officer for the US Air Force Vela Seismological Center and Gail is on the staff of Analytic Services, Incorporated.

Mike is the son of Mr. and Mrs. Theodore Marcus, formerly of Newton, now living in Phoenix, Arizona. Gail is the daughter of Mr. and Mrs. Arnold L. Halpern of Long Branch, New Jersey.

Chancellor Gray Addresses Senior Class at Convocation

Chancellor Paul E. Gray reviewed significant events of the past four years for members of the Class of 1972 and their families at the Senior Convocation held in Kresge Auditorium last Thursday afternoon.

"There has been a remarkable expansion in the scope and nature of educational programs at the Institute," Dr. Gray said.

"In the early 1960's the first-year program was essentially monolithic—four uniform core subjects, each with enrollments of about 900, set the tone of the introduction to MIT... In contrast, the freshmen this spring were registered for nearly 200 different subjects. The lecture-recitation mode of instruction has been supplemented by seminars, by self-paced and independent study and by the Undergraduate Research Opportunities Program."

From his extended experience with curriculum development, Dr. Gray said he would "come down hard on only one generalization. It is that no single educational style, no normative mode of encounter suffices for the diversity of MIT students."

Dr. Gray also commented on the expansion of coeducation at the Institute.

"During your tenure here the Institute commemorated 100 years of women at MIT... There were 61 admitted with your class, while the number of both last year and this is an excess of 120," he said.

"More women will receive degrees from the Institute during the next ten years than in the entire first 100 years of coeducation at MIT," he said.

He also noted development or evolution of several new courses

and educational programs, including the recently announced Center for Policy Alternatives within the School of Engineering.

Dr. Gray pointed out that the seniors about to be graduated "were the first class to undertake the freshman year with a pass-fail grading system—a system adopted in an effort to ease the transition to this quite competitive academic environment. You demonstrated that the prod of grades was indeed superfluous by working as hard as your predecessors but, I believe, worrying about your performance somewhat less."

In discussing campus unrest, he said "Active protest again at the war in Southeast Asia began at MIT during your freshman year. We all lost our innocence with the Sanctuary in November 1968.

In closing, the Chancellor offered three wishes for the class.

"I hope that your experience here during these last four years has both developed within you the resources necessary for continued self-education and has convinced you of its importance.

Pointing out that society has been critical of technology and that in some instances technology has fallen short of its promise. "My second wish for your future relates to the role you will play in a society that is unalterably dependent upon science and technology for its future development... My wish is that you "undertake your tasks with sensitivity and with a growing understanding of the necessary and proper role of science and technology as the servants of society and mankind," he said.

Dr. Gray said he wished finally "that you will continue to care for

MIT as you leave here and pursue your careers elsewhere. This Institution needs your continued interest and your loyal support, and it can benefit greatly in the future from your perceptions of the changing world for which we see to prepare new generations of students."

Commencement

(Continued from page 1)
the members of the graduating Class of 1972 and graduate degree candidates, but also some 100 members of the 50th-year reunion Class of 1922, the largest 50-year class ever to return for an MIT commencement. Marshal for the class was its president, Parke D. Appel of Dover, Mass.

Othej commencement principals included: Luis A. Ferre, governor of Puerto Rico and a 1924 graduate of MIT; Cambridge Mayor Barbara Ackermann; Rabbi Herman Pollack, who retires this year after 20 years as director of the B'nai B'rith Hillel Foundation at MIT and who gave the commencement invocation; and Dr. Paul E. Gray, chancellor of MIT.

The day before commencement, Thursday, June 1, Dr. Gray gave the principal address to the annual senior class convocation in Kresge Auditorium. Each year the seniors select the convocation speaker.

Also on Thursday, at military commissioning exercises for Army, Navy and Air Force ROTC units, 13 graduating seniors received commissions in the Army, four in the Navy and 14 in the Air Force. Principal speaker was Brig. Gen. Charles D. Daniel, director of Army research in Washington, D.C., a nuclear physicist.

ay Afternoon Club**
ic, conversation and all the cold draft Budweiser you
drink. Every Friday, 5:30pm, Ashdown basement
es Rm. Admission: men \$1, women 50 cents. Must be
21.

ovies

amkin*
Society. Monday, June 12, 8:30pm, Rm 10-250.
ets \$1.

usic

tian Comedy Troupe and Mohammad Taka*
ormance in Kresge, 8pm, Friday, June 9. Sponsored by
Club of MIT. For information and tickets call
986.

nce

k Dance Club*
ernational folk dancing. Every Sunday, 7:30-11pm, Sala
uerto Rico (exceptions to be posted).

ern Dance Technique Class**
mentary/Intermediate. Every Monday, Wednesday, Fri-
5:15pm. Every Sunday, 1pm. McCormick Gym.

Dance Club*
an folk dancing. Every Tuesday, 7:30-11pm, Student
er Rm 407.

Squares*
y Tuesday, 8-11pm, Rm 10-105. Call dorm X0888 or
5453.

Dance Club*
li folk dancing. Every Thursday, 7:30-10pm, duPont
T-Club Lounge.

ay Afternoon Dance Break*
national folk dancing on the Kresge Oval, every Friday
ther permitting), 12:30-1:30pm.

Exhibitions

Retrospect II--from William Barton Rogers to Karl Taylor
Compton*

Collection of historical portraits, busts and photographs
depicting the first 11 presidents of MIT, early scientific and
engineering achievements as well as portrayals of everyday
life from 1861-1941. Sponsored by the Committee for
Institute Memorabilia. Hayden Gallery.

Autographed Music Scores

Exhibition of autographed musical scores in honor of Klaus
Liepmann and the Choral Society. Music Library (Rm
14E-109) through the summer.

Hart Nautical Museum*

Exhibits include "Naval Undersea Research and Develop-
ment Center," and "The Art of Rigging." Bldg 5, first floor.

Religious Services and Activities

The Chapel is open for private meditation from 7am to
11pm every day.

Roman Catholic Mass*

Every Sunday, 10:30am, Chapel.

Hillel Religious Services*

Monday-Friday, 8am, Rm 7-102; Fridays, 7:30pm, Chapel;
Saturdays, 9:30am, Chapel.

Divine Light Mission*

Discourses on the direct experience of Truth given by Guru
Maharaj Ji. Every Monday, Wednesday, Friday, 7:30pm,
Rm 4-145. Call 369-1603 (Concord).

Ananda Marga Yoga Society*

Group meditations. Every Tuesday, 5pm, Rm 14E-303. For
information, call X3664.

Christian Science Organization*

Meeting includes testimony of healings. Every Tuesday,
7:15pm, Rm 8-314.

Latter Day Saints Student Association**

Religious seminars. Every Tuesday, 8am, Student Center
Rm 473.

Christian Bible Discussion Groups*

Every Wednesday, 12:30pm, Rm 4-343; every Thursday,
12:30pm, Rm 20B-222. Call Prof. Schimmel, X6739, or
Ralph Burgess, X2415.

Christians for Dinner*

United Christian Fellowship. Every Thursday, 6-7pm,
Walker Dining Hall (under sign of the fish).

Praying, Singing, Sharing Meeting*

United Christian Fellowship. Every Thursday, 7-8pm, East
Campus Lounge.

Islamic Society Prayers*

Every Friday, 1pm, Kresge Rehearsal Rm B.

Vedanta Services*

Every Friday, 5:15pm, Chapel; discussion hour, 6pm,
Ashdown Dining Hall.

Islamic Society Discussion*

Isha prayers followed by discussion of various aspects of
the Islamic way of life. Every Friday, 7:30pm, Student
Center Rm 473. Coffee and doughnuts served.

Free Draft Counselling*

Hillel, 312 Memorial Drive, X2982. Call or visit 10am-5pm.

Announcements

Senior Fulbright-Hays Fellowships

Deadline date for applications is July 1. Contact Dean
Harold Hazen, Foreign Study Office, Rm 10-303, X5243.

MIT Employees for Peace and the Strike Information

Center has moved to Rm 7-106, Ext. 1984, for the summer.

*Open to the Public

**Open to the MIT Community Only

***Open to Members Only

†Freshmen encouraged to attend

Send notices for June 14 through June 23 to the Calendar
Editor, Room 5-111, Ext. 3279, by noon Friday, June 9.

Margaret MacVicar

Joins Danforth Program

Dr. Margaret L. A. MacVicar, assistant professor of physics, has been appointed to the Associate Program of the Danforth Foundation, along with 176 other faculty members of colleges and universities throughout the US.

According to Robert Rankin, director of the program, "The purpose of the Program is to encourage the humanizing of the educational process in colleges and universities. It is a strong counterforce against the depersonalized atmosphere present in much of American higher education."

While in the program, the Associates work directly with students on a personal basis in an effort to improve student-faculty relations and to strengthen the teaching-learning process. Funds are allocated by the Danforth Foundation to provide modest stipends for each Associate, to support special projects, and to sponsor educational conferences.

Danforth Associates are selected by regional committees. The Foundation, created by the late Mr. and Mrs. William H. Danforth in 1927, is a philanthropy concerned with people and values. It administers programs and makes grants to schools, colleges, universities and other public and private agencies.

Dr. MacVicar, a native of Flint, Michigan, received the S.B. degree in physics in 1964 and the Sc.D. degree in metallurgy and materials science in 1967, both from MIT. From 1967 to 1969 she



Margaret MacVicar.

was a Fellow at the Cavendish Laboratory, University of Cambridge.

In addition to her position in the Department of Physics, Dr. MacVicar is a staff member-at-large and director of the Undergraduate Research Opportunities Program at the Education Research Center. She is also a consultant at the Education Development Center in Newton. Her interests range from single crystal growth of refractory metals to hearing loss, and education reform.

Reunion Gifts of \$2 Million Announced at Alumni Days

(Continued from page 1)

passengers through the airlines--is needed."

Paramount to such a system, Browne said, would be federal pre-emption of authority for all law enforcement at air terminals and in the air.

With almost 1500 alumni and their families attending the various functions, this has been one of the best attended Alumni Days in recent years. Sharing the morning portion of the Monday Alumni Days program with Secor Browne was Colonel David R. Scott, Commander of Apollo 15, who narrated a film of that flight and talked about the future of interplanetary space travel.

At the noon luncheon, President Jerome B. Wiesner told alumni that the Institute had grown increasingly more complex since the time when they were students.

The educational process has had to be changed over the last few years, he said. One reason has been the need to respond to the greater preparedness of entering freshmen, which has required that courses be modernized. Also, the "need to affect social relatedness of many courses" has led to several different learning styles being implemented, he said.

Also at the luncheon, reunion gifts amounting to almost two million dollars were announced by the 50th, 40th and 25th anniversary classes.

In addition, John A. Lunn of Cambridge, president of the Class of 1917, announced a precedent-setting special 55th year gift consisting of two parts. The first part is a \$100,000 Class of 1917 Memorial Endowment Fund, and

the second is a Buzz Aldrin Scholarship Fund for Aeronautics and Astronautics, which amounts to \$80,768. Edwin E. Aldrin, Sr., father of the astronaut, is a member of the Class of '17.

Parke D. Appel of Dover, Class of '22 president and reunion chairman, announced that his class had set a record for a 50th year gift with \$909,000 donated by 337 class members. An additional \$685,000 has been pledged to MIT in bequests by 28 members of the Class of 1922, which was announced by Donald F. Carpenter of Mendenhall, Pennsylvania, class estate secretary.

The Class of '22 has also set up a "Career Development Fund," which is now at about the \$330,000 level, to support promising young faculty members.

The 40th year gift from the Class of 1932 was announced by the class agent, who is responsible for fund raising, Thomas E. Sears, Jr., of Scituate. Three-hundred eighteen members of the Class of '32 donated \$363,000 to MIT.

Class of 1947 reunion gift chairman Richard S. Mooney of Bernardsville, New Jersey, announced that the Class of 1947 set a new record for a 25-year gift, with 439 class members contributing a total of \$728,593.

The funds were raised by the three reunion classes over the past five years.

In the afternoon session, Professor Philip Morrison of MIT's Department of Physics spoke on "The Nature of the Universe." Through slides and a discussion, he traced the universe as far as man can "see" with his sophisticated telescopes of all kinds and

described the connection between fundamental particles and the early fireball of the universe.

Professor of Management Jay W. Forrester discussed a world model and described how the computer will have to be used to test models of social systems so that effective policies can be made in a world that must, now, he said, begin to reach equilibrium after 1,000 years of growth. Speaking on technology and medicine, Robert W. Mann, Germeshausen Professor in mechanical engineering told of his and his colleagues efforts to provide better health care delivery. He traced the history of development of some of the projects he has worked on, including the Boston Arm, a prosthetic device.

The final speaker on the program was Institute Professor Paul A. Samuelson, who spoke on "Change in Society." In an open society such as ours, he said, it is the five or ten percent of the people who are just off center in their thinking, rather than the radical elements, who change the entire society.

Wrigley Gives Talk at NEAI

Dr. Walter Wrigley, professor of instrumentation and astronautics, delivered the commencement address at New England Aeronautical Institute and its division, Daniel Webster Junior College, in Nashua, New Hampshire, on Sunday, June 4.

Established in 1965, the college offers associate degrees in science and art.

O'Shaughnessy Believed First to Receive 4 Degrees at Once

A 22-year-old electrical engineer whose research relates to how humans might one day be able to communicate with computers by the spoken word is believed to be the first person ever to receive four simultaneous degrees from the Institute.

He is Douglas David O'Shaughnessy of Merrick, New York, who entered MIT in the fall of 1967 as a freshman and who after five years of college received two Bachelor of Science degrees, a Master of Science degree and an Electrical Engineer degree during the Institute's 106th commencement exercises.

O'Shaughnessy did not plan to set a record for numbers of simultaneous degrees. His academic program just worked out that way.

A 1967 graduate of Chaminade High School at Mineola, New York, O'Shaughnessy at the end of his freshman year at MIT decided to major in electrical engineering and computer sciences and subsequently became interested in the problem of how computers might

be designed and built so that they would recognize speech and react to spoken commands. His selection led him to take extra subjects in both electrical engineering and in mathematics.

In most of its courses of study, MIT requires undergraduates to carry out an original research project as a bachelor's thesis. In his senior year, O'Shaughnessy decided to work on an analysis of certain aspects of human speech as part of a larger program of better understanding speech and speech patterns which is necessary if computer designers are to build machines that will recognize spoken words.

O'Shaughnessy also had decided earlier in his undergraduate career to go on to graduate study for advanced degrees and since the work he was doing on speech analysis was technically interesting and potentially useful, he decided, with the permission of his professors, to combine his bachelor's thesis and his master's thesis research.

Consequently, when he reached the end of his first four years at the Institute, O'Shaughnessy had not completed his bachelor's thesis and he delayed taking his bachelor's degree for one year. By this year's commencement, however, he had completed the combined thesis ("Consonant Durations in a Cluster Environment") and had taken enough subjects that he qualified for both the Bachelor of Science in electrical engineering and the Bachelor of Science in mathematics as well as the Master of Science in electrical engineering and the next highest degree, Electrical Engineer.

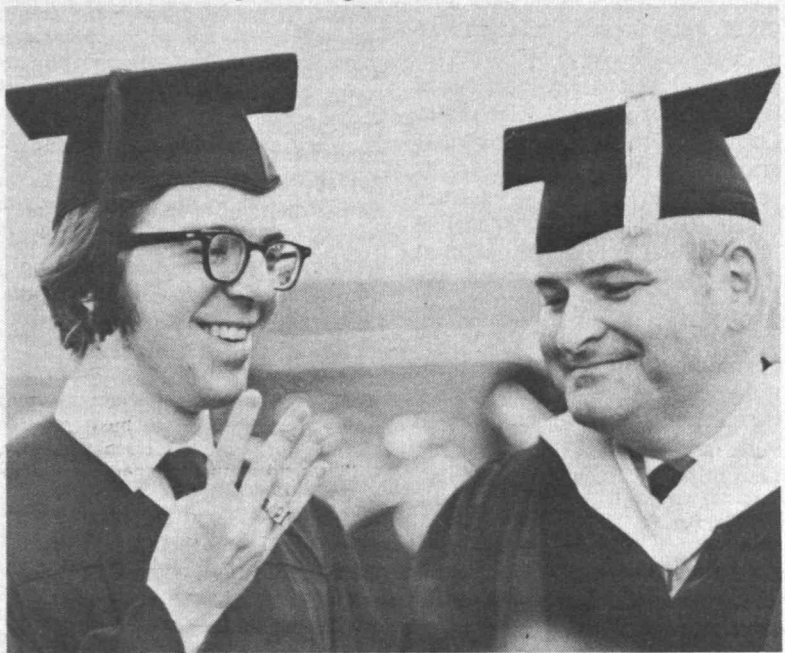
O'Shaughnessy did his research in the interdepartmental Research Laboratory of Electronics under the supervision of Dr. Jonathan Allen, associate professor of electrical engineering and a staff researcher in RLE.

"He is an outstanding student," Professor Allen said, "and his thesis provides a detailed and insightful analysis of some of the more complicated aspects of timing in speech."

Specifically, O'Shaughnessy recorded the voices of persons with typical speech reading words, sentences and paragraphs containing words with several consecutive consonants or consonant sounds (such as "strike" or "fifths," etc.). He then carried out a careful and detailed statistical analysis on how such clusters of consonants affect changes in time intervals in the speech patterns.

At MIT, O'Shaughnessy has been busy with courses and research, but has found time for intramural hockey and baseball and served on the staff of the student radio station, WTBS, as a freshman and a sophomore.

O'Shaughnessy plans to continue graduate study at the Institute working toward a doctor's degree in electrical engineering.



Douglas O'Shaughnessy, left, poses with Chancellor Paul E. Gray in the robing room before commencement exercises, at which O'Shaughnessy received four degrees. --Photo by Margo Foote

Goodwin Medal Goes to Doctoral Student

A young doctoral student received the Goodwin Medal for conspicuously effective teaching at the President's Luncheon following Commencement ceremonies last Friday.

Dean Irwin W. Sizer, of the Graduate School, presented the medal and a cash award of \$500 to Samuel Alan Cohen, a teaching assistant in the Department of Physics.

The Goodwin Medal was established in memory of Harry Manley Goodwin, the first dean of the Graduate School, by his family to honor graduate students whose teaching is conspicuously effective over and above ordinary excellence.

Mr. Cohen, 25, from South Fallsburg, New York, received his S.B. degree from MIT in 1968 and has since been working towards his doctorate, which he expects to receive this summer. He has been a teaching assistant in the physics department since September, 1968, and was nominated for the Goodwin Medal for his work as a

physics teacher by faculty, students and co-workers.

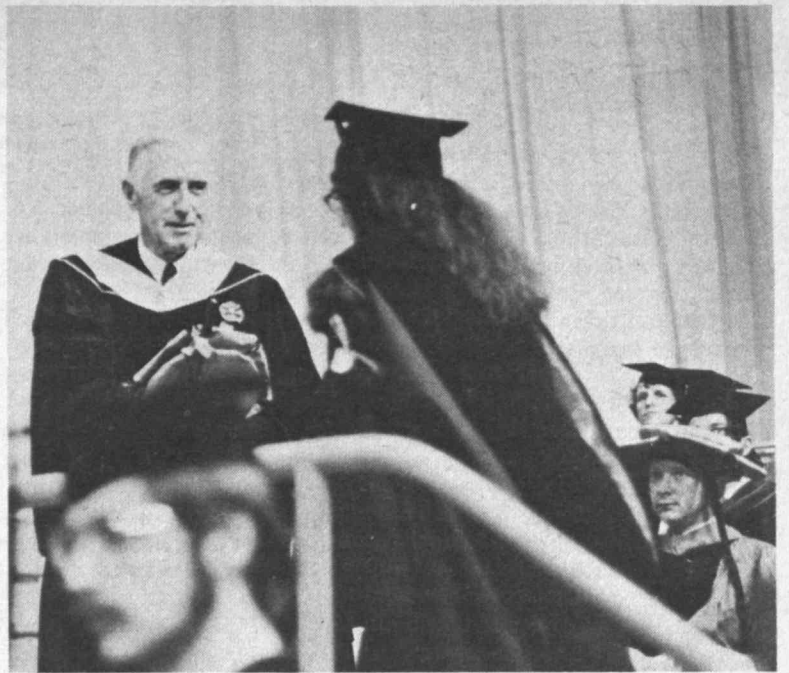
Besides teaching and working closely with students who came to him with problems, Mr. Cohen has been the physics department coordinator for the Undergraduate Research Opportunities Program (UROP). Students in UROP do original research under the supervision of a faculty member. Mr. Cohen has placed 120 students on research projects in the physics department—with due regard for their talents, interests and the professor with whom they carry out their work.

In recommending Mr. Cohen for the award, one professor wrote: "I can't imagine a stronger candidate—he knows the material, delivers it well, and has the personality and energy to achieve the kind of contact with students that inspires them to their best efforts."

Another faculty member summed up the tone of all the letters of support for Mr. Cohen being awarded the Goodwin Medal by writing, "He personifies the award."



Samuel Cohen, left, receives the Goodwin Medal from Dean Irwin W. Sizer. --Photo by Margo Foote



Mr. John J. Wilson, secretary of the Corporation, escorts Dr. Christina Jansen to her seat with the Corporation following her hooding as a Doctor of Philosophy. --Photo by Margo Foote

Corporation Member Receives Ph. D. Hood

One person left the ranks of graduates during MIT's 106th commencement Friday and took a place on stage with the Corporation, the Institute's governing body.

She was Dr. Christina Huk Jansen, one of four women members of the Corporation and one of five members who are Representatives from Recent Classes. Since students, faculty and employees do not serve simul-

taneously as members of the Corporation—she is believed to be the first Corporation member to receive academic honors at a commencement while serving on the governing board.

Dr. Jansen actually received her Doctor of Philosophy degree in metallurgy and materials science last September, a month before she was installed for a three-year term as a Representative from Recent Classes, a new alumni category of Corporation membership established to provide representation on the governing board from among younger alumni.

Since MIT has formal commencement only in June, however, Dr. Jansen was invited to receive as a part of 1972 commencement exercises, the colorful cardinal and silver gray academic hood trimmed in blue which is emblematic of the Doctor of Philosophy degree from MIT.

She marched to commencement with some 1,272 graduates in the academic procession and when her name was called by Dr. Alfred H. Keil, dean of the School of Engineering, she went to the stage where she received the hood from Dean Irwin W. Sizer of the Graduate School and Dr. Hartley Rogers, Jr., chairman of the faculty. Instead of returning to the graduates' section of the audience, however, she joined her colleagues in the Corporation on stage and marched with them during the recessional.

Dr. Jansen, 31, now a research scientist with Polaroid Corporation, Cambridge received her S.B. degree in 1963 and her S.M. in 1966, both from MIT. A native of Bethlehem, Pennsylvania, she is married and has two children. Her husband, Ronald Jansen, also an MIT alumnus, is a computer software engineer at ECRM, Incorporated, Cambridge. They live in Brookline.

Trespass Trials Are Held

Nineteen persons charged with trespass in connection with the occupation of MIT's ROTC offices May 12-13 were found guilty in East Cambridge district court last week. The sentences, including three 30-day jail terms and 16 \$100 fines, were deferred pending appeal to the Superior Court.

Another four persons were found not guilty during the Wednesday-Friday trials and one person did not appear for trial.

In five other cases, the court earlier said there was sufficient evidence to warrant a finding of guilty and the defendants accepted having the charges filed for periods of three to six months after which the charges will be dismissed if the defendants are not convicted of another offense during the interim. Also earlier, with the concurrence of MIT, findings of not guilty were entered in two other cases.

MIT brought the charges. Thirteen were tried Wednesday, May 31, before Judge Lawrence F. Feloney. Another 10 were tried Thursday, June 1, and Friday, June 2, before Judge Haven Parker.

Several defendants had attempted to subpoena MIT administrators and while the administrators were prepared to appear if needed, the court, on its own motion, disallowed the subpoenas. One subpoena handed to President Jerome B. Wiesner during commencement by a graduating senior (not one of the defendants) was ruled defective by Judge Parker when it was brought to his attention by the defense.

Holiday Notice

Vice President John Wynne has announced that in addition to observing Independence Day on Tuesday, July 4, the Institute will be closed all day on Monday, July 3.

Classes will not be held on July 3 or 4. Only those employees needed for essential operations will be required to work.

Have a good holiday.

Distinguished Leaders Elected to Corporation

(Continued from page 1)

engineering and now chief of surgery at the Massachusetts General Hospital and a professor of surgery at the Harvard Medical School. He also was elected for a five-year term membership. He is the second medical doctor on the Corporation. Dr. George Thorn of Peter Bent Brigham Hospital is also a member. After graduating from MIT, Dr. Austen attended the Harvard Medical School where he received the M.D. degree in 1955. He is a former member of the Corporation Visiting Committee for Biology and now serves as a member of the Corporation Visiting Committee for the Medical Department.

Rebecca A. Donnellan of Tampa, Florida, the young woman who received her bachelor of science degree in management at last Friday's commencement, was elected to a five-year term as a Representative from Recent Classes. The Representatives from Recent Classes is a new class of alumni membership on the Corporation established a year ago. There are five such representatives serving five-year terms, one expiring each year. Miss Donnellan, who became 21 earlier this year, was nominated by members of the classes for the past three years and succeeds Laurence Storch, of Springfield, who was elected for a special one-year term when the new category of mem-

bership was started. Storch now attends Harvard Law School.

Miss Donnellan will be the youngest member of the Corporation. Mr. Storch was a few weeks younger when he was elected. Miss Donnellan also becomes the fourth woman member of the Corporation. Others are Dr. Christina H. Jansen of Cambridge, a scientist with Polaroid Corporation, and Miss Pamela Whitman, a former teacher at the Shirley, Industrial School, both MIT alumna and Representatives from Recent Classes; and Mary Frances Wagley, headmistress of St. Paul's School for Girls, Baltimore, Maryland, a 1947 graduate of MIT who was elected to a regular five-year term membership in 1970—the



Donnellan. Clark.

first women to be elected to the Institute's governing body.

Miss Donnellan was a student leader during her undergraduate career. She served as co-chairman of Project Runnymede, a conference on the Vietnam War; a staff researcher for a study on university investing and social responsibility; a staff researcher for a study on alternate federal policies for funding of research and development; and a member of a student consulting organization to encourage businessmen to consider societal implications of their corporate decisions. She was active in Institute affairs affecting women students and was a student member of the Corporation Joint Advisory Committee.

Others elected to five-year term memberships are: W. Van Alan Clark, Jr., president and chairman of the board of Sippican Corporation, Marion, and chairman of the board of General Electronics Laboratories, Boston. A 1941 graduate of Williams College, he received his master of science degree from the Sloan School of Management in 1942 and taught at the school from 1946 to 1958, the last two years as assistant dean. He presently is a member of the Corporation Development Committee, the Corporation Visiting Committee for the Sloan School and the Corporation Visiting Committee for Ocean Engineering.

W. H. Krome George of Pittsburgh, Pennsylvania, president of the Aluminum Company of



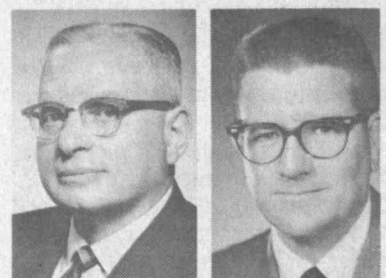
George. Keyser.

America and a 1940 graduate of MIT in management. Mr. George joined Aluminum Company of America in 1942, became a vice president in 1964 and president in 1970. He is a member of the President's Commission on American Shipbuilding. At MIT, he serves on the Corporation Development Committee and the Corporation Visiting Committee for Economics.

Paul V. Keyser of New York, retired executive vice president of the Mobil Oil Company and a 1929 graduate of MIT in chemical engineering with a master of science in chemical engineering in 1930, when he joined Mobil Oil Company. Mr. Keyser is completing two one-year terms as president of the Alumni Association, in which position he has served as an ex-officio member of the Corporation. He is a member of the Corporation Development Committee, the Advisory Council and Corporation Visiting Committee for the Sloan School, and the Alumni Fund Board. He is a former member of the Corporation Visiting Committee for the Humanities and is a former chairman and vice chairman of the MIT Alumni Center of New York. He served on

the Presidential Selection Committee in 1970.

Ralph Landau of New York City, president of Halcon International, Incorporated. A 1937 graduate of the University of Pennsylvania, he received the doctor of science degree from MIT in 1941 in chemical engineering. He was a former engineering executive with M. W. Kellogg Company and was executive vice president of Scientific Design Company, Incorporated from 1946 to 1963 when he joined Halcon as president. He is a member of the Corporation Development Committee, the Corporation Visiting Committee for Chemical Engineering and the National Sponsoring Committee for Chemical Engineering.



Landau. Murchison.

Clint W. Murchison, Jr., of Dallas, Texas, a partner in Murchison Brothers, Dallas, and owner and chairman of the board of the Dallas Cowboys football team. A graduate of Duke University, he received his master of science degree from MIT in mathematics. He is a member of the Corporation Development Committee and has served on Corporation Visiting Committees for Sponsored Research and the Sloan School.

Paul P. Sheperd of San Francisco, California, senior vice president with Cabot, Cabot & Forbes industrial development firm, and a 1953 graduate of MIT in civil engineering. Mr. Sheperd is a past president and vice president and presently a director of the MIT Club of Northern California and was a director of the Alumni Association from 1969 to 1971. He has long been active in alumni affairs and served as president of his class from 1958 to 1963 and its reunion chairman in 1962-63.

A present Term Member of the Corporation, Breene M. Kerr of Oklahoma City, Oklahoma, was elected to the additional position of ex-officio member by virtue of his election as president of the MIT



Sheperd. Kerr.

Alumni Association for the 1972-73 year. A 1951 graduate of the Institute in geology and the son of the late US Senator Robert S. Kerr of Oklahoma, Mr. Kerr has been a long-time officer of Kerr McGee Oil Industries with time out from 1964 to 1967 when he served as a top administrator of the National Aeronautics and Space Administration in Washington, D. C. He presently is senior partner, Resource Analysis and Management Group, Incorporated, Oklahoma City. He is a member of the Corporation Development Committee, chairman of the Corporation Visiting Committee for Civil Engineering, a member of the Corporation Visiting Committee for Earth Sciences and is past president of the MIT Alumni Club of Oklahoma.

New Identification Cards Will Streamline Many Processes

(Continued from page 1)

same time provide a clear, errorless record of every medical encounter, for the internal uses of the Department," Mr. Wilson pointed out.

"The Cashier's Office also will use the new cards and will discontinue issuing the blue card most employees now have," he said. "The new card will be required as identification for check cashing."

The Libraries, too, plan to use the Institute card in place of present library cards. The Libraries will install imprinters at all circulation areas as soon as possible after the cards are issued. The new cards will be required for all withdrawals from the Libraries.

The Athletic Department will continue to issue its own card for the coming 1972-73 season.

"However, the Athletic Department does plan eventually to replace its athletic card with an annual validation sticker which will be designed to adhere to the reverse side of the new card," Mr. Wilson said. "The Institute card, with validation sticker attached, will then be required for access to all athletic facilities and will be deposited for towel service and equipment issue."

In time it is expected that a number of other special purpose identification cards now in use can be discontinued.

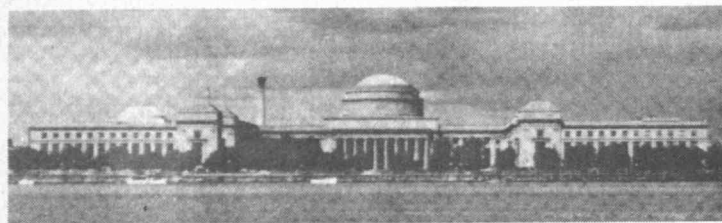
The new card will not include a photograph.

"We decided against pictures after carefully weighing the substantial costs involved in carrying out an Institute-wide picture-taking campaign; the card as designed is quite inexpensive and will be quickly paid for by administrative savings," Mr. Wilson said. "In cases where photographic identification is necessary, an individual will be able to use the Institute card in conjunction with his Massachusetts driver's license photograph."

The cards will be distributed by the various department and laboratory administrative offices. Everyone is urged to sign the signature panel on the card upon receipt and make every effort to keep the cards on his or her person at all times.

"Any errors, such as misspelling of names, or incorrect social security numbers should be reported promptly to the administrative officer who will arrange for issuance of a corrected card," Mr. Wilson emphasized. "Lost or stolen cards should be reported in a similar manner."

"Identification cards will be retained by all persons who retire from the Institute. However, persons who terminate will be required to return their cards to their appropriate administrative office," Mr. Wilson said.



020-40-2434

Willoughby Beaver

Massachusetts Institute of Technology Identification Card

Comptroller Outlines Changes to Be Made in Bursar's Office

The Comptroller has announced a reorganization of the Bursar's Office.

During the past five years the activities in the areas of Student Accounts, Student Notes, and the increasing necessity for providing financial advice to students make it necessary for realignment of the responsibilities of that office.

The Cashier's Office in the Ford Building (Room E19-215) will close on Friday, June 9, 1972 and will be consolidated with the central Cashier's Office in Building 10 (Room 10-180). All cashiering services, such as check cashing, payment of bills, purchase of traveler's checks, pickup of payroll checks, etc. will be consolidated in 10-180 effective June 12, 1972. Related services now being provided by the 10-180 office will be continued. The Cashier's Office

will be supervised by Mr. Carl T. Carey, Jr., Cashier.

The Student Accounts Office will remain in the Ford Building (Room E19-215) under the direction of Mr. James F. Brady. The consolidation of cashiering in Building 10 will allow the Ford Building Office to specialize in servicing the financial needs of the students. The office will be organized in a manner which will provide each student with a representative who will be responsible for his or her account on a continuing basis.

These representatives are as follows:

Freshmen and Sophomores -- Mr. James McTighe

Juniors and Seniors -- Mrs. Mary Lawson

Graduate Students - School of Architecture, School of Human-

ities, School of Science -- Mr. Sigmund Romas

School of Engineering, School of Management - Special Students -- Mr. Robert Ragusa

The Student Loan Office will continue in the Ford Building (Room E19-225) under the supervision of Mr. John R. Rogers, Accounting Officer for Student Loans, assisted by Miss Dorothy Latsey, Assistant Loan Officer.

Erratum

In the May 31 issue Tech Talk erroneously announced the appointment of Dr. John Fisher Kennedy as a professor in the Department of Civil Engineering. Tech Talk regrets the error.