

Established At MIT In 1881

Vol. 81, No. 25

Cambridge, Mass., Wednesday, December 6, 1961

5 Cents

Fill Rotating Seats

Activities Weigh Union Proposals

Preliminary plans for the new Student Union were released last week by Architect Eduardo Catalano. The proposed floor plans, partly based on activities' requests dating back to 1958, were presented to the Activities Council in last Wednesday's meeting. Meetings were held with architect Catalano, a Professor in MIT's school of Architecture, yesterday to discuss the preliminary drawings. Currently, the plans are viewed with mixed emotion, some activities being quite satisfied while others are requesting changes.

Rotating Seats Filled

Elected to the five rotating Class B seats on the council are Club Latino, Eta Kappa Nu, the Industrial Management Association, Tangent, and the Young Republicans Club. These seats were created by the recently approved, revised Activities Council Constitution.

Tech Show Suspended

As a result of frequent absenteeism, Tech Show was suspended from the council in last Wednesday's meeting.

This results in loss of voting power for the next two meetings attended and makes the organization subject to expulsion from the council in the event of continued absenteeism.

Civil Defense Letter

Brings Public Support; Professors Surprised

On November 10, 1961, an open letter to President Kennedy, criticizing the present Civil Defense program, and calling instead for "a positive program for peace with freedom," appeared in The New York Times as a paid advertisement.

The letter was signed by 183 faculty members from Boston University, Brandeis, Harvard, Massachusetts Institute of Technology, and Tufts.

In accordance with a requirement of the Times, the writers listed a return address and stated that they would be glad to hear from anyone desiring to write. Almost 1000 letters, postcards, and telegrams were received.

About 2% disputed the stated views, 1% wanted more information on the "positive program," 1% gave no opinion, and the other 96% were enthusiastically in support of the views. 160 writers offered help and money. Many sent unsolicited contributions, totalling over \$1,000.

From reading the popular press, from listening to radio or watching television, from attending local civil defense meetings, the authors previously thought that almost everyone was in favor of the present shelter program.

'Communications' Topic Of Monday's Lecture In Lincoln Lab Series

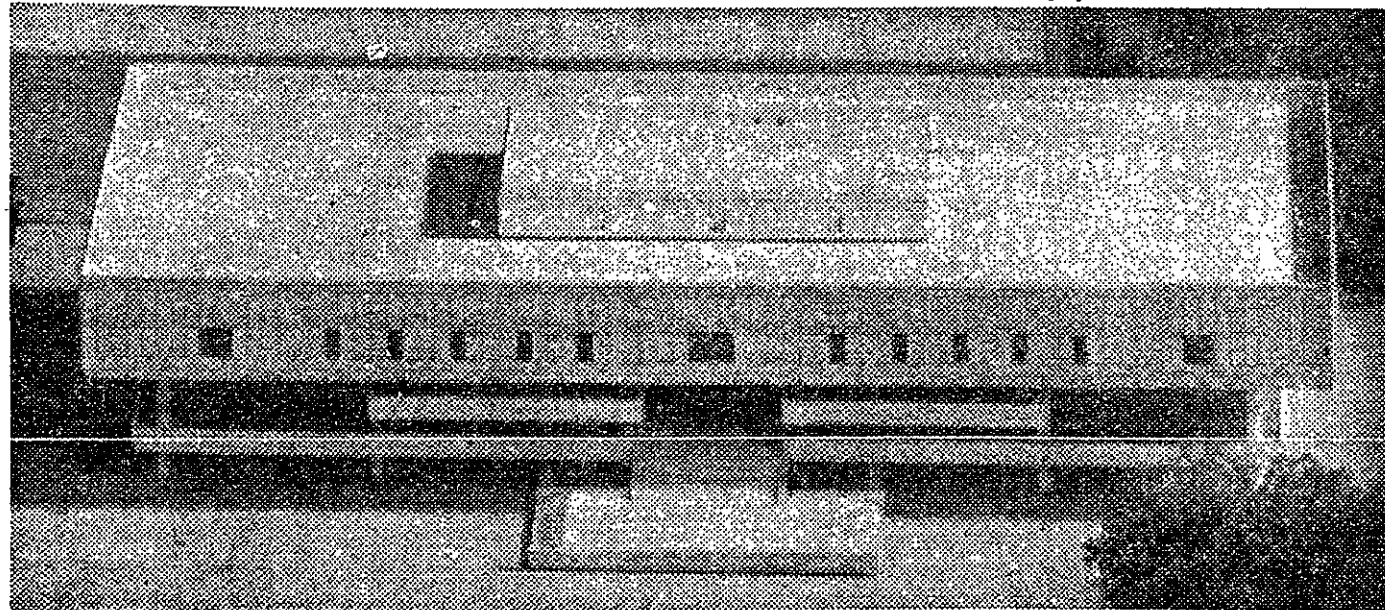
"Communications" will be the topic of a lecture given by Dr. Lloyd V. Berkner in Kresge Auditorium on Monday, Dec. 11 at 8 p. m.

This is the third in the series of Decennial Lectures on "The Age of Electronics," sponsored by Lincoln Laboratory. It will be open to the public free of charge.

Dr. Berkner is President of the Institute of Radio Engineers and Fellow of the American Institute of Electrical Engineers. These are the two largest groups of communications engineers in the nation.

He is also an aviator in the Naval Reserve and a Rear Admiral, USNR. In addition, he was President of Associated Universities Inc., the operators of Brookhaven National Laboratory.

Student Union Plans Being Drawn



Shown here is a photograph of a study model of Prof. Catalano's proposed MIT Student Center. The plans currently include commercial facilities, a dining hall, and space for many student activities.

Plans for the new Student Union, to be located on the site of the recently burned Hennessey block are still being formulated.

The center will provide the commercial facilities badly needed by the Institute community, a center for undergraduate extracurricular and

recreational activities, and hopefully a more unified social atmosphere for the Institute.

At the present time the commercial facilities include the Coop, a barber shop, a drug store, a tailor, a postoffice and a bank. Extracurricular activities will be provided with meeting rooms, storage space, as well as office space. Recreational facilities will include bowling alleys, billiards, ping pong, arts and crafts, music practice rooms and a reading room library.

Lounges, a restaurant, a rathskellar, a delicatessen, private dining rooms and a ballroom will be included also. In addition to its weekday use the center will encourage weekend use by students and guests. Towards this goal it is hoped that the Union will be able to schedule informal social functions after other on-campus activities, sporting events, concerts, etc.

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Foreign Opportunities Committee

InsComm Proposes Jr. Year Abroad

A Junior Year Abroad Program for MIT is under investigation by the Foreign Opportunities Subcommittee of Inscomm. However, plans for this program are only in the very early stages. Tom Burns '62, who was a participant in the Crossroads Africa project last summer, is in charge of a group which is writing to foreign universities, and speaking with foreign MIT students about the feasibility of spending the junior year at European or Eastern schools.

Several American colleges are presently allowing their students to spend their junior years abroad. The manner in which these foreign programs are handled, however, varies from college to college. Stanford University sends both faculty members and students to the foreign universities, in effect establishing an American college community within the university, but also drawing upon European background material. Courses are usually taught in the language of the country. The majority of other American students studying abroad, however, have been language or humanities majors.

The MIT program would be unique in that the students would attempt to combine professional training with cultural study. This in itself is currently presenting problems to the Foreign Opportunities Committee. There are not many European universities which meet MIT technical standards, particularly in such specialized fields

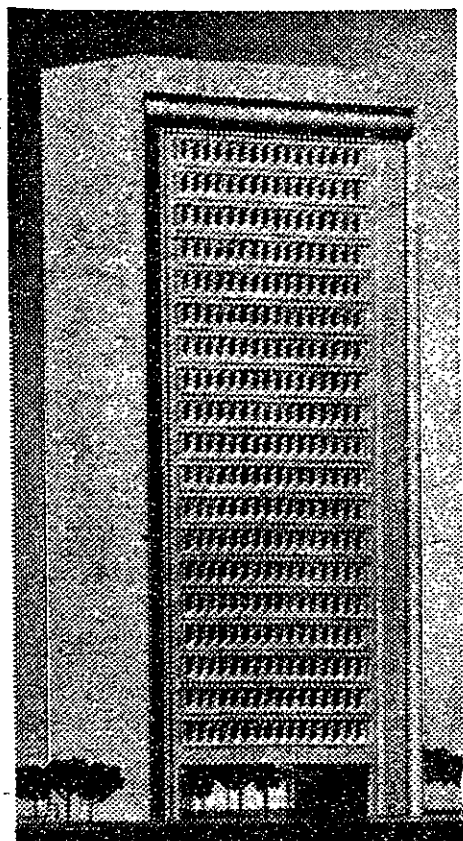
as chemical or electrical engineering. The program is therefore seen as more easily applicable to humanities and pure science majors at present. A social science or humanities pilot program, accordingly, has been suggested as a good place to begin.

Faculty opinion on the junior year abroad program is divided. Many faculty members feel that the cultural benefits to be derived from foreign study would not merit losing a year from MIT. This is particularly so in many courses where the junior year is thought to be the most valuable.

Other professors were in favor of undergraduate studies abroad. They felt that although the student might lose some time in his professional education, there is actually no reason to "rush headlong into being an engineer" and that foreign study might give the student a better perspective on his educational and professional aims.

Although an official MIT foreign study program seems a long way off right now, the Foreign Opportunities Subcommittee is meanwhile attempting to publicize the opportunities for individuals to independently visit and study abroad. Interested persons are asked to contact Tom Burns (SAE) or Tom Morgenstern, chairman of the Foreign Opportunities Subcommittee.

Construction Of Four Buildings To Begin In 1962



Oval windows and few supports to the ground were features of the original plan for the Earth Science Building, above.

Construction of four major buildings at MIT will be started during the next year. This work, plus other construction and remodeling projects, will total \$25,000,000 in cost.

Besides increasing student living quarters, the current and scheduled construction and expansion will add more than 480,000 square feet of floor space for educational and research activities. This figure represents more than half of the total floor space contained in the central MIT buildings constructed in 1916.

Money from the Second Century Fund will be utilized to provide three of the major new buildings. The Center for Earth Sciences, the Center for Materials Science and Engineering, and the women's dormitory are all slated for commencement in 1962.

Pei Revises Plans

The Center for Earth Sciences, held up for changes in architect's plans, will get under way early in 1962. A revised

design by architect I. M. Pei incorporates changes in the exterior, including the substitution of rectangular windows for the oval windows originally specified.

Construction of the center will cost \$5,000,000 and will be financed through a \$6,000,000 grant for building and equipping the center made last year to the Second Century Program by Mr. and Mrs. Cecil Green, of Dallas, Texas.

Students Aid in Design

Designs are now being drawn by the Chicago firm of Skidmore, Owings & Merrill for the \$6,000,000 Center for Materials Science and Engineering, to be built through Second Century Program funds.

The five-story building will run east and west through the Institute's main parking area and will meet the Great Dome on the east, and the Massachusetts Ave. wing on the west.

Students are participating in planning of the materials center. The design of the founda-

tion of the basementless building will be directed by Professor William T. Lambe of the Department of Civil Engineering. With a seminar group of students and a staff from the department's soil engineering division, he will conduct the design as a study in applied research.

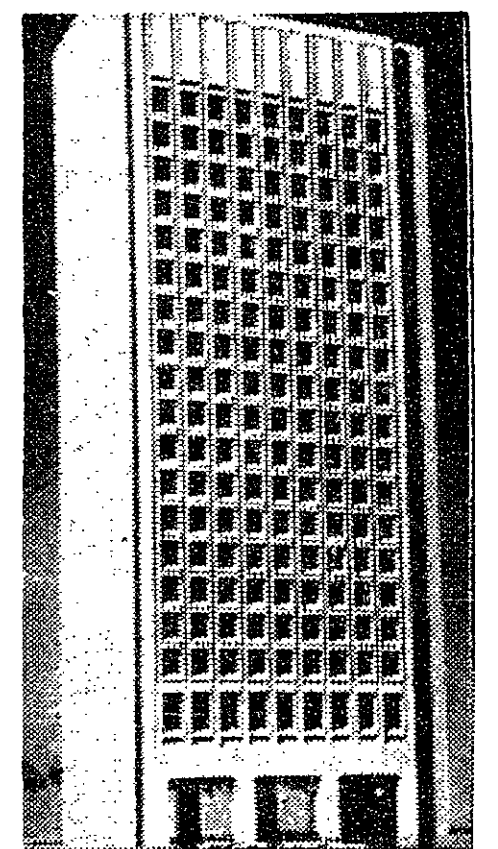
In approximately 150,000 square feet of floor space, the center will house related research projects from the departments of electrical engineering, metallurgy, chemistry and physics and central laboratories for such work as crystal preparation, analytical chemistry and electron microscopy.

Construction is scheduled to start by November, 1962, and the building will be ready for occupancy by September, 1964.

Co-ed Dorm Starts Soon

Construction is scheduled to start early in 1962 on the women's dormitory, financed by an anonymous \$2,000,000 gift to the Second Century Program.

(Please turn to page 5)



Conventional windows and more supports have been incorporated in the revised plans for the Earth Science Building, above.

Calendar of Events

*Open to the public.

Wednesday, December 6

OPERATIONS RESEARCH CENTER.*
Seminar: "O.R.: Science and a Little Bit More." Dr. D. W. Meals, Technical Operations, Inc., Burlington, Mass. Room 1-146, 2:00 P.M.

ELECTRONIC SYSTEMS LABORATORY.*
Seminar: "Size of Weights and the Number of Threshold Functions." Professor Eiichi Goto. Room 26-222, 3:00 P.M.

MIT HILLEL SOCIETY.
Study group: "Towards a Social Philosophy." 317 Memorial Drive, 3:00 P.M.

A.N.E. NUCLEAR ENGINEERING SOCIETY.*
Seminar: "Nuclear Design and Critical Experiment Programs in Support of Power Reactors." Dr. Hugh Scott, Chairman, Nuclear Analysis Dept., General Atomic Corp. Building NW-12, Room 222, 4:00 P.M.

NUCLEAR-INORGANIC CHEMISTRY.*
Seminar: "Nuclear Spectroscopy Studies of Some Short-Lived Nuclides." Dr. Noah R. Johnson, Oak Ridge National Laboratory. Room 4-231, 4:00 P.M.

SEMINAR SPONSORED BY THE PROTESTANT MINISTRY.*
Seminar in New Testament Greek. Dr. Goetichius, Episcopal Theological School. 317 Memorial Drive, 7:30 P.M.

ORGAN RECITAL.*
Organ recital by Piet Kee, Alkmaar and Haarlem, the Netherlands. Admission \$2.00. Kresge Auditorium, 8:30 P.M.

Thursday, December 7

ORGAN RECITAL.*
Noonday recital by Victor Matffeld, Institute Organist, MIT. Admission free. Kresge Auditorium, 12:15 P.M.

DEPARTMENT OF NUCLEAR ENGINEERING.
Seminar: "Stochastic Linear System." R. J. Hooper. "Slowing Down Flux Distribution in a Heterogeneous Reactor." P. H. Kier. Building NW-12, 138 Albany St., 3:00 P.M.

MIT HILLEL SOCIETY.
Study group: "Basic Concepts of Judaism." 317 Memorial Drive, 4:00 P.M.

PLACEMENT INTERVIEWS

Course numbers eligible listed in parentheses. All degree levels unless indicated — S.B. (B), S.M. (M), Ph.D. or Sc.D. (D).

December 6

Operations Research, Inc. (5, 6, 8, 10, 13—M, D); California Texas Oil Corp. (2, 6, 10—B, M); Cornell Aeronautical Laboratory (2, 6, 8, 16, 18); Information Fidelity (6, 8); Scientific Engineering Institute (5, 6, 8); Litton Systems (2, 3, 6, 8, 18); Republic Steel (1, 2, 6, 10, 15); National Aeronautics and Space Administration (1, 2, 6, 8, 10, 16).

December 7

National Aeronautics and Space Administration (1, 2, 6, 8, 10, 16); General Atomic (2, 6, 8—All Degrees; 18, 22—M, D); Humble Oil and Refining, and Esso Research and Engineering Co. (Summer employment—2, 6, 10—juniors and above); Ingersoll-Rand (Engineering and science—all degrees; 15—M); Raytheon (2, 6, 8); Stanley Works (2, 6, 15—B, M); Union Oil of California (10); U.S. Coast Guard (2, 13); David Taylor Model Basin (1, 2, 6, 8, 13, 16, 18).

December 8

Raytheon (2, 6, 8); Humble Oil and Refining (12); Standard Oil of Ohio (10—all levels; 2, 15—B, M; 5, 18—M).

December 11

American Brake Shoe (2, 3, 6, 15—B); Armstrong Cork (2, 4, 6, 10, 15—B; 5, 8—all levels); Electric Boat (2, 6, 8, 10, 13, 15—B, M; 18—all levels); Sylvania, Semiconductor Division (3, 5, 8); Atlas Chemical Industries (5; 10—B, M); National Cash Register (2, 5, 6, 8, 10; 3—B, M; 18—M, D).

December 12

Norden (6, 8); Union Carbide Plastics (1, 2, 5, 6, 8, 10, 15—B, M); Atomic Energy Commission (All engineering and science except 1—B, M; 15—M).

December 13

Argonne National Laboratory (6, 8; 2, 18, 22—M, D; 3, 5, 10—D); Addressograph-Multigraph (2, 6—B; 5—M, D); Kearfott (2, 6—B, M).

December 14

Argonne National Laboratory (6, 8; 2, 18, 22—M, D; 3, 5, 10—D); Allied Chemical (2, 5, 10—B, M); Rogers Corp. (1, 3, 5, 10—B).

December 15

Operations Evaluation Group (5, 6, 8, 15, 16, 18, 22—M, D).

DEPARTMENT OF PHYSICS.
Colloquium. Tea in the John Pickering Room (26-414) at 3:30 p.m. Room 26-100, 4:00 P.M.

DEPARTMENT OF MATHEMATICS.
BRANDEIS-HARVARD-MIT MATHEMATICS COLLOQUIUM.*
Speaker: Professor Louis Nirenberg, Courant Institute. Tea in the Common Room at 4:00 p.m. Room 2-390, 4:30 P.M.

DEPARTMENTS OF MILITARY, NAVAL, AND AIR SCIENCE.*
World War II film series. Sponsored by the Jay Zeamer Squadron and the Pershing Rifles. Admission free. Bush Room, 5:00 P.M.

SCHOOL FOR ADVANCED STUDY.
Lecture: "The Levels of Sea-Level at Sea." Professor William von Arx, Woods Hole Oceanographic Institution. Faculty Club, 6:30 P.M.

WATER POLO CLUB.*
Meeting. Alumni Pool, 6:30 P.M.

JOINT CENTER FOR URBAN STUDIES.*
Forum and Discussion: "The New Mayors: Where to Find the Power to Govern." Participating will be the following mayors: John F. Collins, Boston; Edward A. Crane, Cambridge; Richard C. Lee, New Haven, Connecticut; Raymond Tucker, St. Louis, Missouri; and Ben West, Nashville, Tennessee. Don K. Price, Dean of the Harvard Graduate School of Public Administration will serve as moderator. Sanders Theatre, Harvard University, 8:00 P.M.

NUCLEAR-INORGANIC CHEMISTRY.*
Seminar: "Studies of Nuclear Level Schemes in the Medium." Dr. Noah R. Johnson, Oak Ridge National Laboratory. Dinner at 6:30 p.m. preceded by cocktails at 6:00 p.m. (Faculty Club). For dinner reservations call Mrs. Wyluda, extension 4528. Room 4-231, 8:00 P.M.

Friday, December 8

DEPARTMENT OF CHEMICAL ENGINEERING, 10.991 SEMINAR.
"Effects of Radiation on Methane." B. M. Lapidus. Room 12-182, 3:00 P.M.

"Transients in Multicomponent Distillation Columns." F. W. Pasterczyk. Room 12-142, 4:00 P.M.

DEPARTMENT OF MECHANICAL ENGINEERING.
Seminar: "A problem in Rolling Contact." Dr. K. L. Johnson, Cambridge University, Visiting Associate Professor, Brown University. Coffee in the Miller Room (3-070) at 3:00 p.m. Room 3-270, 3:30 P.M.

TECHNOLOGY CATHOLIC CLUB.*
Philosophy Lecture Series: "The Psychic Powers of Man." Father William Wallace, O.P. Room 3-133, 5:00 P.M.

LECTURE SERIES COMMITTEE.
Classic film series: "Gate of Hell" (Japanese, 1954), and "On the Twelfth Day." Admission by subscription ticket only. Room 10-250, 6:30 and 9:00 p.m.

TECHNOLOGY DAMES.
Christmas Dance (semi-formal). Music by Bob Norris and his Orchestra. Faculty Club, 9:00 p.m.-1:00 a.m.

Saturday, December 9

MIT HILLEL SOCIETY.
Discussion group: "The Torah Portion of the Week." 317 Memorial Drive, 2:30 p.m.

LECTURE SERIES COMMITTEE.*
Entertainment film series: "The Captain's Table." Admission 30c. Room 10-250, 5:15, 7:30 and 9:45 p.m.

MIT SYMPHONY ORCHESTRA.*
Concert by the MIT Symphony Orchestra. John Corley, conducting. Admission: \$1.00. Free tickets for the MIT Community are available in the lobby of Building 10. Kresge Auditorium, 8:30 p.m.

Sunday, December 10

PROTESTANT CHRISTIAN ASSOCIATION.
Breakfast for Protestant Students. West Dining Room. Graduate House, 10:00 a.m.

HUMANITIES SERIES CONCERT.*
The Juilliard String Quartet. Second concert in a series. Admission: \$2.00 or by series ticket. Kresge Auditorium, 3:00 p.m.

MIT CHORAL SOCIETY.*
Henry Purcell's *King Arthur* conducted by Klaus Liepmann. Reserved seats: \$1.50 and \$2.50. Kresge Auditorium, 8:30 p.m.

Monday, December 11

APPLIED MATHEMATICS AND MECHANICS COLLOQUIUM.*
"Effects of Couple-Stresses in Elasticity." Professor R. D. Mindlin, Columbia University. Tea in Room 2-290 at 3:30 p.m. Room 2-390, 4:00 p.m.

LINCOLN DECENNIAL LECTURES.*
Third lecture in a series on *The Age of Electronics*. "Communications." Lloyd V. Berkner, President, Graduate Research Center of the Southwest, Dallas, Texas. Admission free. Kresge Auditorium, 8:00 p.m.

MIT WOMEN'S ASSOCIATION.
Christmas Sale of gift items, books and candles. Luncheon and tea will be served. Vannevar Bush Room, 10:00 A.M.-5:00 P.M.

DEPARTMENT OF CHEMICAL ENGINEERING.
Seminar: "Harwell Studies on Fluidisation." Dr. P. N. Rowe, British Atomic Energy Research Establishment, Harwell. Room 12-182, 3:00 P.M.

ARCHITECTURE LECTURE SERIES.*
Lecture: "Latin America and The New Frontier." Mr. Edmundo Flores. Room 7-435, 4:30 P.M.

MIT OUTING CLUB.*
Meeting. Walker Memorial, Room 306, 5:15 P.M.

CHORAL SOCIETY.
Rehearsal. Kresge Auditorium, 7:30 p.m.

MIT HILLEL SOCIETY.
Study Groups: "Judaism and Modern Science." 317 Memorial Dr., 4:00 P.M. "Gemara Class." 317 Memorial Dr., 7:00 P.M. "Elementary Hebrew." Room 5-231, 8:30 P.M.

Tuesday, December 12

DEPARTMENT OF MECHANICAL ENGINEERING. ENGINEERING PROJECTS LABORATORY COLLOQUIUM.*
"On Human Adaptive Strategy in an Unpredictable Environment." Mr. P. Briggs. Room 3-351, 12:00 NOON

(Please turn to page 10)

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Russian Youth Officials Speak

Tonight at 7:30 p.m., an inter-faith group of student religious workers in the Boston area will have an opportunity to engage in "public conversation" with four representatives of the Committee of Youth Organizations of the USSR. All students in the Greater Boston area are invited to share in this discussion to be held in the student lounge of the First Church in Boston, 64 Marlborough Street.

This will be an unrehearsed conversation followed by an open question period and an informal reception. The participants, who represent major religious categories ranging from Roman Catholicism through Judaism and Protestantism to Marxism, will respond to questions relating to "Soviet and United States student perspectives on life." (For the purpose of this discussion Marxism will be considered as one religious perspective.)

The four Soviet representatives are: ALBERT ANDREYEVICH — a member of the Central Committee of the Soviet Youth Communist League. He is presently a postgraduate student

at the USSR Academy of Sciences.

VLADLEN MITROFANOVICH DUBOVICH — a member of the Presidium of the Student Council of the USSR. At present he is a postgraduate student at the Moscow State Institute of International Affairs.

YURI BORISOVICH KASHLEV — a member of the Presidium of the Committee of Youth Organizations of the USSR. He is a historian by educational background.

MIKHAIL YAKOVIEVICH NIKITIN — the executive secretary of the Central Council of the Lenin Young Pioneers' Organization. He is also a member of the board of the Institute of Soviet American Relations.

Three of the four Russians speak English.

The Young Adult Council (New York) is sponsoring the appearance of the Soviet delegates in this country. This particular discussion is sponsored by Student Religious Liberals and the office of Unitarian, Universalist College Centers.

College World

Cornell Faculty Cancel All Classes, Address Students At Mass Meeting

By Toby Zidle '63

The major controversy sweeping college campuses these days seems to be whether or not to build bomb shelters. About 180 professors from MIT and other Boston schools have addressed an open letter to President Kennedy through The New York Times opposing shelters. More recently, almost 200 professors from colleges and universities in the Cleveland area have submitted a similar open letter through The Cleveland Plain Dealer (see story on this page).

School newspapers throughout the country are taking stands on this issue. Approximately 90 per cent of them (including *The Tech*) have come out with editorials against the shelters. Speakers at the University of Minnesota have suggested that the basements of existing buildings would adequately serve as fallout shelters and thus the expense of building bomb shelters would be unnecessary. Most newspapers state that a national shelter construction program would be likely to induce a mass hysteria,

that the cost of the program would equal about half our present gross national product, and that merely the undertaking of such a program would substantially increase the chance of a nuclear war. Many newspapers have made suggestions about steps to be taken in the event of a nuclear attack, but very few of these recommendations include building fallout shelters.

Faculty Cancels Lectures

At some colleges the fight against shelter construction and against nuclear testing and warfare in general has gone far beyond editorials in school papers. At Cornell, for example, close to 100 faculty members cancelled all their classes Nov. 17 and replaced them with informal discussions on war and nuclear testing. Professors spoke to a mass meeting of students and faculty later in the afternoon.

On the more optimistic side, colleges are still finding uses for construction funds, other than for shelters. Fredonia State College seems to have

found a unique way of spending \$500,000. This amount was spent on a recently completed building to house 48 Steinway pianos for student practice.

Stevens Institute of Technology is in the final construction stages of a 13 story "Stevens Center." According to Willis Taylor, Chairman of Stevens' Board of Trustees, the Center will "stand as a symbol, for the entire metropolitan area to see, that Stevens intends to be in the forefront of the many new developments in science and engineering. We will lead, not follow, in this space and atomic age in which we all must live."

The Stute, Stevens' paper, was indeed shocked to learn that this 13 story structure had no 13th story. The floors went . . . 10, 11, 12, 14. An immediate investigation disclosed that the decision to eliminate the 13th floor was made by one of the architects—on the advice of the elevator company. Asks The Stute: "Does this decision symbolize the forefront of science and engineering?"

That dreaded time is now approaching at many schools—the week of final exams. Final schedules appear in many of the school papers. Announced in The Ubysey (University of British Columbia) was a written exam in . . . bowling.

Cleveland Professors Oppose Shelters, Join Call For Peace Race

Almost 200 professors from universities and colleges in the Cleveland area have made known their opposition to the idea of building fallout shelters. Many of the most prominent leaders of Cleveland's academic life, including 4 deans and 12 department heads at Western Reserve University and Case Institute of Technology, signed an open letter to President Kennedy which was published as a half page advertisement in *The Cleveland Plain Dealer*. A similar advertisement had been placed earlier in *The New York Times* by 180 professors at MIT and other Boston institutions.

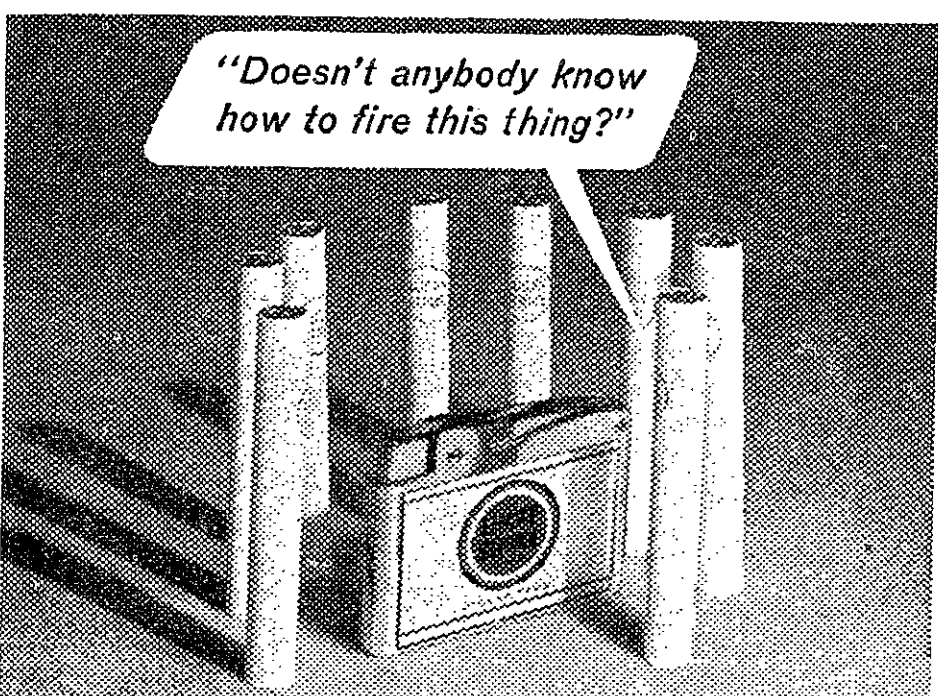
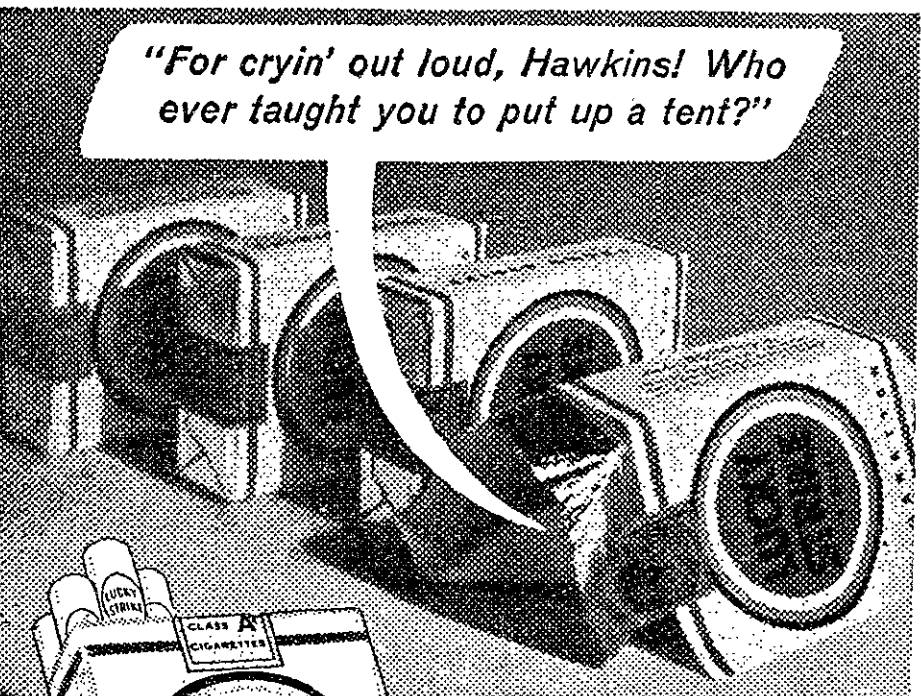
The text called the encouragement of shelter building a "cruel deception," claiming that the cost of a really effective shelter program would be equal to the entire capital investment of the country. It questioned whether people have really been able to imagine what the world would look like after a nuclear war, with millions dead, dying, poisoned, injured and hungry.

"The principle danger of the present program," it said, "is the false sense of security engendered. It is much like a quack cure for cancer . . . by buying a shelter program which does not shelter, and thereby believing that we can survive a thermonuclear war, we are increasing the probability of war."

The statement went on to say that the shelter program prepares people for the acceptance of war as an instrument of national policy, and urged that efforts should rather be directed toward a positive program for peace. It called upon the President to lead the nation forward in a "race toward peace."

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 News Editor Roger Weisinger '62
 Sports Editor Thomas Sheehan '62
 Photography Editor Curtiss Wiler '62

Unsigned editorials appearing in THE TECH constitute the opinion of the newspaper's Board of Directors, and not that of MIT. The newspaper welcomes letters from its readers. Space permitting, such letters will be printed in whole or in part, if deemed by the editor to be of sufficient interest or benefit to the community. Brevity increases the chance of publication. Anonymous letters will not be printed. Names will be withheld upon request.

Deadlines: Advertising, noon Thursday. Entertainment, Features, Letters to the Editor, Photography, Sports, noon Sunday, 7 p. m. Monday.
 Make-up: Editorial, Sports, Entertainment, Features - Sunday, 1-4 p. m. News - Monday, 7-11 p. m.
 Office Hours: Monday, 2-4, 7-11; Tuesday, 11-1; Wednesday, 12-1; Thursday, 10-12; Friday, 2-5; Sunday, 1-5.

Student Union II

It has been decided that whether or not specific donations are made to the Second Century Fund for a Student Union, one will almost certainly be built at MIT, using uncommitted funds if necessary. The subject of the Union, long semi-dormant has suddenly come alive with the appointment of Professor Catalano of the Department of Architecture as the architect for the building. Arrangements are presently being made for meetings between Prof. Catalano and the various activities, and other people interested in the shape of the new building, for which preliminary plans have now been completed.

Undoubtedly there is going to be much wrangling over who is to get what space, and some people are going to feel shortchanged and left out. The most important aspects of the new building however, is not activity space allotments, which should not be neglected, but the question of how the building is to function in terms of the MIT "community" as it exists now, and as it is hoped it will exist in the next twenty-five, fifty, or hundred years.

Whatever the needs of people now in terms of space, they will undoubtedly be different five years from now, and they will continue to change. For this reason, the character of the Student Union will change after it has been built, much as Walker Memorial has changed throughout the history of MIT.

MIT is still evolving from its history as a commuter college, with all the problems pertaining. There is as yet no "college atmosphere," no real sense of a campus, or of a unified MIT. There is no "heart of the campus" here; it is spread all over Boston and Cambridge, and the Cambridge campus itself lacks many of the things that go into making up an academic "community."

We think the architect should combine an awareness of the nature of the MIT campus with a sense of urgency. Urgency because the Student Union has been kicking around for so long that it is easy to lose sight of its purpose, and to lose interest, as they contemplate the mountains of reports, opinions, and plans that have accumulated through the years. Nothing very concrete ever happened until WGBH burned down.

People who have seen Prof. Catalano's plans, consider them to be very workable, and a very long step in the right direction. The sooner they can be implemented the better.

Moral Government

There is no difference between an immoral act committed by a moral government and an immoral act committed by an immoral government. It is the act which determines its own morality, not the government or person who orders it.

The comments to the contrary of one of our readers in the letters column of Nov. 21, were thoughtful and well put, but the point that cannot be stressed too strongly nowadays, is that the individual and only the individual must bear final responsibility for his actions. There is nothing new about this position; it has been held by most writers on human conduct from Socrates to Sartre.

There is no comparison between a military man and a civilian scientist. A soldier has taken an oath to follow certain regulations in his conduct in the military. General Walker violated these regulations and was reprimanded for it. Even here, however, international law, as implemented at Nuremberg, prohibits crimes against humanity which should also, in a normal person, be crimes against his own conscience. A civilian scientist in a free society is not bound by such rigorous oaths and must, to an even greater extent than the military, exercise his own free will and take the consequences of his actions.

If the individual does not determine the morality of his own acts, who will? Governments, even democratic ones, are frequently amoral. A famous example is described by Thucydides where the Athenians, by decision of a democratic assembly, voted to put the entire male population of a city to death and sell the women into slavery. In this case the order was revoked by the same assembly a day later but it was nearly carried out. This illustrates the impossibility of making a binding decision to always blindly obey a government, any government, even one that is usually moral.

The scientist is not a machine, producing lethal devices on demand. A scientist or engineer who works for the military does not sell his soul with his skill. He is a functioning human being and must accept his personal responsibility to other human beings. It was never meant to imply that a scientist is competent to judge morality for others. No man is. He is competent, as we all are, to decide morality for himself and he must take the responsibility for his decision.

Coat and Tie

One of the Dormitory House Committees, that in Burton, has passed a resolution expressing the hope that Burton residents will wear coat and tie to their new dining hall on Friday nights. To emphasize this request the House Committee voted to set an example by dressing for Friday night dinner themselves.

For many years now, there has been a certain amount of adverse criticism directed at the appearance of the average Techman, coming from such outsiders as Charles Morton of the *Atlantic*, from faculty members, and from students themselves. Like most things at MIT, there is a wide range of taste in dress here, ranging from some who would be right at home on Madison Avenue to some whom it is embarrassing to associate with the Institute.

The distribution of taste in dress is by no means by living groups, for some of the best and worst dressers live in the dormitories. It is quite true, furthermore, that some faculty members fail to set a very high standard of taste to the students they have in class.

The MIT tradition of *laissez-faire* toward student life has had the result that there is very little social pressure on students, particularly those living in dormitories, to dress according to some norm. The fraternities tend to set a standard by requiring a modicum of dress for dinner. This is one means of attaining this end, where the living group is strong enough to enforce it. Another means would be to have the faculty actively take a hand in it. We know of at least one professor who requires a coat and tie in his class. If every instructor felt that his students should dress up for class, this would be a way, but hardly in keeping with the MIT tradition of student self-government.

The MIT student who is concerned about the appearance of his fellows, and about the entire environment in which he lives, can best bring about a revolution in manners and appearance here by setting an example himself. If students think that coats and ties should be worn to all evening meals, they should do so. Eventually, perhaps, the social pressure in this direction will be real enough so that sloppiness will become a social stigma.

Status Seeking

In the age of Sputnik, the term "engineer" seems to be taking on new, and sometimes distorted meanings, as a result of the romantic air now connected to the technical world. We note that in some of their advertising, the Raytheon Company has been looking for something called a "Publication Engineer." From the description of the work, one would understand that this is a pseudonym, or perhaps euphemism for a technical writer.

The General Electric Company recently ran a recruiting ad for a "Productibility Engineer," an apparent sub-division of Manufacturing Engineering. We also note, that there is among others, a "Society of Aeronautical Weight Engineers." The term engineer is an old one, and has continuously changed in meaning from its first usage in the army and on railroads, to the present day standard Electrical, Mechanical, Civil, Chemical, etc.

Certainly, the average electrician, mechanic, or plumber has always been tempted to appropriate one of the above titles, as a measure of increased status. In some places, such as England, the local hardware store is likely to call itself Smith & Jones, Electrical Engineers. In the age of the space man, this tendency will probably increase as the prestige of the engineer in the community grows.

Letters To The Tech

To the Editor:

I was pleased to read your editorial on the proposed Student Union Building. Since the building will probably be built within the next three to five years, now is the time for the student body to express its feelings about the new building.

I believe most of us agree that there is a need for some commercial facilities, e.g., a barber shop, a restaurant, a drug store, etc. However, I do not feel that the Coop deserves a place in the new building since their present facilities are adequate if proper management is employed. And expansion of the Coop should not have priority over other facilities that we no longer have since the WGBH fire.

The Institute and the Student Union Committee are trying to provide space for the activities in this new building. The basic problem here is that the Institute has a predetermined amount of money (\$3 1/2 million) to be spent which is not sufficient for the needs of the Community. The present plans call for moving most of the activities from Walker to the new building. This would mean that many activities would have to

share office space with other activities.

Those of us who are in activities must realize, in general, what an impractical idea this is. This has been tried with several activities in the past and has been highly unsuccessful. This building is not an improvement just an aggravation of the present situation.

One basic feature that I feel the building should have is a new auditorium with a seating capacity of about 700. We now have two auditoriums on campus. Kresge's auditoriums have seating capacities of 1200 and 200. The Little Theater is too small for most functions and the Main Auditorium is continually in demand. If a smaller auditorium were included in the Student Union, a great load would be removed from Kresge by those activities whose attendances usually does not exceed 700. These would perhaps include the LSC, Musical Clubs, and other similar activities. The need for a larger auditorium is best exemplified by Drama-shop, whose productions are always overflowing.

Let us make our opinions known and stop the Institute from building a White Elephant.
 Lee Davis '63

Kibitzer

By Elwyn R. Berlekamp '62

Deception is one of the most prominent weapons in the arsenal of the skillful defender and probably the one which he most enjoys using. There are a great variety of bids and plays having this as their intent, ranging all the way from psyche bids to the more conservative tactics used by East in today's hand.

By alert bidding and heads-up play, East was able to bluff declarer in both departments and cause him to go set at a doubled contract that most expert declarer would have made against straightforward bidding and play.

The first round of the auction proceeded in a normal manner, but when South decided to mention his secondary suit at the four level, the defenders had all they could take.

West realized that there was little hope of a game for his side and yet the hand probably belonged to him, so he doubled South's four club bid. North wisely ran to four hearts and East made his first brilliancy of the hand by doubling this bid without hesitation.

Most players would find this double difficult, but as East pointed out later, West had already made the decision for him. If there were any hope of making five diamonds, West would not have doubled four clubs. Neither would he have doubled four clubs had he expected that North-South could make four hearts.

Thus East-West had already committed themselves to defending against four hearts doubled should it be bid and East wisely decided to take the pressure off partner by doubling it himself.

It was a pretty sure notion that West held some semblance of heart strength, yet hearing the opponents announce eight or nine trumps between them, and looking at three small in his own hand... Well, wouldn't you rather make the unsound double yourself than let it come from partner?

West opened the ace of spades and shifted to the diamond five. East, still alert to the probable trump situation went up with the diamond king and returned the jack. The ordinary method of playing this suit would have been to win the ten and return the king, thereby showing partner (and meanwhile declarer)

NORTH			
♠	Q 10 9 8 4 2		
♥	J 6 3		
♦	7 4 3		
♣	A		
EAST		WEST	
♠	K J 5 4	♠	A 6
♥	9 5 4	♥	K
♦	K Q J 10	♦	A 9 6 5 2
♣	5 3	♣	K 9 8 7 4
SOUTH			
♠	7		
♥	A Q 10 8 7 2		
♦	8		
♣	Q J 10 6 2		
Bidding:			
West	North	East	South
1♦	P	1♠	2♥
P	P	3♦	4♣
Dbl.	4♥	Dbl.	All P
Opening lead: ♠A			

where all the intermediate honors are located.

Since most defenders automatically play the lowest of touching honors, South cannot help but decide on the basis of the first three tricks that West had started with the ace and queen and East the king and jack.

Most inexperienced declarers would not bother to worry much about the location of diamond honors, but the declarer against whom our hero East was pitted missed nothing.

He had heard the auction and knew full well that East must have at least ten or eleven high card points to account for his bidding, and West around thirteen or fourteen. The missing honors in the black suits were marked, and from the distribution of the diamond honors South could thereby deduce the location of the all-important king of hearts.

Thanks to East's alertness, all indications pointed to East holding this card. Therefore South trumped East's diamond lead, went to dummy with the club ace and took a losing finesse to West's singleton king. A subsequent club loser was unavoidable and the contract went down.

Mediocre declarers might take the finesse even if they thought that West might very well have the king, as dropping it is rather unlikely. However, there are also other reasons for going up with the ace.

If West holds three trumps to the king and South takes the losing finesse, West could return a trump and then South would have to depend on a four-

(Please turn to page 5)

MIT Naval Engineers Honored At Convention

MIT virtually walked away with the awards at the annual meeting of the Professional Society of Naval Architects and Marine Engineers held last week in New York City.

The department of Naval Architecture and Marine Engineering won four awards of the six awards presented at the meeting.

The Capt. Joseph H. Linnard prize for the best paper in the transactions of the previous year went to Professor H. S. Arentzen and Professor Philip Mandel. Their paper was titled "Naval Architectural Aspects of Submarine Design."

The Admiral Edward L. Cochran prize for the best paper presented during the previous year within a local section of the society went to two graduate students of MIT, W. E. Lehr, Jr., and E. L. Parker, both of whom graduated with de-

grees of Master of Science and Naval Engineering in June, wrote on "Considerations in the Design of Marine Propulsion Shaft Systems."

Admiral Edward L. Cochran, after whom this prize was named, came to MIT in 1947 to become the head of the department of Naval Architecture and Marine Engineering. Admiral

Cochran later became a vice-president of the institute.

The Graduate Student prize for the best paper presented by a graduate student before a local section meeting during the previous year also went to W. E. Lehr, Jr., and E. L. Parker, for their work on the same paper. This prize was accompanied by an award of \$250.

Dance Will Follow Harvard Cage Game

Immediately following the MIT-Harvard basketball game December 16, there will be a dance in the Baker Dining Hall.

T-club and the senior class will cosponsor the affair, which is open to all students.

Tickets, priced at \$1.00 per couple, will be sold in the lobby of building 10 during the week of December 11. The number of tickets available will be limited by the size of the dining hall. Music will be supplied by a live band.

Burton and Baker Houses have moved their Christmas Parties back one week to avoid conflict with the dance. Several fraternities have scheduled cocktail parties before the game.

To Start 4 Buildings

Construction Will Be '62 Feature

(Continued from Page 1)

The seven-story structure was designed by Anderson, Beckwith & Haible, of Boston.

Living quarters for 125 women students, guest rooms, a faculty residence suite, and offices will be contained in the dormitory building. MIT now has 168 women students, some of whom live in a dormitory at 120 Bay State Rd., Boston, and in Bexley Hall, on campus.

Completion of the new dormitory is scheduled for 1964.

Outside the Second Century Program, the fourth major structure, a housing complex for married students, is to be built with a \$3,000,000 loan from the Federal Housing and Home Finance Agency. Projects currently under way include the National Magnet Laboratory and the Cambridge Electron Accelerator.

Married Students Up in Air

A 16-story apartment tower overlooking the Charles River will be the focal point of the married students housing center, a self-amortizing project on which work will start during the first weeks of 1962. The site will be a five-acre plot on the west end of the campus.

The design by architects Hugh A. Stubbins & Associates of Cambridge includes 210 living units in the tower and in a trio of three-story buildings grouped around it. The tower will contain 90 efficiency apartments, 60 one-bedroom apartments, a small store and a laundry; each of the surrounding buildings will hold 20 two-bedroom apartments.

Occupancy of the complex is scheduled for the Fall of 1963.

The 210 living units included in the immediate construction constitute the first phase of plans which call for an additional 210 units to be built at a later date. The Institute has been without on-campus quarters for married students since the West Campus colony of war surplus barracks was dismantled in 1959.

Some Projects Started

Work has already started on the \$6,000,000 construction job for the National Magnet Laboratory, being built under a contract with the Air Research and Development Command. The laboratory will be on Albany St., adjacent to and west of the MIT Nuclear Reactor, in a building formerly occupied by the Ward Baking Company.

The project includes remodeling of the interior of the existing building, construction of a building to house the laboratory's motor generators, installation of cooling lines, and construction of a pedestrian bridge from the laboratory site across the tracks of the Boston & Albany Railroad to Vassar St.

Kibitzer

(Continued from Page 4)

three club split to make the hand and the bidding indicated that this is improbable. If South goes up with the ace, however, he still has the two needed trumps in dummy to ruff out West's club king and nine and bring the contract home.

Check your opinions against L&M's Campus Opinion Poll #13

1 Your best friend's beautiful date asks you to meet her for a late date.

Would you ...



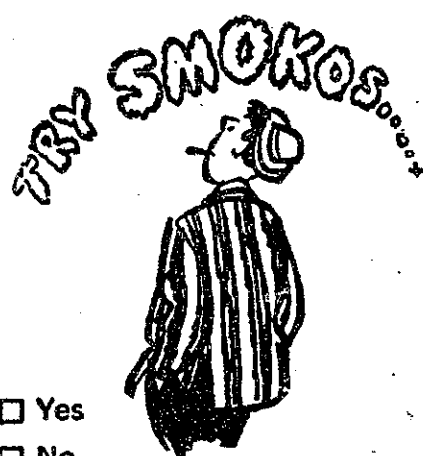
- meet her in secret? meet her and tell your friend? tell and not meet her?

2 For your major course which would you choose ...



- a good teacher
 or an outstanding man in his field but a poor teacher?

3 Has advertising ever influenced your choice of cigarette?



- Yes
 No

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Have an L&M in pack or box	No.	%
meet her in secret	352	35%
meet her and tell	497	49%
tell and not meet her	169	16%
good teacher	832	83%
outstanding man	177	17%
Yes	402	40%
No	607	60%

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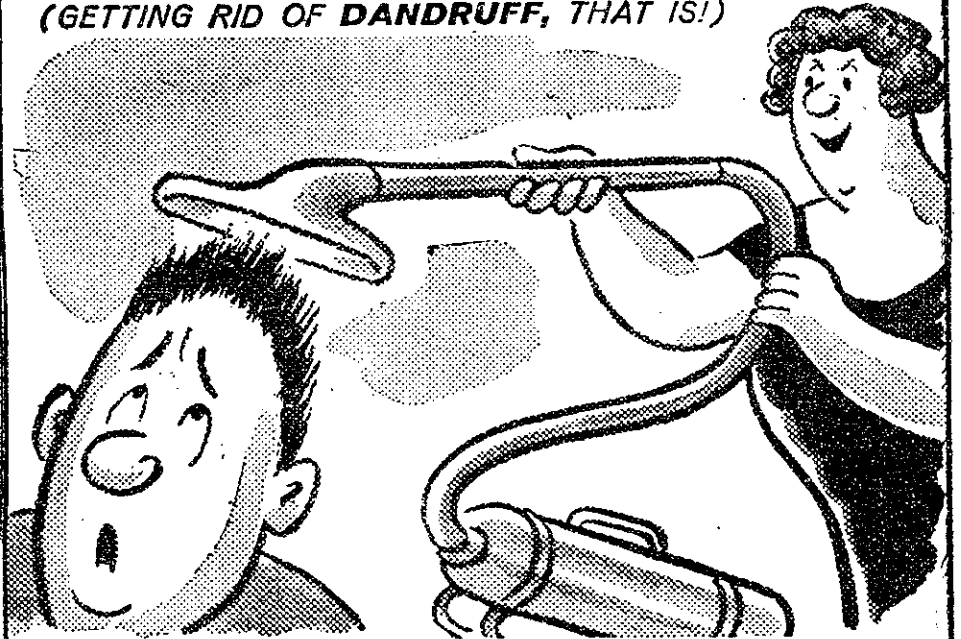
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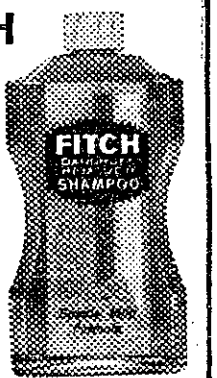
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FITCH
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SHAMPOO



Main Corridor Site of Bunny Hop

By Tom Maugh '65
All Boston seems to be doing the Twist these days, and East Campus is no exception. In their series of dancing lessons, these stalwart men decided that they, too, would learn the "dance sensation that's sweeping the nation."

So, the courageous fellows gathered Friday in the Vannevar Bush Room with their Arthur Murray instructor (Kathryn couldn't make it) and proceeded to learn the difficult contortions. (Contrary to public opinion, they will not receive two points of athletic credit for their efforts.)

However, passers-by noticed that something was apparently amiss. Further investigation brought to light that the East Campus Social Committee (commonly known as Graft-comm) had failed to provide any girls for the evening. Therefore, the men had no recourse but to Twist alone (or with each other, depending on their preference).

The gala evening ended with a Bunny Hop down the main hall to the strains of: "Down with quizzes, physics and such; Seventeen hundred is too damn much!" After all, they had to work off their frustrations some how.

Two Graduate Scholarships

Two scholarships for post-graduate studies (one for a man and one for a girl) plus eight sets of the Encyclopedia Britannica are the prizes offered in the Edward P. Morgan Essay Contest.

The subject of the essays will be "Youth's Role in U.S. Foreign Policy." The winner of the contest, which was named after the renowned ABC Radio newscaster, will also receive an expense-paid trip to New York and Washington.

All entries in the contest must be 600 words or less, and should be submitted to: Edward P. Morgan Essay Contest, P.O. Box 75, Mount Vernon 10; New York. All entries should be post-marked not later than midnight, December 31, 1961.

Mechanical Engineers Will See Manufacture Of Grinding Machines

The American Society of Mechanical Engineers invites all members and any other interested people to take a guided tour of the Blanchard Surface Grinding Machine Company for the purpose of observing the manufacture of machinery.

The tour will be conducted Thursday, December 7, and is free of charge. Participants are to meet in the lobby of Building 7 at 2 p.m. and from there proceed to the company's factory, which is located one block from the Institute.

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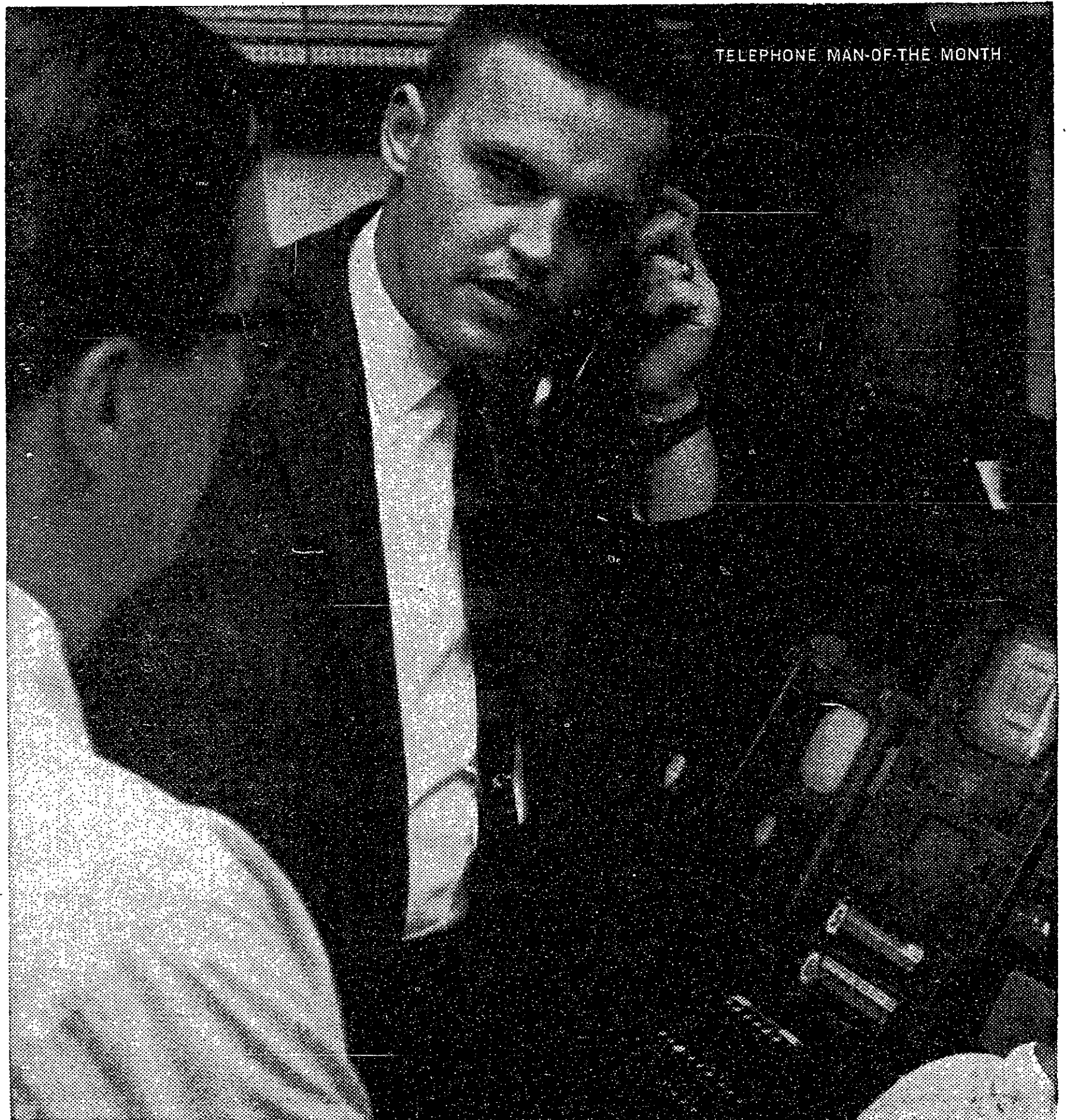
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Tau Beta Pi Elects 76 Seniors

Tau Beta Pi held its fall election on Saturday, November 11th. Seventy-six seniors and three honor juniors were elected and will be invited to membership in the MIT chapter of the National Engineering Honor Society.

Election is based upon scholarship and character as well as "integrity, breadth of interest both inside and outside of engineering, adaptability, and un-

selfish activity."

The three honor juniors are James E. Evans and Thomas Gerrity of course VI and Reed Gregg of course X.

The elected seniors were:

William Bails, Richard Bartsch, William Bloebaum, Stephen Burns, Philip Bursky, Ronald Cahill, Alan Cameron, James Clifford, Bruce Conroy, Richard Coopersmith, Joseph Crowley, R. Bruce Cuthbertson, Arthur Delagrang, Martin Dixon, David Duston, Andris Falten, Keith Ferguson, Robert Fields, Donald Fraser, Charles Gerheim, Dale

Gladding, Robert Goldsmith, Leonard Goodman, Sherwin Greenblatt, William Hastings, Douglass Hayman, Peter Hoffman, Richard Holland, Richard Horner, Jon Heuss, Roger Humphrey, George Husley, David Ives, Robert Jahncke, Robert A. Johnson, Gerald Katell, Harvey Kasdan, Kenneth Klivington, William Koch, Kenneth Koerber, Alan Kotok, John Lambert, Jerry McAfee, William McFarland, Hajime Mitarai, James D. Moore, Theodore Nieh, Paul Olmstead, Richard Orr, William Pearlman, Albert Plate, Gerald Pollon, Marcus Ray, John Richters, Raymond Rink, Philip Robinson, Martin Rosen, Roger Rowe, Richard Salant, Ralph Scallion, Herman Schneider, Hyunkook Shin, Harold Shukovsky, Karl Sladek, Donald L. Smith, D. Max Snodderly, Jeffrey Speiser, Leonard Stolba, Theodore Strollo, Robert Swaney, John H. Taylor, Hugh A. Thompson, Ralph Tolbert, Jr., Kenneth Wang, Glenn Wickeigren, Wesley Wolf.

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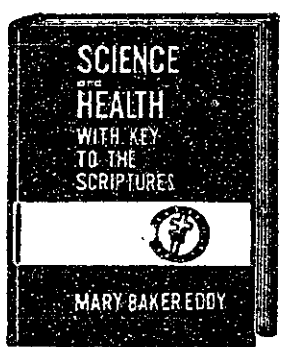
NOTICE

In recognition of the lateness of the Christmas mails and the vacation period, as a service to our members, December 1st bills, usually due by the end of the month, will be eligible for Patronage Refund if paid on or before January 10th, 1962.

THE COOP



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Science and Health, the textbook of Christian Science, may be read or examined, together with the Bible, in an atmosphere of quiet and peace, at any Christian Science Reading Room. Information about Science and Health may also be obtained on campus through the

Christian Science Organization at

MIT
77 Mass. Ave., Cambridge 39
Meeting time, 5:15, Tuesdays
Meeting Place, MIT Chapel



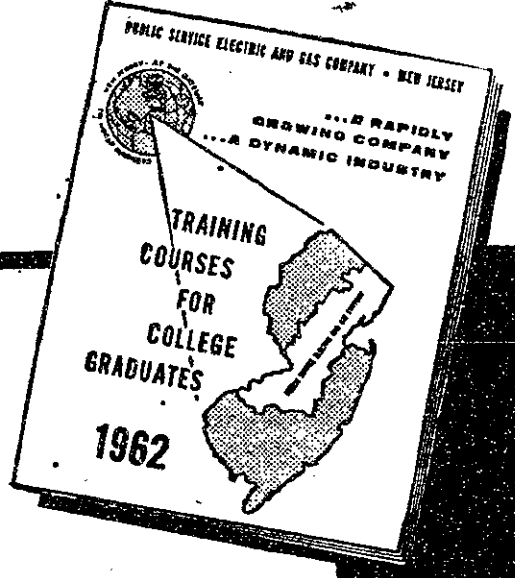
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Electric Generation Department	
Performance Department	6
Boiler Operation	3
Boiler Maintenance	3
Electrical Operation	3
Electrical Maintenance	3
Turbine Operation	3
Mechanical Maintenance	3
Yard	1
Office and Storeroom	1
Inspection of Company Generating Stations	1
General Office	1
	<hr/> 28
Electric Distribution Department	
Line Department	5
Meter Department	1
Service Engineer	2
Substation Operation and Maintenance	4
Distribution Engineering	4
Service Dispatcher and Troublemaker	2
Office and Storeroom	1
General Office	1
Transmission and Distribution Engineer (Transmission, Distribution, Substation)	3
	<hr/> 22
Electric System Planning and Development Department	1
Distribution Department, and System Planning and Development Department	
Selected Assignments (either or both departments)	4
General Office Lectures (both departments)	1
Commercial Operations Department	
Commercial Operations Department Course—G.O.	1
Customers Service Department, Sales Engineer—Industrial and Commercial—Architect Builder and Dealer—Heating and Air Conditioning Representatives	2
Electric Engineering Department	
	M.E.'s E.E.'s
Mechanical Engineering Division	5 4
Electrical Engineering Division	4 5
Structural Engineering Division	2 2
Construction Division	2 2
	<hr/> 13
Vacation	2
Unscheduled (Miscellaneous Assignments)	4
Total	<hr/> 82

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Entertainment-wise

T. S. Eliot To Read Own Poetry At Kresge

Kresge Auditorium will resound to the free verse of T. S. Eliot as he reads and comments upon it in person, Wednesday, Dec. 13 at 8 p.m. The Lecture Series Committee is bringing this noted poet and literary critic to MIT, and is offering free tickets to MIT students and faculty on Monday, Dec. 11 in the lobby of Building 10. (Where else?)

A special Young People's Concert of "The Messiah," old Christmas favorite, will be presented this coming Saturday, Dec. 9 at 2:30 in the afternoon. Prices will be less than those for the other two performances, at 3 o'clock Sunday afternoon, Dec. 10, and at 8 p.m. Monday evening, Dec. 11. Dr. Edward Gilday conducts the Handel and Haydn Society in this event.

Bad news about Storyville which, due to the tremendously high prices of attractions and lack of interest in jazz in Boston, closed Dec. 3. From the management: "We have tried everything we know to keep a jazz nightclub running in Bos-

Joan Of Arc Legend Coming To B.U. Theater

"The Lark," Jean Anouilh's telling of the Joan of Arc legend being presented at Boston University Theatre Dec. 7, 8 and 9, is a series of vignettes in which the story of Joan is "seen rather than talked about," according to director John Ransford Watts, assistant professor at the University's School of Fine and Applied Arts.

"It is neither a religious play, nor a political play—and 'Joan' can be both—but a play about man, and about right and wrong," he added. The play will be staged in a multilevel set using changes of lighting and shifts of playing level to vary the scene.

Anouilh's Joan is a fragile girl armed with but one mighty weapon—her absolute faith in her "voices"—as played by Julie Harris in the Lillian Hellman translation and adaptation of "The Lark" produced on Broadway in 1955.

At Boston University the role is taken by Kathleen Sullivan, who created the role of Agnes in the James Forsyth version of Ibsen's "Brand" given its world stage premiere earlier this year at the University.

"Eroica" To Play At Kresge

The MIT Symphony Orchestra, John Corley conducting, will perform Beethoven's "Eroica" Symphony, the Hary Janos Suite by Zoltan Kodaly, and Saint Saens Introduction and Rondo Capriccioso in a concert at Kresge Auditorium on Saturday, Dec. 9, at 8:30 p.m. Dennis Johnson, concertmaster and a senior in electrical engineering at MIT, will be the solo violinist in the Saint-Saens work.

Tickets are \$1 and will be sold at the door. (Members of the MIT community may obtain free tickets before December 4 in the main lobby of Building 10.)

The "Eroica" is Beethoven's third symphony — originally dedicated to Napoleon Bonaparte and then angrily and hastily rededicated to "the memory of a great man" when Napoleon, the "people's general, declared himself emperor.

Zoltan Kodaly is a contemporary Hungarian composer and conductor, who writes in a conservative, romantic style. His Hary Janos Suite is a story

ton, but at this point it's the final curtain. Thanks for all your support . . ."

Dagmar, with whom we hope to have an interview for you next week, continues in her role as Appassionata Von Climax in "Li'l Abner" at the Bradford Roof Dinner Theater. Through December.

Coleman Hawkins will be the fourth guest in the Music in America series at Eliot House at Harvard, Sunday, Dec. 10 at 8:30 p.m. This series gives Harvard students an opportunity to witness the different types of music enjoyed by the American proletariat. This aspect is, of course, jazz.

The Harvard Glee Club joins with the Radcliffe Choral So-

ciety to sing at the Isabella Stewart Gardner Museum Sunday the 10th at 3 o'clock in the afternoon. Free!

At Kresge this weekend: Dec. 9, 8:30 p.m., MIT Symphony Orchestra Concert; Dec. 10, 3 p.m., Juilliard Quartet; Dec. 10, 8:30 p.m., MIT Choral Society Concert.

For those of you who were enraptured by our review of the Peruvian Art Exhibit at the Museum of Fine Arts, this same museum now has a simply gorgeous display of Chinese National Art Treasures which, coupled with the African art from Harvard's Peabody Museum, makes for a simply irresistible attraction.

Warren Caesar Wiscombe '64

48 Chairs, 2 People Compose Cast of "The Chairs" at Charles

Ionesco's "The Chairs" and Genet's "The Maids," the double-bill of one-act plays which is presently playing at the Charles Playhouse, are meat for the intellectual as well as the pleasure-seeker. However, the plays themselves were perhaps not enjoyable because of their content, but because of the fine acting which complemented them.

"The Chairs" has a cast of about 50, and yet the only people on stage at any time are an old man and an old woman. This seeming paradox results from the fact that the remaining 48 people are invisible. Each one is represented merely by a chair.

As usual with Ionesco plays, the plot is rather unfathomable, but underlying the vigorous activity and hubbub of "The Chairs" one feels the current of death. The old man and the old woman are rushing toward death at a speed which becomes ever more feverish as the play proceeds.

Fine acting on the part of Stanley Jay, who played the old man, prevented this play from being a complete flop—for witnessing a play involves some projection of the audience into the situation of the actors, and this play was so fantastic that it required an actor of the calibre of Jay to make it half-way believable.

Genet's "The Maids" was much better. It involves two proletarian maids who conspire to murder their mistress. They have long been playing a game where first one and then the

THE CHAIRS, by Eugene Ionesco, and THE MAIDS, by Jean Genet, produced by Frank Sgrue and Michael Murray. Directed by Michael Murray. Lighting by David McGowan. Settings and Costumes by William Roberts.

THE CAST

The Chairs
Old Man Stanley Jay
Old Woman Mary Alice Bayh

The Maids
Claire Carol Teitel
Solange Sylvia Gassel
Madame Ruth Bolton
The Orator Richard Kenerson

Off-Broadway engagement at the Charles till Dec. 27.

other poses as the mistress and orders the other one to do her bidding but they at the same time feel intense resentment that they are forced to do such a thing to maintain their own dignity. The acting in "The Maids" left something to be desired (mostly sincerity), but on the whole it was good entertainment.

I would rate this double-bill as fairly good, but not highly esthetically stimulating. It will remain at the Charles for another three weeks, followed by "The Fantasticks" on Dec. 27.

By Warren Wiscombe '63

King Arthur At Kresge Sunday

Henry Purcell's music to John Dryden's dramatic opera "King Arthur" will be given in concert performance by the M.I.T. Choral Society, conducted by Klaus Liepmann, on Sunday, December 10, at 8:30 p.m., in Kresge Auditorium. Soloists will be Helen Boatwright, soprano, Donald Sullivan, tenor, and Paul Matthen, bass. The Society will be accompanied by members of the M.I.T. Symphony Orchestra with Allan Sly at the harpsichord.

Tickets are \$1.50 and \$2.50, and may be obtained by letter or in person from the Music Office, Room 14N-236 (second floor, Hayden Library building), or may be requested by calling UNiversity 4-6900, extension 3210. Checks should be made

payable to the M.I.T. Choral Society, and a self-addressed, stamped envelope should be enclosed with ticket requests.

"King Arthur" is the lone example in Purcell of a work conceived from the beginning as an opera. Purcell, thirty years Dryden's junior, collaborated with the famous Restoration poet and dramatist on "King Arthur," sharing the ambition that they might create an "apogee of patriotism linked with the arts" — by means of glorifying the origins of British monarchy. Dryden, known for his artistic independence, had been convinced by the success of one of Purcell's earlier contributions to the theatre that Purcell could set his heroic

(Please turn to page 10)

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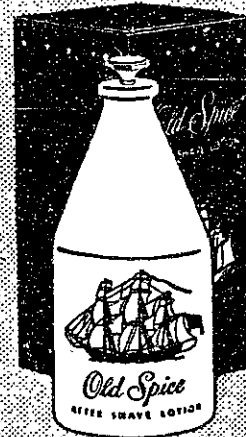


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"ZERO DE CONDUITE"

and Fritz Lang's

"M" with Peter Lorre

Harvard Fumbles Play On One-Yard Line

The play, "The Rain Never Falls", presented at the Loeb Drama Center at Harvard, is designed to be a propaganda vehicle on the horrors of atomic war. It has been rewritten several times during the course of its existence, and each time it has assumed a more reactionary aspect.

But there are very few plays in existence which are successful both as propaganda and as art; this one is no exception. It is successful in its main purpose, for it shows in a logical fashion that, contrary to general opinion, war won't end when men see the horrors of atomic catastrophe, but they will keep right on fighting, driven on by "self-preservation."

It is successful in this because the author has a good feeling for characterization. The basic conflict is between two families, the Hoopers and the Marellis. They are, respectively, a superficial middle class family and a closely-knit working class family. But the contrast runs deeper as the play proceeds, and each member is played off against the corresponding member of the other family.

Mr. Joe Marelli was an Italian working man who had spent all his life in the construction business and had become rather proficient at his job. However, in the depression preceding the nuclear war, he had been laid off. This proved a terrible blow to him, as he could no longer support the wife and child he loved. His opposite, Mr. Michael Hooper, was the type of man who had

successfully lived off the work of others but who had never contributed anything himself. When, in this dire emergency, he was called upon to do his own work, he failed.

The difference in the wives was even more dramatically brought out. Mrs. Anna Marelli was always caring for her family and was always worrying when something went wrong. In contrast, Mrs. Grace Hooper was interested in the superficial; she was a status seeker who was more interested in the outward signs.

Finally, we come to the children, Larry Marelli and Helen Hooper. Both had discarded the beliefs of their elders, but Helen had built up a new set whereas Larry hadn't. This enabled her to survive the crisis while he went raving mad.

The play's author evidently believes of their elders, but Helen type of person represented in the Marellis because they triumph. But it is a hollow victory because it leaves them with no reason for living and the warm April sun tempts them out to their deaths from lingering radiation.

The basic characterization is exceptional, but it is the only strong part of the play. In general, many of the scenes are presented for their own sake, for the horror, pathos, etc. in them without regard for the way they weaken the play as a whole.

As for the presentation itself,

it was, frankly, terrible. For the most part, the stage was cluttered with students yelling lines about, in an artificially stilted way. The only person who did not give me this impression was Myra Rubin, who played Mrs. Anna Marelli. The rest seemed not to understand their parts and, hence, were more interested in emphasizing the special effects than they were in being true to the playwright's ideas.

It is hoped that there is greater talent than this at our sister institution or someone should start researching a book on "The Decline and Fall of the Harvard Empire."

Richard N. Waterhouse, '65

Dramashop Play To Tell Of English Burlesk's Fall

For the first time since its original production at the opening of Kresge Auditorium in 1955, MIT Dramashop will present a play by a contemporary author which includes songs, dances and girls. "The Entertainer," by John Osborne, England's leading "angry young" playwright, has been chosen as Dramashop's major fall production. The play, directed by Joseph Everingham, Director of Drama at MIT, will be presented Wednesday through Saturday evenings, Dec. 13-16 at 8:30 p.m. in the Little Theatre, Kresge Auditorium.

Michael Meeker, G, will play the role of the down-at-heels hoofer, Archie Rice, and will perform authentic English music hall "turns" with dances choreographed by Esther Brooks of the Cambridge School of Ballet. The pit seats in the Little Theatre have been removed and the entire stage floor is being elevated to accommodate a five piece pit orchestra under the musical direction of John Corley, Assistant director of Music at MIT. Rights to perform the music have been obtained from Laurence Olivier.

Featured as Phoebe Rice, wife of the entertainer, is veteran Dramashop actress Joan Tolentino; Richard Hornby, director of last year's Tech Show, plays Billy, the Rice grandfather, an old-time showman. Faye Dunaway plays Jean Rice, and Leonard Rubinstein appears as Frank, the Rice's guitar-playing son. Norma Anderson of Boston's Actor's Workshop will appear as the stripper, Gorgeous Gladys.

The play is set in a large coastal resort in England in 1957, with action alternating between the ugly rented rooms occupied by the Rice family and the stage of the third-rate music hall where Archie is appear-

Juilliard String Quartet Impressive In First Humanities Series Concert

The Humanities Series took a bold and admirable step this year in engaging the Juilliard Quartet to present, in five performances, the complete string quartets of Ludwig von Beethoven. The full house in Kresge on November 19 indicated that this move has met with very great appreciation.

The series is arranged such that each performance contains an "early" quartet, a "middle" quartet, and a "late" quartet. The program for Nov. 19 opened with the C minor quartet of Opus 18, a very lush sounding composition in "traditional" quartet, and a "late" quartet, usually Beethovenian themes. The E minor quartet of Opus 59 was next. Here Beethoven's experimentation with the con-

cept of a string quartet is more obvious.

The first movement receives great importance, and the interrelation between thematic material and development becomes very close. The third movement ("Allegretto") is based on a Haydn-like theme, but with a uniquely Beethoven treatment.

Last came Opus 132 (A minor) which represents an almost entirely different concept. It has had a great influence on many contemporary quartets (especially those of Bartok.) Its five movements lack the conventional minuet, but they do contain a small march. Its slow movement begins with a chorale, notated in the music, "As a prayer from one who is convalescing," and moves into an Andante marked, "feeling new strength."

Many facts point to the Juilliard Quartet as being the finest string quartet in the world. They play not as four musicians who have a very deep and thorough understanding of the music, but as one unified quartet which collectively has the understanding of all four. Canonic entrances occur as mirror images, diminishing Adagios leave the audience stone silent for many seconds after the end.

The last sometimes leads to tempos too fast for clear transmission but this is overshadowed by the Juilliard Quartet's remarkable interpretation and skill in its presentation.

Dennis Johnson '62

ing nightly with his rock 'n' roll girlie show.

It is reported that the role of Archie Rice was written after the author had seen famous classical actor Sir Laurence Olivier perform a music hall "turn" at an actor's benefit party in London and jokingly threatened to write a role for him around the characterization. This threat materialized into a hit Broadway play.

Tickets, at \$1.50, are available in Building 10 and at the door on the nights of the performance.

Mary McCarthy Unimpressive Speaker, Reports Mack Hammer

Miss Mary McCarthy, one of the cleverest and most satirical writers the United States has produced, gave a solo presentation, "An Evening With Mary McCarthy," sponsored by the Poet's Theater group at Harvard's Sanders Theater last week. This was their annual presentation of a well-known writer, and for Miss McCarthy, a first appearance in front of a Boston audience.

The witticism and satire displayed in her latest book, "On the Contrary — Articles of Belief, 1946-1961," was foregone in this lecture in which she chose to talk on the role of nature in the novel. She gave an analysis of the use and role of nature in the 19th and 20th century novel, showing the gradual vanishing of nature's importance in the modern novel. From Dickens' descriptive passages of storms and heavy seas and Cooper's of the American woodlands to the currently favored psychological novel, nature's role has become increasingly less significant. In art, also, nature's importance is lost; a modern painting usually achieves a psychological rather than esthetic effect.

Miss McCarthy's command of the English tongue is excellent, but, unfortunately, she is only a fair speaker since she is unable to remain still; she intersperses many uh's in her speech, and she has a tendency to drift from her topic.

For these reasons, Miss McCarthy often failed to make her point completely clear. It

is my suggestion that any other appearance made by Miss McCarthy be in the line of spending a day autographing copies of her books at Filene's rather than attempting a literary lecture.

Mack Hammer '63

Committee Has Prints For Sale At Art Gallery

An exhibition and sale of more than 300 prints and original drawings, ranging from 17th Century art to contemporary graphic art, will open in MIT's Hayden Gallery on Monday, Dec. 4. The collection includes work by Picasso, Matisse, Miro, Leger, Utrillo, Chagall, Daumier, Durer, as well as younger artists well known in the graphic mediums.

All prints and drawings in the collection will be available for purchase by MIT students and staff. Prices will range from \$3.50 to \$200.

The Technology Museum Committee will have available a modest fund for loans for students wishing to purchase art pieces from the exhibition. Arrangements for loans can be made through Dean Thomas Pitre, Student Aid Center, Room 5-115.

Prints and drawings have been assembled from the Boston, New York, Chicago and Dallas areas, and in many cases the artists and dealers participating have generously allowed a discount which will be reflected in the price of each item.

As prints are sold, they will be replaced daily with new prints, until the entire collection has been rotated for viewing. Purchases may be picked up at the end of each day. The exhibit will include pencil drawings, ink drawings, woodcuts, etchings, lithographs, aquatints, and serigraphs — black and white, and colored.

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Tickets Sold At The Door
General Admission \$2.50
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DOORS OPEN 7:45 P.M. EVERYBODY WELCOME

The Franny And Zooey Bookworm

By Tom Maugh '65

Read *Franny and Zooey* (Little, Brown)! J. D. Salinger's moving drama about a young girl's brush with religion is perhaps one of today's fastest selling books — it was number one on *Time's* fiction list within a month and a half of its publication — and with good reason.

Originally published in *The New Yorker* as two novellas, the plot concerns the disillusionment with life of Franny Glass, an erudite young college girl. The only female progeny of an extremely intellectual family (all seven of the children in the family were stars on the radio show "It's a Wise Child"), Franny finds herself unable to accept society — "the unattrac-

tive and selfish humanity of our day" — either in whole, or in part.

Salinger's main skill in writing is in portraying reality, from Franny's boyfriend Lane Coutell waiting at the station for her ("Lane himself lit a cigarette as the train pulled in. Then, like so many people, who, perhaps, ought to be issued a very probational pass to meet trains, he tried to empty his face of all expression that might quite simply, perhaps even beautifully, reveal how he felt about the waiting person.") to the Glass's imaginary Fat Lady ("This terribly clear picture of the Fat Lady formed in my mind. I had her sitting on this porch all day, swatting flies, with her radio going full-blast from morning until night. I figured the heat was terrible, and she probably had cancer, and — I don't know.")

Perhaps the most striking part of the book was the dialogue. For instance, there is the meaningless patter of Lane as he eulogizes his recent thesis: "I think the emphasis I put on why he was so neurotically attracted to the mot juste wasn't too bad. I mean in the light of

what we know today. Not just psychoanalysis and all that mumbo jumbo, but certainly to a certain extent. You know what I mean. I'm no Freudian man or anything like that, but certain things you can't just pass over as capital-F Freudian and let them go at that. I mean to a certain extent I think I was perfectly justified to point out that none of the really good boys—Tolstoy, Dostoevski, Shakespeare, for chrissake—were such goddam word squeezers. They just wrote. Know what I mean?"

"You going to eat your olive, or what?"

Or Franny talking about her brother Zooey: "He said he was — this is exactly what he said — he said he was sitting at the table in the kitchen, all by himself, drinking a glass of ginger ale and eating saltines and reading "Dombey and Son," and all of a sudden Jesus sat down in the other chair and asked if He could have a small glass of ginger ale. A small glass, mind you — that's exactly what He said."

Whether or not you want to go around reciting the Jesus Prayer continually, or even if you haven't had a brush with religion, this is one book you are sure to enjoy.

WGBH Building Being Demolished

Work commenced Monday, Dec. 4 on the razing of the old WGBH building, which had been destroyed by fire. The land has been earmarked as the site of the new Student Union Building which will be built as part of the Second Century Program.

DANCES! GIRLS! SONGS! DANCES!

M.I.T. DRAMASHOP Presents "THE ENTERTAINER"

A Play by John Osborne
With the Original Score by John Addison
Directed by Joseph Everingham
Dances by Esther Brooks
Musical Direction by John Corley

Little Theatre, Kresge Auditorium

8:30 P.M., Wed., Dec. 13 — Sat., Dec. 16
Tickets \$1.50 — Reservations: Ext. 2910

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Francois Truffaut's

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IBM 709 Takes Leave Of Computation Center For Benefit Of 7090

The almost overnight disappearance of the MIT Computation Center's IBM 709 Computer marked the beginning of the installation of the Center's new IBM 7090-1401 system.

The new system, which will have about four times the capability of the old one, is expected to be in operation early in 1962. The new 7090, a faster, transistorized version of the old 709, will be implemented by two IBM 1401 computers in the time-consuming input-output stages of its operation.

When asked about installation schedule Associate Director F. J. Corbato replied the Center "hoped to have the machine 'on the floor' by December 18th and running in early January."

Juniors Sponsor Seeger Concert

The Class of 1963 has announced a concert featuring Pete Seeger to be held Friday, Jan. 12 in Kresge Auditorium.

For Seeger, long an MIT favorite, the concert marks his third appearance in three years, the last being during Centennial Celebration. His reception here, always excellent, has caused him to state that he is partial to Tech audiences.

Tickets will go on sale Wednesday, Jan. 3 in the lobby of Building 10. Prices are \$1.50 per seat for non-Juniors and \$1 per seat for Juniors. All seats will be reserved.

'King Arthur' Concert Sunday At Kresge

(Continued from page 8)

drama to music, in the spirit of its blank verse libretto.

Purcell scored the music for strings, flutes, oboes, trumpets, and harpsichord. The major portion of the story is not sung, but acted, so that the music takes the form of masques — solo songs, dances and choruses — music incidental to the dramatic mainstream and set among elaborate stage "machinery." The original production, at Dorset Garden, England, in 1691, was a lavish spectacle. The plot of the drama is an incredible maze of intrigue, firmly rooted in the English passion for turning a hero into a national legend.

Musicologists credit Purcell as a "mature master of early orchestration," and it is contended that his music for "King Arthur" controls, as well as enhances, the entire structure.

The M.I.T. Choral Society and soloists, veterans of two successful European tours, performed "The Fairy Queen," a later work by Purcell, in December, 1958, at M.I.T.

Alpha Phi Omega Sets Date For Annual Spring Carnival

Alpha Phi Omega will sponsor the Third Annual Spring Carnival in Rockwell cage on Saturday, April 21.

Calendar of Events

(Continued from Page 2)

COMPUTATION CENTER.*
Seminar: "Different Applications of COMIT." Dr. Victor Yngve, Department of Modern Languages, MIT.
Room 8-119, 3:00 P.M.
MIT HILLEL SOCIETY.
Seminar on Jewish History.
317 Memorial Dr., 4:00 P.M.
DEPARTMENT OF METALLURGY.*
Colloquium: "The Effect of Surfaces on the Mechanical Behavior of Metals." Dr. I. R. Kramer, The Martin Company, Baltimore, Md.
Room 6-120, 4:00 P.M.
DEPARTMENT OF NAVAL ARCHITECTURE AND MARINE ENGINEERING.*
Seminar: "An Appraisal of Novel Ship Types — Part II." (A Partial Report of the Panel on Naval Vehicles, National Academy of Sciences Study of 1960-61.) Philip Mandel, Associate Professor of Naval Architecture, MIT. Coffee in Room 5-311 at 3:30 P.M.
Room 3-370, 4:00 P.M.
ARCHITECTURE LECTURE SERIES.*
Lecture: "Two-Dimensional Structures and the Invention of the Rigid Frame Theory." Dr. Henry J. Cowan, Head of the Department of Architectural Sciences, University of Sydney, Australia.
Room 7-435, 4:30 P.M.
CONCERT.*
Fine Arts Wind Quintet performing works by Fine, Barber, Reicha and Milhaud. Admission free.
Hayden Memorial Library, 5:00 P.M.
MIT HILLEL SOCIETY.*
Study Group.
Morss Hall, Walker Memorial, 5:00 P.M.
PROTESTANT CHRISTIAN ASSOCIATION.
Study Group.
317 Memorial Dr., 5:00 P.M.
Dinner.
West Dining Room, Graduate House, 6:00 P.M.
Study Group.
317 Memorial Dr., 7:30 P.M.
TECHNOLOGY CATHOLIC CLUB.*
Theology Lecture Series: "The Sacraments." Father William Sullivan, C.S.P.
Room 3-133, 5:00 P.M.
WATER POLO CLUB.*
Meeting.
Alumni Pool, 6:30 P.M.
MIT FACULTY PISTOL AND RIFLE CLUB.*
Match with North Reading.
Rifle Range, 8:00 P.M.
MIT HILLEL SOCIETY.
Study group: "Elementary Yiddish."
Room 5-203, 8:00 P.M.
DEPARTMENT OF HUMANITIES.*
Lecture: "The Myth of Political Salvation." Sir Ronald Syme, Camden Professor of Ancient History, Oxford University.
Kresge Auditorium, 8:00 P.M.

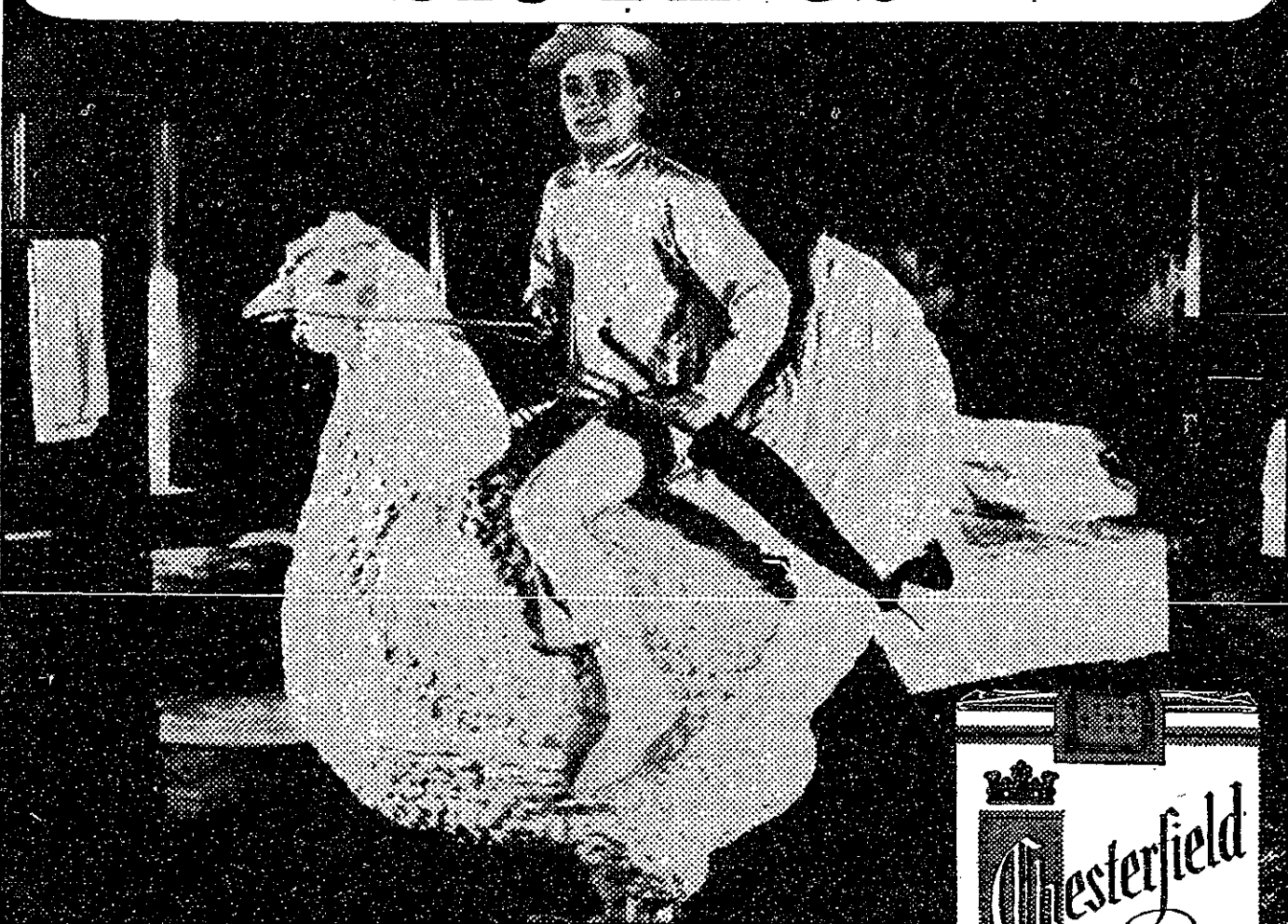
Wednesday, December 13

OPERATIONS RESEARCH CENTER.*
Seminar: "Single and Double Ended Queues." Professor Samuel M. Givens, Associate Professor of Mathematics, Northeastern University.
Room 1-146, 2:00 P.M.
ELECTRONIC SYSTEMS LABORATORY.*
Seminar: "Logical Design of Threshold Switching Circuits." Professor Eiichi Goto.
Room 26-222, 3:00 P.M.
MIT HILLEL SOCIETY.
Study Group: "Towards a Social Philosophy."
317 Memorial Dr., 3:00 P.M.
A.N.S. NUCLEAR ENGINEERING SOCIETY.*
Seminar: "Current Status of the Four Factor Formula." Jack Chernick, Director, Reactor Physics Dept., Brookhaven National Laboratory.
Building NW-12, Room 222, 4:00 P.M.
ARCHITECTURE LECTURE SERIES.*
Lecture: "Three-Dimensional Structures and the Mechanization of Structural Design." Dr. Henry J. Cowan, Head of the Department of Architectural Sciences, University of Sydney, Australia.
Exhibition Room, 7-435, 4:30 P.M.
DEPARTMENT OF BIOLOGY.*
Seminar: "Dimensional Analysis in Biology." Dr. Walter Stahl, University of Oregon. Tea in Room 16-711 at 4:00 P.M.
Room 16-310, 4:30 P.M.
TECHNOLOGY CATHOLIC CLUB.*
Meeting: "The Psychology of Sin." Father Michael E. Stock, O.P.
Miller Room, 3-707, 5:00 P.M.
SEMINAR SPONSORED BY THE PROTESTANT MINISTRY.*
Seminar in New Testament Greek. Dr. Goetchius, Episcopal Theological School.
317 Memorial Dr., 7:30 P.M.
LECTURE SERIES COMMITTEE.*
Readings: T. S. Eliot will read selections from his poetry. Free tickets for the MIT Community are available in the lobby of Building 10.
Kresge Auditorium, 8:00 P.M.
HILLEL SOCIETY.*
Israeli Dancing. Admission 50c.
Walker Memorial, Room 201, 8:30 P.M.

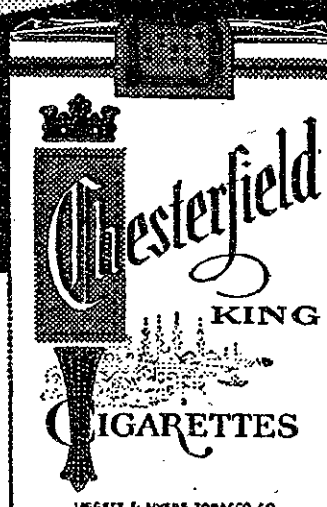
* Exhibits*

HAYDEN GALLERY.
Christmas sale of drawings and prints for students and staff, through December 22. Available for general purchase after December 11. Gallery hours: Monday through Friday, 10:00 a.m. to 5:00 p.m. Saturday and Sunday, 1:00 p.m. to 5:00 p.m. The exhibition and sale is sponsored by the MIT Art Committee and the MIT Faculty Museum Committee.
FACULTY CLUB.
Paintings by Mrs. Juliet Kepes.
Early New England pottery collected by Professor F. H. Norton.
MIT on WGBH-TV, Channel 2
MIT SCIENCE REPORTER.
"The Emerging Vision." Dr. Bert Little with guest, Gyorgy Kepes, Professor of Visual Design, MIT.
Wednesday, December 6, 9:30 p.m. and Sunday, December 10, 4:00 p.m.

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FRIDAY DECEMBER 15, 8:30 P.M.

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Perini Memorial Makes Donation For Unique Structure Models Lab

A grant of \$250,000 from the Perini Memorial Foundation, Inc., of Framingham, Mass., to the Massachusetts Institute of Technology's \$66,000,000 Second Century Fund was announced yesterday by Dr. James R. Killian, Jr., Chairman of the Corporation. The grant, in the form of stock, was made in memory of Charles Perini, for the establishment of a Laboratory for Models Structures Testing—the first of its kind in the United States—in M.I.T.'s School of Architecture and Planning. Only three other laboratories of this type exist, in Italy, Spain and Portugal.

Dr. Killian said that the lack of a structural models laboratory in the United States has been a significant omission in research and education in the fields of architecture and structural engineering. "In meeting this need, the Perini Foundation's generous gift will provide students at M.I.T., as well as architects and builders throughout the country, with the facilities they need to increase their understanding of new structural forms," Dr. Killian said. "Several distinguished architects have come to me urging M.I.T. to establish such a laboratory for the benefit of the profession."

The recent use of model analysis in the Portuguese laboratory, for example, has so changed the design of concrete arch dams that fifty per cent less material is now used compared to the designs of a decade ago, according to Pietro Belluschi, Dean of the School of Architecture and Planning.

"Sophisticated use by the architect and engineer of steel, reinforced concrete, lightweight

alloys, Ferro-Cemento, and new fabrication techniques provide them with materials to build structures that were impossible only a few years ago," Dean Belluschi said. "Through experimental stress analysis in the new laboratory, architects and engineers will be able to increase their knowledge of structures."

Mr. Perini expressed pleasure at benefits that the laboratory will undoubtedly bring to the entire construction industry—architects and builders as well as owners. "Although this grant is from a Massachusetts foundation to a Massachusetts institution," he said, "I believe it is not an understatement to say that the effect of the new laboratory will be to bring about needed improvements in the quality of structural design—including better and faster construction at a lower cost for the building industry and the consumer—throughout the United States."

Forrester Publishes "Industrial Dynamics"

The first full-scale exposition of a new philosophy and method of business analysis is presented by Dr. Jay W. Forrester, professor of industrial management at MIT, in a new book, "Industrial Dynamics," published by the M.I.T. Press.

Drawing upon his experience in gunfire control, computer design and continental air defense, Dr. Forrester now sums up the conclusions of five years of research in industrial management and discloses ways in which he believes industry can plan more efficiently, create greater employment stability, increase pro-

President Reports

MIT's Dynamic Nature Shown

by Terry Foster '63

The 1961 annual Report of the President has been recently issued. It discusses MIT's future as well as making its recap of the past year. Outstanding topics in the report were the Centennial, the construction of research centers, the educational program, and year's statistics.

The success of the activities of the Centennial Year was readily acknowledged by President Stratton. He stated that perhaps the most significant effect of the Centennial was that upon the faculty and administration in that there was made a greater realization of MIT's role in a modern world. In retrospect, the last century has seen MIT expand its educational coverage from engineering and architecture to humanities, management, and now languages. These expansions have heretofore kept pace with the opportunities offered by the changing world. Difficult deci-

sions as to just how many of the increasing opportunities arising MIT can cover are foreseen by the president as a definite possibility.

Receiving appropriate discussion was the construction program for research centers, the physical aspect of the changing MIT. Revised plans for the Earth Science Center will be ready for bidding this month in order that it may be finished by 1963. Funds for the Materials Science and Engineering Center have been virtually assured. Other centers in current plans are Aeronautics and Astronautics, Communications Sciences, and Life Sciences. It is anticipated that the Cambridge Electron Accelerator, a joint project of MIT and Harvard, will be completed this December.

Changes of educational meth-

ods complete the picture of MIT's dynamic character. New courses have been initiated in a greater proportional amount than the past. The position of the laboratory in modern education is being established as one of an open-ended research opportunity intended to bring the student into closer contact with the work of his profession. Toward this end, home laboratory kits have appeared in the Electrical Engineering and Physics departments. There also exists a trend toward the tutorial system of smaller classes with their inherently stronger student-teacher ties. Freshman seminars, classes of approximately six students covering nearly 40 subjects are a ramification of this attitude.

In the statistics section of the report lie the facts of the greatest immediate interest to the student. Total enrollment was 6,289, an increase of 19 over 1959-60; it was estimated that the current enrollment will be 6,300. Degrees awarded amounted to 1,810, showing an increase of six over 1959-60. Comprising this increase were a decrease in the number of bachelor's degrees, and increases in the numbers of master's, engineer, and doctoral degrees.

Placement records show that about 400 business representatives interviewed some 1500 students in 8,410 interviews. It was noted that average starting salaries are on the increase. The average senior received an offer of \$550 per month, while the average master's and doctor's candidates received offers of \$650 and \$850 per month respectively.

A particular sore point with MIT students is, of course, the tuition increase. It is obvious that all of the changes described in the report take a considerable amount of money. The year's statistics bring out a more subtle point: the rate of financial aid increase is greater than that of tuition increase. Financial aid to undergraduates increased 20 per cent over that of the previous year, providing some \$2.7 million to 43 per cent of the undergraduate body. Likewise, graduate financial aid underwent a 20 per cent rise for the year in which \$1.3 million was distributed in the form of staff awards, loans, scholarships and fellowships.



Prof. Jay Forrester

ductivity and grow more successfully.

During World War II, Dr. Forrester designed servomechanisms for Army guns and Navy radar. In 1946 he took charge of the construction of Whirlwind I, one of the first high-speed electronic computers. He was then head of the digital computer division of the Lincoln Laboratory, using Whirlwind as an experimental model in the design of the vast and complex SAGE system for continental air defense.

Recognizing that one of the major problems of industry is that of fluctuations in such factors as costs, wages, sales and employment, Dr. Forrester sought to find a new method of rapidly analyzing the relationships between these variables. He has found that in using a high-speed digital computer as a tool, as many as 2,000 variables can be studied. This is far more than a manager can properly interrelate mentally and intuitively.

The relationships of that many variables are extremely complex, but digital-computer models of such systems provide a management laboratory and a means of pretesting proposed changes in policies. Rather than waiting for months or years to see how policies will work out, an industrialist can simulate operations on a computer and determine which will be the most successful.

What Dr. Forrester proposes is to view management as an information-feedback control system. The most familiar such system is that of the modern residential heating plant. When the temperature drops in your house, the thermostat signals the furnace, which produces enough heat to bring the temperature up to the desired level, to shut off the furnace. The situation leads to a decision that creates action to correct the situation.

In the same way, the flow of money, orders, materials, personnel and capital equipment in an industry can be better regulated, Dr. Forrester says, by a more adequate understanding of the feedback network that couples information to decisions

to the actions that generate new information. The separate functions of management—marketing, investment, research, personnel, production and accounting—can be integrated. In fact, Dr. Forrester says, the method can be applied not only to single companies but to whole industries and to national and international economic systems.

The book is devoted chiefly to an explanation of industrial dynamics as a method of analyzing and evaluating the information concerning industrial operations and has dozens of graphic charts in which the roller coaster effect in the relationship of production, inventory, sales and cash flow curves is apparent. Information on actual industrial operations was used to provide a realistic basis for the studies.

Two chapters in the book are devoted to a description of the application of principles of the new system in dealing with the employment stability problems of an actual company. In spite of a fairly steady demand for the products of the company, extreme fluctuations were occurring in its employment, inventory and factory backlog. Study of such factors on a computer showed that the fluctuations were caused chiefly by interactions within the policies of the company itself. Application of industrial dynamics resulted in the design of policies to reduce fluctuations in employment and production to about a third. Many industries experience similar instability which Dr. Forrester feels can be reduced by recognition of the enterprise as a complete system and the design of internally compatible policies.

Also explained is a system, known as DYNAMO, which was developed for translating industrial data into instructions and numbers that could be understood by a computer.

Host To 150 Schools

MIT At National IFC

Jim Champy '63 and Jack Downie '64 were the IFC's representatives at the National Infraternity Conference, held at the Statler-Hilton Hotel in Boston Dec. 1 and 2.

Dean Wadleigh, Dean Fassett and Mr. William Carlisle, who was in charge of undergraduate arrangements at the conference, were MIT's representatives.

MIT's Interfraternity Conference acted as hosts for the convention.

Six hundred people, including national officers, IFC representatives and college deans were present at the conference, representing about 150 American colleges.

This was the 52nd annual meeting of the NIC, which brings together representatives of the 59 international men's social fraternities, and undergraduate IFC officers of the 450 North American colleges and universities having IFCs.

The chairman of this year's undergraduate conference is William S. Zerman, Executive Secretary of the fraternity of

Phi Gamma Delta, Washington, D. C.

Father Norman O'Connor, O.P., Boston, Mass., delivered the invocation, followed by the introductory speaker, Robert Waldo, Assistant to the President, University of Washington, Seattle, Wash. General David M. Shoup, Commandant of the U. S. Marine Corps and holder of the Congressional Medal of Honor, was the banquet speaker. Dr. Francis H. Horn, President of the University of Rhode Island, addressed the undergraduate and graduate session.

The Undergraduate Conference, held as a part of the NIC, had a program which included lecture and discussion sessions on scholarship, cooperative buying, alumni relations, fraternity rushing, pledge training, public relations, and publications. The sessions were conducted by outstanding university administrators, fraternity executives and alumni.

In the session on scholarship, the problem of slippage of scholastic grades was brought forth. It was suggested that the individual chapters adopt a program which includes gathering of material on how to study, following up of delinquents, adoption of minimum requirements for initiation.

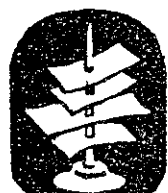
At another session cooperative buying was discussed, and a system similar to MIT's was strongly recommended.

Other lectures were concerned with rushing and pledge training. It was suggested that a code of acceptable pre-initiation practices be drawn up by the chapter houses. Hell week should be completely eliminated and a "Service Week" or "Greek Week" might be substituted. The idea of working with sororities on service projects was also proposed.

Course XV Assoc. Meeting

"The Application of Computers to Business Problems" will be the title of a lecture to be given by Mr. Dick Littlefield of IBM today at 4:15.

The lecture, presented by the Industrial Management Association, will be in the Schell Room, on the fourth floor of Building 52.



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Nwagha New Soccer Chief

Herbert Nwagha '63, from Nigeria, has been elected captain of next year's MIT soccer team. He was the right fullback on this year's team that posted a 6-1-1 record in the New England college league.

Nwagha was born 25 years ago in the small village of Umu-owa-Orlu. The son of a railroad worker, he finished his schooling in 1954 and began working as a government clerk. He was

the first person in his family to receive a high school education and, after three years at his job, it appeared he had reached the limit of his ambitions.

Then came the clamor for independence throughout Africa. The government searched the country for bright young men to lead the nation when freedom came. Herb was selected to study at the Emergency Science School in Lagos, Nigeria. There

he stayed for two years and, together with several other students, was picked to attend an American university.

This is not the first time that Herb has been named a student leader at MIT. Last year he was elected chairman of his living group, an uncommon honor for a sophomore. Both college officials and students have praised his efforts in this position.

After receiving his degree in mathematics, he hopes to continue in graduate school and then return to Nigeria as a teacher. His academic record and his leadership abilities indicate he has much to offer his young nation.

Inscomm Open Line Features Sports

Next Monday evening, "Inscomm O. L.," will feature a discussion of athletics at MIT, with particular note on the eligibility rulings for intramurals and the rise to prominence of the basketball team under coach Barry, who will appear on the program. Other guests will be Director of Athletics Ross Smith, and Athletics Association Chairman Tom Burns.

"Inscomm Open Line," a program of commentary and discussion created by the Public Relations Committee of Inscomm, is entering its third month of broadcasting on WTBS. Past programs have included discussions of Student government, with guests Frank Osha, Jerry Winston, Woody Bowman, and others who are active in student affairs. Special guests have included Mr.

Carlisle of the student employment office and Dean of Financial Aid Pitre.

The telephone lines to WTBS (ext. 4969) are always open while "Inscomm Open Line" is on the air. This gives the listening audience the opportunity to or ask questions of the guests while the program is in progress.

Walter Foeger Ski Movie Shown On December 8

Walter Foeger, an internationally known skier and the father of the "Natur-Teknik" method of ski teaching, will appear Friday, Dec. 8 at Westwood High School, Nahatan St., Westwood, at 8:15 p.m. Tickets will be \$1.50, at the door.

Included in Foeger's program is his latest teaching movie, a unique film that has already received acclaim in professional ski teaching circles. The movie was filmed during the past two seasons at the Jay Peak Ski Area in northern Vermont where Foeger is now the general manager and head of the ski school. The movie illustrates the progressions of learning to ski with parallel skis at all stages, without use of the snow-plow or stem. Foeger will show how this method works with shots of his pupils, who range in age from six to 60.

"Wish You Were Here," the title of Foeger's second film, will take the viewer from water skiing on the Mediterranean to skiing at the Winter Olympic sites of Cortina (1956) and Innsbruck (1964).

Between the films, Foeger will conduct a panel discussion on modern ski teaching methods.

Fencers Open With Victory Over Bradford-Durfee 18-9

The MIT Varsity Fencing squad limbered up for an apparently successful season by trouncing Bradford-Durfee, 18-9, in the du Pont Center last Saturday. The first three fencers fenced only one match each in epee, sabre, and foil divisions, winning them easily.

All members of the squad had an opportunity to fence as the second team was likewise unbeaten and the third round of Techmen were sent in. In all, eight of the Engineers went undefeated for the day in the easy victory over the Fall River technical college.

The Fencers next meet will be at Harvard on Wednesday, December 13. Judging from pre-season estimates of Harvard's strength, and MIT's opening performance, the Techmen stand a very good chance of beating the Crimson.

This Saturday, December 9, the freshman squad faces Harvard. Freshman fencing is confined principally to practice and intra-squad matches at MIT; two matches with Harvard comprise their entire schedule.

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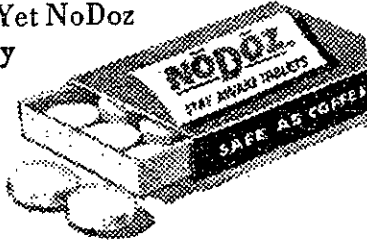


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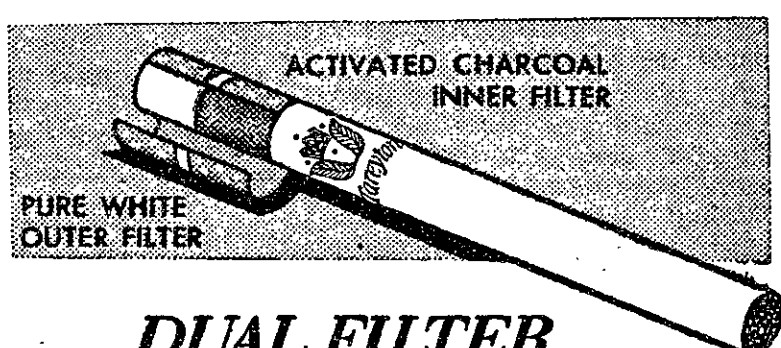
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MEET THE CAPTAINS

John Rupert

By Charlie Smith '63

In Canada the primary sporting interest of the people is ice hockey. Although John Rupert '62, MIT's 1961-1962 hockey captain, moved from Montreal to St. Paul, Minnesota at an early age, he has retained this interest in hockey. This interest has enabled John to play excellent hockey in his years at MIT.

Rupert has been playing hockey for as long as he can remember. He says that around St. Paul the youngsters play a type of "sandlot" hockey instead of baseball. Games are played on everything from frozen lakes to regular rinks. Having been introduced into the game in this manner, John has developed into a first rate player. He likes the game because of its speed and especially likes the fast teamwork involved.

John went to high school at St. Paul Academy where he lettered in hockey and tennis. While Rupert was playing hock-

ey for St. Paul Academy, the team won the Minnesota Independent School League Championship.

At MIT, Rupert has starred in hockey for four years. In addition to being elected captain of this year's varsity, John was elected captain of his freshman hockey squad. On top of these athletic achievements, he is a member of Sigma Chi fraternity, Quadrangle Club and Beaver Key.

John is studying mechanical engineering at MIT. After graduation he plans to attend graduate school, also in mechanical engineering. As of now, however, he has not decided which school he plans to enter.

"The team has lots of potential," says Rupert. "We have all but two of last year's lettermen back, so we are expecting to have a very good year." Last year the squad compiled a nine and six record, making

the first winning season MIT has had for a long time.

John went on to add that the success of the team depends a lot on durability. The squad has a very good first team but lacks depth. For this reason John says, "Without any key injuries we will have one of the better teams in the area."

With this improved team, MIT has to play a much tougher schedule this year. Before Christmas the team plays Worcester Polytechnic Institute, University of Massachusetts, University of New Hampshire, and Bowdoin. "These first games will definitely be rough," says Rupert.

The best estimates of relative team strengths around New England show that if the Engineers win all four December games, they'll be on their way to a great season. If they have such a season, a big chunk of the credit must go to Captain John Rupert.

Tech Icemen Meet U of Mass In Season's Opener Tonight

The strongest MIT hockey team in the past decade will take the ice tonight at 7:00 to face the University of Massachusetts in its opening game of the season. Friday, the team will travel to Worcester Polytechnic Institute, and on Tuesday, it will journey to the University of New Hampshire.

With essentially the same team as last year, the experienced icemen hope to reverse the two narrow losses to UMass., suffered last season. Although entering the game with only ten days practice behind them, Coach Ben Martin feels that the team looks promising and has a good chance of upsetting UMass.

A shortage of depth is Martin's chief worry at this time. Although well-stocked with goaltenders, the team must play with only two lines and two defense pairs. Fran Berlandi, '62, an able utility man, can step in at any post, but two or more injuries would seriously handicap the skaters.

Tim O'Brien, '62, was responsible for much of the team's successful record last year, and is the logical selection as starting goaltender. Seniors Doug McMillan and Bojey Salmon will open at defense, alternating with Tom Sheahan, '62, and Ted Cohn, '63. The junior line of

Mike Denny, Billy Vachon, and Tony Weikel, will share the forward skating duties with a line of Captain John Rupert, '62, Steve Levy, '62, and Jim Holcroft, '63. Holcroft replaces graduated ex-captain Eric Salbu, one of the fastest and best playmakers on the 1960-61 varsity.

Worcester Tech is always an unknown early in the season. Although MIT has beaten them five times in the past three years, WPI is allowed to play freshmen on its varsity team, having less than 750 undergraduates. No one knows yet what new players they may have.

MIT has not beaten the University of New Hampshire in hockey in many years, but the chances are better now than ever before. The teams did not meet last year, due to a blizzard in New Hampshire on the day of the game; however, based on the criteria of their strength two years ago, and their 1960-61 record against mutual opponents, it appears that an upset is conceivable. Coach Martin pointed out that UNH is in a class above MIT, but if the Techmen give their best effort, and UNH slacks off a little, MIT may emerge the victor.

Baker A Leads Tenpin Bowling

After the first three weeks of Intramural Tenpin Bowling, Baker A holds a commanding Peterson-point lead of 7.44 over second place Burton II.

Sigma Alpha Epsilon A has shown increased strength in moving from fifteenth to fourth place during this time. The over-all point spread is still close, with 30 of the 34 teams in the 75-95 range.

Lambda Chi Alpha moved from twelfth to sixth place. An erratic Delta Kappa Epsilon moved from nowhere to tenth in the second week, but later dropped from the top fifteen.

Other teams have maintained their relative standings, with Baker A, Burton II, and Senior House holding down the top positions.

IN BOWLING STANDINGS

TEAM	POINTS
Baker A	99.70
Burton II	92.26
Senior House A	91.16
Sigma Alpha Epsilon A	90.32
Phi Kappa Theta A	88.00
Lambda Chi Alpha	86.46
Pi Lambda Phi	86.42
Burton III	85.98
Kappa Sigma	85.58
Club Latino	85.48
Grad. Dining Staff	84.60
East Campus II	84.56
Sigma Phi Epsilon B	84.40
Burton I	83.90
Sigma Chi	83.50

Rifle Team Downed By Norwich Squad; Peterson, Smith Star

The Tech rifle team suffered its first defeat of the season Saturday in a three way match at Norwich University. The final scores were Norwich 1418, MIT 1413 and Nasson 1310. The match was undecided until the last relay. Outstanding scores were turned in by Capt. Steve Smith '62, 287; and Bruce Peterson '63, 286. But there was little to back them up. The others in MIT's high five were Al Gleim '62, 282; Terry Foster '63, 280; and Richard Ludeman '63, 278.

The match counted as a win over Nasson, however, Nasson was somewhat outclassed in this match as the school has only recently organized a shooting program and has suffered from inexperience.

The loss to Norwich dashed any hopes of another perfect New England League season for the Tech shooters. Next Saturday the team travels to Bowdoin.

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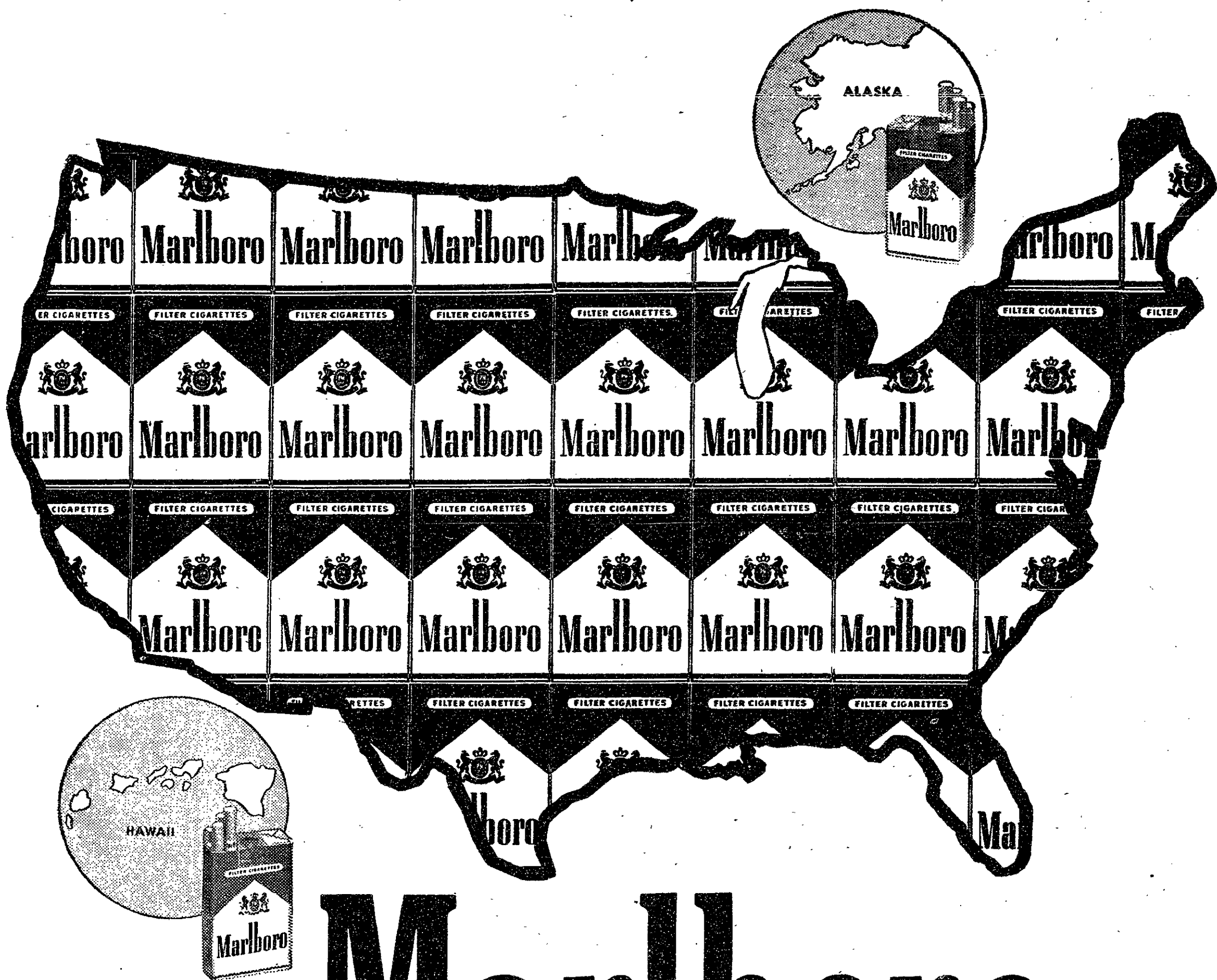


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Cagers Drop Opener To Trinity As Hartford Crew Rolls Early

By J. M. Blew '64

The veteran studded MIT varsity lost the season's opener to a vastly improved Trinity College squad by a 70-60 score. Playing Saturday night at Hartford before a large partisan crowd, the engineers ran cold. Trinity hit seven straight outside shots by five players and ran out to 16-4 at the four minute mark of the first half.

Led by the hustling of Chuck Gamble '62 and the scoring of Bill Eagleson '64, Tech drew within range, but still trailed 40-32 at the half. With all-New England center Dave Koch '62 in foul trouble and Trinity's red-hot shooting, things looked bad. Second-half ball-hawking and some good shooting by Jeff Paarz '63, Koch, and Gamble kept Tech close.

Late in the game Coach Jack Barry rested the starters briefly and sent them back in on a press. Trinity refused to panic and controlled the ball well. Their 6'3" sophomore Barry Leghorn and high-scoring 6'2" senior John Norman rebounded and shot well as Trinity managed to pull out at the finish to win by 10.

With better shooting and rebounding sure to come, Tech still promises to come up with a great season. Next game is Wednesday night at Northeastern.

MIT Varsity			TRINITY Varsity						
fg	ft	pts	fg	ft	pts				
Koch	6	2	4	12	Norman	9	4	1	22
Moter	7	0	1	2	Fenrich	0	0	0	0
Gamble	7	0	3	14	Leghorn	8	2	3	18
Robinson	3	0	1	6	Keen	0	0	1	0
Eagleson	5	1	2	11	Brandenberger	6	2	2	14
Paarz	3	2	1	8	Burns	3	2	3	8
Burns	0	0	0	0	Scully	3	2	3	8
Grontinger	1	2	1	4	Brooks	3	0	1	6
Smith	0	1	0	1	Voorhees	1	0	1	2
Totals	26	8	13	60	Totals	30	10	12	70

Half Score 40-32 — Final 70-60

McGill, Dartmouth Top Squash Team In Opening Games

An inexperienced MIT squash team opened its regular season with two losses last weekend. McGill University won the Friday night match 8-1 and Dartmouth triumphed 6-3 Saturday. Tomas Guillermo '64, Tech's number five man, won 3-0 for MIT's only triumph over McGill.

Saturday, George Meyer '62 won 3-0 in second position; Bill Mihaltse '62 and Jose Alonso '62 won in the sixth and seventh spots. The third match was very tight, with Joe Rapaport '62 going the full five games.

Although seven of the top nine Tech players are seniors, only four have had varsity experience. The result is a team which may surprise the Ivy League squash circuit later on in the season. Last weekend's matches showed encouraging strength in the middle positions, where most squash matches are decided.

Navy will be at MIT Friday for a match at 8:00 P.M. Last year Tech won the top match from Navy but lost the rest against the strong Navy nine.

Frosh Romp, 67-50

By J. M. Blew '64

MIT's promising freshman basketball team opened successfully at Trinity 67-50. The team shot cold in the first half and hit for only 27 points. The defense allowed 34, with 16 of them by Trinity's 6'3" forward Bill Gish.

At halftime coach Arnie Singal switched Bob Grady to defense the big man. Grady held him scoreless, and the team held Trinity to 16. At the same time high post man 6'2" Dick Morgen and low post George McQuilken 6'5" began to hit their jumpers and control the boards.

The fast and hustling back-court trio of Frank Yin, Grady, and Perry Seal accounted for 16 second-half points as the Frosh racked up 40 and ran away from Trinity.

The little Engineers show great promise and should have a fine season. The next game is at Northeastern Wednesday.

MIT Frosh			TRINITY Frosh						
fg	ft	pts	fg	ft	pts				
Grady	2	5	4	9	Gish	6	4	2	16
Yin	6	0	2	12	McCalmont	1	0	1	2
McQuilken	5	2	0	12	Morisse	0	3	4	3
Morgen	3	0	1	16	Kadyk	2	0	3	3
Seal	2	3	5	7	Jaeger	3	0	3	6
Schafer	1	0	0	2	Steele	2	1	3	5
Ellerman	1	1	0	3	Swander	4	2	1	10
Larson	2	2	4	6	Tomford	1	2	0	4
Hanson	0	0	0	0					
Totals	27	13	18	67	Totals	19	12	19	50

Half Score 27-34 — Final 67-50

9.01

Introduction To Sports

Skiing

Skiing is the most vigorously growing sport in the United States today, second only to bowling. Virtually an elite type of activity 15 years ago, it is now being learned by practically everybody who lives within 50 miles of a ski area, and the number of such ski areas is mushrooming. Yet, they cannot keep pace with the growing number of ski enthusiasts, as evidenced by the ever longer lift lines.

The reason for skiing's popularity with all age groups is that it offers limitless possibilities for improvement, and yet you can learn enough to have a lot of fun in just a few lessons.

But now, let us begin at the very beginning — purchase of equipment. There are five basic essentials without which you can't even get on the rope tow: skis, bindings, boots, poles, and long underwear. The skis should be wooden, cheap (almost every beginner breaks a pair), and long enough so that you can just reach the tip of either ski with your wrist.

Your bindings must be safety bindings, which allow your foot to release from the ski in any fall which might otherwise sprain or break that foot.

Boots are available at any price from \$20 to \$100. Your own pocketbook should guide you here, for the seat of your skiing control is in your boots and the better a pair you get now the more control you will have later on when you start to make parallel ski turns. As for poles, they should be metal and long enough to reach to your armpit. My personal recommendation on "long johns" is the one piece, thermally insulated type.

The next step in your skiing career is a little formal training. Preferably, you should take lessons in a recognized ski school. The first thing you will learn is the snowplow turn, in which you press the tails of your skis out while holding the tips together to form a wide V. By shifting your weight to one ski or the other while in this position, you will "automatically" turn. An important point, however—do not use this after the third lesson has passed. The snowplow habit is hard to break so do it soon, and replace it with the "stem christie" habit.

The stem christie (short for Christania) is accomplished by

either dropping the tail of the downhill ski or raising the tail of the uphill ski to a semi-snowplow position, only with a narrower V. This is done while traveling at a fairly good speed. It will turn you into the fall line, i.e., down the slope. Once facing in this direction, unweight your skis slightly by dropping down suddenly, bring your skis together, and at the same time give a strong heel push so that the tails of your skis sideslip around. As you complete the turn, edge your skis into the hill once more (they are not edged much on the sideslip).

Learning the stem christie well, and gaining confidence in yourself at high speeds should be your main objective during your first season of skiing.

The next step in skiing is the parallel christie. You begin to get the feel of it in the stem christie, in which your skis are parallel for the last half of the turn. But by far the hardest thing is to get your skis faced downhill while keeping them parallel. It is a smooth, continuous, flowing motion of: (1) getting your weight off the skis (unweighting); (2) turning your skis while unweighted; (3)

changing your edges at the same time (banking), and (4) sideslipping and controlling the skid.

Unweighting is accomplished by a sinking down with the knees before the turn, a quick lift just as you apply turning power, and then a quick drop as you sideslip.

The difference between learning the christie and not, once the above is understood, can be summarized in two words: lean forward. Time and again, beginners go into the preparatory motions of the christie, only to fail because they are practically sitting on the tails of their skis.

The parallel christie is not the end of skiing progress, however. Instead, learning it opens up all sorts of immensely enjoyable variations and sidelights. For example, there is the Austrian technique called wedeln which involves a lot of pole action and a minimum of unweighting in skiing a track which looks like a sine wave about the fall line. Glondying (jumping of moguls), skating mambo, airplane turns, schussing, slalom, and running down beginners are all great sport as well.

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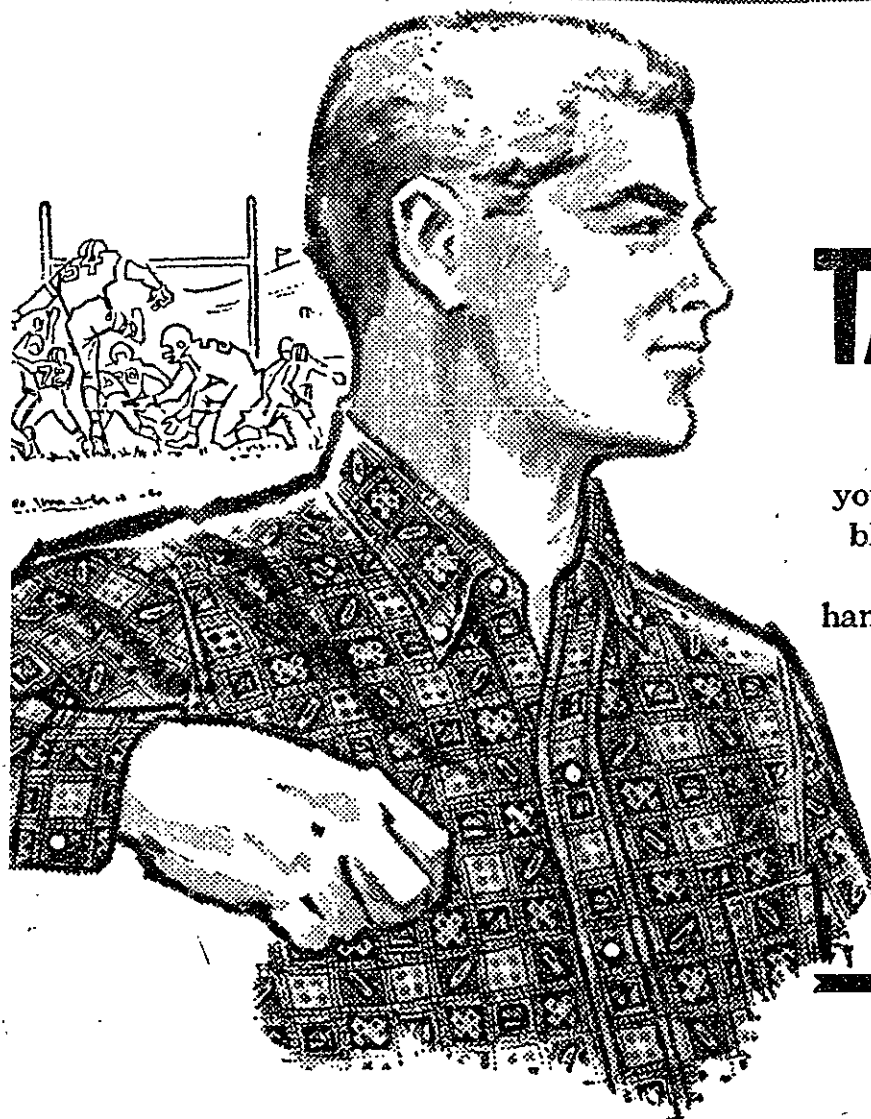
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