Welcome To M.I.T. Open House

THE TECH

CAMBRIDGE, MASS.
FRIDAY, MAY 12, 1950
PRICE TEN CENTS
VOL. LXX NO. 27

THE OFFICIAL NEWSPAPER
OF THE M.I.T. UNDERGRADUATES

Killian In Embassy Address Stresses Religious Needs

What the world needs today is "not less science but more understanding," President of the Institute James R. Killian, Jr., told an audience at the main address of the annual Tech Embassy sponsored by the TCA last Tuesday.

Speaking on the "Search for Virtue," Dr. Killian stressed the requirement that education produce well-rounded mature individuals capable of discerning between good and evil. In his opinion, community life at the Institute offers excellent conditions for the development of ideals and the good life. Spirits of tolerance and professional service pervade the engineering and scientific field, he continued, and contribute to the attainment of a sense of the meaning of life.

Need for Chapel

While maintaining that religion was not discoverable through science, Dr. Killian expressed faith in the ability of science to aid man in his quest for higher principles. To the end of developing the dual disciplines of science and religion at the Institute, he cited the needs for an auditorium, a chapel, and a religious library.

Even without outward forms, however, Dr. Killian concluded technological institutions can successfully combine the "pursuit of knowledge with the search for virtue."

Soph's Uprising Welcomes Open House Patrons

Guests of the 1950 Open House will be welcomed to the Soph Prom's "Revolution Party" this evening at 8:30 in Walker Memorial. Blue Barron and His Orchestra, supported by vocalists Betty Clark, Helen Lowe, and Bobby Beers will entertain the insurgent masses, as the Class of 1952 stages its great uprising.

During the quiet of intermission, Tech's famed Dixieland combination, the "Dinner Music Society of Upper Beacon Street," will play, and George Marcou, comedy star of Tech Show 1950, will amuse the bourgeoisie and the proletariat alike with his comic antics.

Proletarian Plotting

The center of revolutionary activity will be a candlelit inn where conspirators and agitators will plot as refreshments are served. The exact moment of the actual revolution is still restricted information.

Admission will be $3.60 per couple. Tickets will be on sale this afternoon and this evening in Walker Memorial.

Automatic Machines To Replace Worker Prophesies Wiener

Professor Norbert Wiener spoke on the "Electronic Age" before a large gathering of students on Monday, May 7. After a brief introduction in which he related the first Industrial Revolution to past changes in social attitudes, Professor Wiener described typical electronic machines and their effects on the future.

An electronic machine can replace human workers in any industry that has a precise sequence of mechanical movements. Professor Wiener offered the semi-automatic factories of the Ford and Chrysler Corporations as evidence. Also mentioned were oil cracking plants and atomic piles. Prophecies of the social consequences that will result from the Electronic Age concluded the lecture.

Professor Wiener foresaw a 10 to 20 year period before the standardization of industry with automatic electronically controlled machines. A war, however, would decrease the required period. The factories using automatic machines would displace a great number of people thus creating a large number of unemployed. Public action might result in control of these industries and create a Socialistic state.

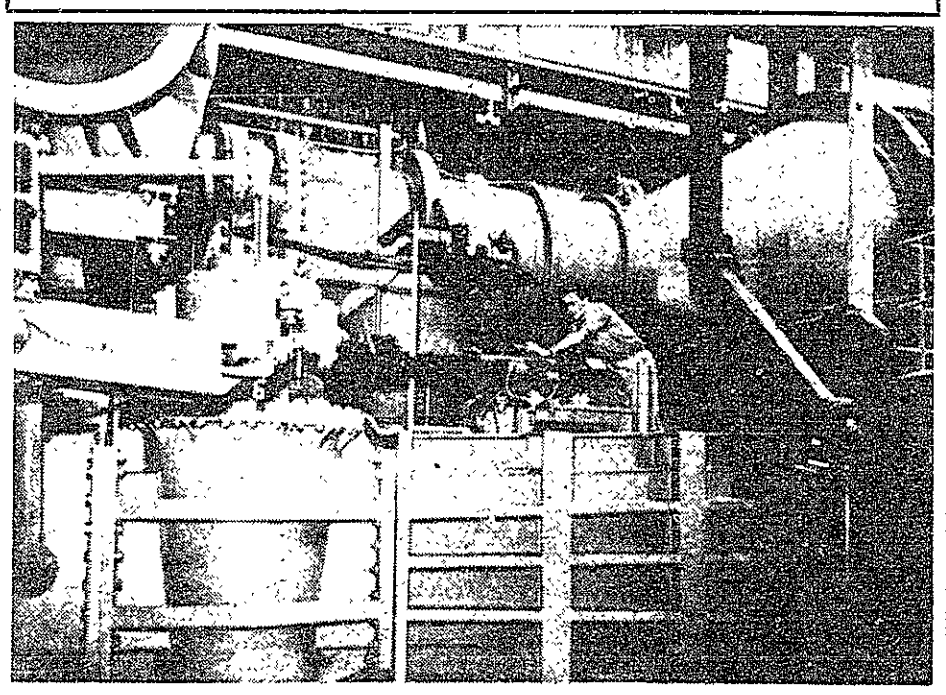
Finalists Announced In Stratton Prize Contest

Stratton Prize Speaking Contest finalists have been announced by the judges. They are Richard D. Ahern '50, IX-B, "The Cultivation of Architecture"; John M. Cord '50, I, "Pumped Storage Hydro Plants"; Stanley H. Hillyer '50, I, "The Modern Computing Machine"; Searle Rees '50, VII, "Inside the Brain Cell"; Melvin Siegel '50, XV, "A Possible Application of Relativity"; and Walter Stahl '51, VII, "The Lysenko Controversy."

(Continued on Page 4)

Feats Of Science, Engineering Go On Display For Thousands At 17th M.I.T. Open House

STUDENT WORKS ON NEW WIND TUNNEL



M.I.T. Photographic Service

A graduate student operates the plug valve at the end of the actual test section of the wind tunnel in the Naval Supersonic Laboratory at the Institute.

Nearly forty thousand visitors are expected to watch and wonder at the 250 exhibits of the seventeenth biennial Open House, Saturday, May 13. High school students from all over New England, alumni, friends, and parents will make up most of the crowd. Admission is free, and the parking meters on Memorial Drive will be suspended for the day.

All laboratories and classrooms will be in operation to illustrate the contributions to modern living made by technical education and research. Most student activities will have displays of their own, and athletic teams will perform on Briggs Field during the afternoon. The playing area will serve as a landing field for sundry aircraft that morning.

Several tours will be indicated by arrows to enable the visitors to see most of the attractions without too much walking, and to maintain one-way traffic in the main corridors. Student guides will be posted at strategic spots to answer questions and reroute the lost.

Programs listing the location of the exhibits or demonstrations, and the time of special events, will be available. These include a map for those unfamiliar with the Institute's building numbering system. A list of many of the exhibits can be found on pages two and three of this issue.

This year's Open House is being held in conjunction with Boston's Jubilee celebration. Activities will begin at 12:00 noon and cease at 7:00 p.m.

INSURANCE PROGRAM

Information about the Insurance Program for the 25th year gift of the class of 1950 may be obtained in Room 7-108 between the hours of 9-5 on Tuesdays and Fridays.

Barnard and Compton Will Be Speakers At Commencement

Plans for the 84th commencement exercises at the Institute have been announced by Professor Ralph G. Hudson, chairman of the Committee on Commencement.

The commencement address at the graduation exercises which will be held in the Rockwell Athletic Cage at the Institute at 10:30 a.m. on Friday, June 9, will be delivered by Dr. Chester I. Barnard, president of the Rockefeller Foundation, and Dr. James R. Killian, Jr., the Institute's president, will make the address to the graduates.

Dr. Karl T. Compton, chairman of the Institute's corporation, will give the baccalaureate address at a service to be held in Walker Memorial at 11:00 a.m. on Thursday, June 8. Dr. Everett Moore Baker, dean of students, will conduct the services.

Killian To Be Moderator At Tech-Harvard Debate Given For Open House

President James R. Killian will be moderator in a special Open House debate between Technology and Harvard. Roy Weinstein '51 and Robert M. Gladstone '52 will take the negative on the question "Resolved: that a liberal education better trains the citizen man than a specialized education."

WMIT and WMEX will broadcast the debate which will take place in Room 2-190 at 2:30 p.m. on Saturday, May 13. Unlike most of the debates presented by the Debating Society, time will be allowed for questioning the speakers both by their opponents and by the audience. The decision will be determined by the applause of the audience as registered on an "applause meter" furnished by the Department of Electrical Engineering.

M.I.T. Development Fund Grows; Seven Regional Totals Tabulated

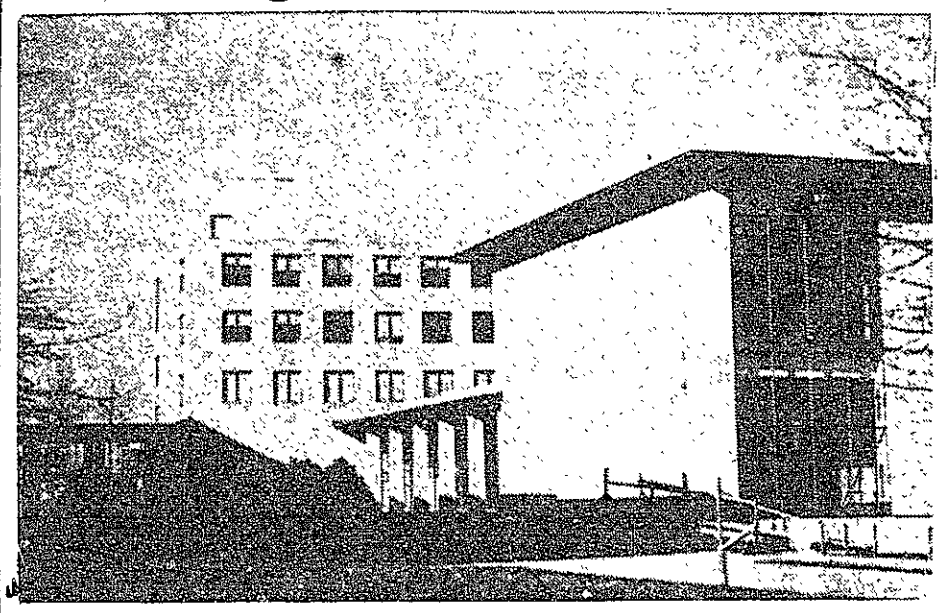


Photo by Winquist

One of the first projects completed in the development program, the Charles Hayden Memorial Library has been financed by funds contributed by Technology Alumni and many industrial corporations.

Twenty million dollars is the goal of the M.I.T. development fund. Alumni and industrial corporations are being asked to contribute freely to help strengthen the Institute financially, and results have been encouraging, so far.

The alumni contributions are being handled through seven regional districts. The New England area, with the exception of Connecticut, has reported contributions totaling $2,496,965. New York and surrounding areas, have raised $5,003,053, while Philadelphia and the central states have collected $1,932,957. Pittsburgh and some of the Southern states have come across with $1,117,077 and the rest of the South has donated $495,776. Midwestern contributions total up to $552,945, and the far west has contributed $563,533.

In addition to these general contributions, there have been three special gifts of one million dollars each. John D. Rockefeller donated this sum to help defray operational expenses, Alfred P. Sloan assured the construction of a Metals Processing Laboratory with his gift, and the Campbell Soup Co. has made possible a new Biology and Food Technology Laboratory by contributing this sum.

The combined gifts of the alumni and of corporations has brought the total of the M.I.T. development fund to $12,162,309. Projects fi-

(Continued on Page 8)

Ex-Troopship Sails For Europe June 22 Under NSA Auspices

Negotiations are being completed by the U. S. National Student Association with the Norske Generalstat shipping line for the SS Svalbard, an ex-troopship to be released to NSA from commission to the International Refugee Organization.

Sailings

The Svalbard will sail from New York on June 22 arriving in Europe July 2 at either LeHavre or Rotterdam, depending upon the decision of the students. The ship will return from Europe about August 31 arriving in New York September 9. The price will be $310.00 round trip, and only round trip tickets are being sold. Conditions on board are very austere, and students seeking luxury travel should not apply. Recreation and orientation facilities will be provided on board.

Arrangements can be made by writing National Student Association, 96 Winthrop St., Cambridge 38, Mass., or by calling TRowbridge 6-9458.

The Tech

VOL. LXX FRIDAY, MAY 12, 1950 NO. 27

MANAGING BOARD

General Manager ..... Marvin C. Grossman, '51
Editor ..... Thomas G. Hagan, '51
Managing Editor ..... William R. Miller, '51
Business Manager ..... David A. Janis, '51

EDITORS

Assignments ..... Newell J. Trask, '52
Sports ..... Morton A. Bosniak, '51
Features ..... S. Parker Gay, '52
Exchange ..... Charles Beaudette, '52
Photography ... Charles A. Honigsberg, '52
Ass't. ..... Robert B. Astrachan, '52
News ..... Robert B. Bacastow, '52
Assoc. Ed. ..... Rodger K. Vance, '52

MANAGERS

Advertising ..... George I. Weiss, '52
Circulation ..... Marc L. Aelion, '51
Ass't. ..... Eli Dabora, '51
Sales ..... Robert M. Lurie, '52
Treasurer ..... Robert W. Jeffrey, '52
Publicity ..... Robert F. Walsh, '52
Office ..... Melvin Cerier, '52
Personnel ..... John Lowry, '51

STAFF MEMBERS

Malcolm Baschinsky, '51; Robert F. Barnes, '53; Charles H. Beckman, '52; David M. Bernstein, '53; Robert S. Brodsky, '52; Robert B. Burditt, '53; John J. Cahill, '53; William P. Chandler, '52; Frederick R. Cohen, '53; W. Scott Connor, '51; Charles F. Cordes, '51; Walter E. Dietz, '52; Ezra D. Ehrenkrantz, '54; Harvey Eisenburg, '52; Robert Ferran, '53; Robert B. Ledbetter, '53; Edward F. Leonard, '53; Nelson R. MacDonald, '53; Marion C. Manderson, '53; Marshall F. Merriam, '53; Edward A. Melaika, '53; Carroll F. Miller, '53; Richard G. Mills, '53; William G. Phinney, '53; Dirk Plummer, '52; John W. Stearns, '52; C. William Teeple, '53; Seymour Weintraub, '52; Arthur A. Winquist, '53; Peter J. Conlin, '53; Dale O. Cooper, '51; Swami N. Venkataraman, '52.

EDITORIAL BOARD

Richard Powell, '50; Jay Fleischman, '51.

OFFICES OF THE TECH

News and Editorial—Room 307, Walker Memorial, Cambridge, Mass. Telephones: KIrkland 7-1881, 7-1882.
Business—Room 335, Walker Memorial. Telephone: KIrkland 7-1881.
Mail Subscription $3.00 per year, $5.00 for two years.

Published every Tuesday and Friday during college year, except during college vacation, under the Act of March 31, 1879.

Represented for national advertising by National Advertising Service, Inc., College Publishers Representative, 420 Madison Ave., New York, N. Y.

Night Editors: Robert B. Bacastow '52; Newell J. Trask '52; S. Parker Gay '52

Assistant Night Editor: James E. Stuart '51

THE SCIENTISTS

We all know that this is an age predominantly of unprecedented technological advance. Our time is rich in inventive minds, which have been able to facilitate our material existence considerably. We know that the fruits of modern science have placed an enormous power in the hands of man, and with it the heavy responsibility that this power be used for his betterment. Every citizen has been made aware of the pressing need for finding a way to administer our technical prowess so that it may be utilized fruitfully. We have produced in such quantity that the job of administration itself has become enormous, and to a large extent it has been assumed by the government. The designers and builders of the technological machine have little to do with the steering, and the helmsmen have only a superficial acquaintance with the mechanical principles of the machine that they control.

Just as the philosophers have never become kings, it is unlikely that our scientists shall ever become political administrators. In the absence of a marriage of political and scientific authority, we must insure that the scientist concern himself with the social implications of his work and that the statesman appreciate the problems of the scientific worker.

The scientists, in the large majority of cases, have assumed a responsible attitude toward the ultimate results of their work. Our governmental administrators and the general citizenry, however, have too often neglected to discover something about the ways in which our technical advances have been achieved. The school-boy popularizations of atomic theory tell a very small part of the story behind research in nuclear physics, and most people retain some of the peculiar notions about high voltage laboratories instilled after one or two "Frankenstein" movies. Fortunately, some of the modern physicists such as Oppenheimer have become public figures to the extent that the old archetype of the sinister and mysterious scientist has been destroyed.

Many people, however, have substituted a new figure of "the scientist" after becoming familiar with a few of the witnesses at Congressional investigations, and they think of him as an unimpressive, retiring gentleman working away in his laboratory without really knowing what he is getting himself into. The attitude is becoming much too prevalent that society has put itself in the hands of some highly accomplished but irresponsible tinkerers who will wreak havoc upon all of us unless their activities are closely scrutinized by less preoccupied members of Congress. There exists a great need today for a good popular study of the modern physical scientist. The novelists have done well by the biological investigators, particularly the medical men, with such heroes as Sinclair Lewis' Doctor Gottlieb. The motivations and psychological processes of the medical researcher are of course more easily expressed by the novelist and are perhaps more easily grasped by the average reader than would be the more abstruse drives and the mathematical mental activity of the nuclear physicist. Undoubtedly this explains the absence to date of an exhaustive fictional study of either the mathematician or the physicist, but possibly this void will be filled shortly now that so much attention has been directed to these men.

For the general public, there is no better way to become acquainted with the modern scientist in his own sphere than by taking advantage of the M.I.T. Open House to be held tomorrow. We suggest that attention be directed not only to the technical devices on exhibit but also to the Institute personnel who are now given a chance to display themselves in their natural habitat. Notice should also be taken of the student way of life here, through an examination of the campus and the student activity displays, to discover that our embryo scientists are aware of the benefits of a full and complete existence.

Letters to the Editor

Editor, **The Tech**

Dear Sir:

The interesting coverage given in Tuesday's **The Tech** to the program for the dedication of the Charles Hayden Memorial Library did not include one phase of the situation that might require an explanation.

The only appropriate locale for the dedication in view of the weather uncertainty was the second floor, south wing, in the new Central Library which will be rearranged for the occasion. Unfortunately, even in the largest available library area, the seating capacity is seriously limited. Consequently, preparation of the invitation list has been extremely difficult. The Donor's party, the organized Friends of the Library and the representative local librarians, together with members of the Corporation and active participants in the Development Program almost exhausted the available seats. Under the circumstances, it was necessary to prepare a list as representative of all faculty and students as possible and the invitations were sent on this basis. It has not been an easy task and many faculty, staff and students who are great friends of the Library could not be included. Even the Library staff could not be invited.

The Dewey Library on the ground floor, south wing, will be equipped with a public address system, and the entire program may be heard there. Tickets will not be required for admission to this area, and should any seats on the second floor remain unoccupied after the program has begun, they will be made available. The proceedings will be recorded for subsequent presentation in whole or in part in the Music Lounge, and the principal addresses by Julian P. Boyd and Norman Cousins will be published.

The new Charles Hayden Memorial Library represents a tremendous forward step in the Institute's library program. It is intended for the benefit of the entire M.I.T. community and the Library extends a cordial invitation to its friends to use and enjoy its facilities throughout the years to come.

Sincerely,
VERNON D. TATE

Building Constructions

Course XVII, Building Engineering & Construction, cordially welcomes both students and public to its exhibits.

A good percentage of the student body will be on hand to explain and demonstrate the many aspects of the exhibit. Among the numerous displays, the following are representative: models of the best of recent construction together with photographic displays of the progressive construction stages, including Eastgate and the New England Telephone & Telegraph buildings; a complete portland cement and concrete cylinder exhibit, delving into the strength and application of masonry materials; a comprehensive dwelling-house exhibit, depicting proper framing methods, sill and trussed sections, etc.; wood materials and a host of building product displays including structural steel and aluminum shapes, plastics, steel connections and design arrangements, plywoods, veneers, etc. The differential thermal analyzer and sonic apparatus are also interesting.

Feature Exhibits Of

All of Open House is worth seeing. Any opportunity to view the Institute plant and personnel on display should, in our estimation, be capitalized upon. On these two pages, **The Tech** presents descriptions of some of the outstanding features of the day. One can do no better than to view them. For complete details of every attraction at the Institute's seventeenth Open House, see the Official Program.

Electrical Engineering

Those who bring their cameras to Open House may be able to "stop" a bullet, for the stroboscopic equipment, to be exhibited in room 4-231, can be triggered by your own Baby Brownie. In the same room many of Dr. Harold Edgerton's famous action stopping photographs will be on display.

Measurements Laboratory has a device that will put your signature on an oscilloscope. An automatic tic-tac-toe player will test your mental agility, and an automatic fan and candle combination can challenge your physical agility.

An elementary course in Calculus is offered in room 7-303 where the Differential Analyzer will be explained to all comers; results are not guaranteed.

Communications Labs. features a microwave transmitter powerful enough to heat metal objects and light fluorescent lights several feet away. Across the hall is a primary frequency standard accurate to one part in a million.

Project Whirlwind, a high-speed electronic servo-computer powered by storage tubes, will also be presented in the EE display. Photographs showing the installation of the servocomputer will be featured.

Band Concert

A program of light band music is being presented on the afternoon of Open House at 2:30 p.m. by the M.I.T. Concert Band. The place is the great court outside Building Ten.

The program includes "London Again," "Knightsbridge March," "Jeannie with the Light Brown Hair," "March Troyenne," "Der Meistersinger," finale from Tschaikovsky's Fourth Symphony, "Italian Polka," "Pines of Rome," "Stratoswing," selections from Cole Porter, and several marches by Filmore, Alexander, and Sousa.

Civil Engineering

This Saturday practically all of Building No. 1 is turned over to the Open House display presented by the Department of Civil and Sanitary Engineering. Numerous laboratory displays are exhibited on the first three floors of the building, as well as motion picture presentations in room 1-150.

Laboratory exhibits include those in photogrammetry, soil mechanics, bacteriology, hydraulics, and structural analysis. The general trend of these various exhibits is to acquaint the visitor with an overall perspective of the functions of the department. This includes demonstrations on thesis work and special exhibits of particular interest to Open House guests.

Aeronautical, Naval, Mathematics, Physics

Airplane and ship enthusiasts will find much of interest in the Aeronautical Engineering and Naval Architecture displays. The student wind tunnel is the highlight of the aeronautical exhibit. Models are shown illustrating the function of the wind tunnel in airplane design and flight analysis. Other displays feature airplane instruments, stability and control and a movie on flight testing.

Machinery and Ships

The model towing tank of the Naval Architecture and Marine Engineering Department is also in operation. Various machinery models can be seen and the Institute's famed Hart Nautical museum is also open.

The Almost Human "Nim"

Dr. Raymond Redheffer's "nim" machine is one of the highlights of the math department. The machine plays this difficult game automatically against anyone and will win against anything but a perfect defense.

Other exhibits by the math department include the "Mobius Strip," which has the property of possessing only one side and one edge, famous paradoxes and fallacies and measurement of mathematical value by the dropping of a needle.

Optical Illusions, Too

The "lamp that isn't there" is another oddity to be seen by the open house visitor. Through the use of a special optical system a person approaching from a particular direction seems to observe a lamp burning in a socket, but when he passes by, the illusion vanishes and sees nothing but an empty socket.

Among the large nuclear machines available for inspection by the curious is the newly completed 300,000,000 volt synchrotron. Visitors to the Acoustics Laboratory can see a battery of 256 loudspeakers force sound through a panel into a "sound-proof" room, a display of underwater sound conduction and a new radio experimental studio with novel acoustic design.

Walkie-Talkie and Flame-Throwers

The Military Science department is presenting demonstrations of military equipment, model bridges and walkie-talkies.

17th Open House

Meteorology

Secret methods of weather forecasting developed during the war, and now declassified, are to head the list of exhibits featured by the department of meteorology. Arranged by J. Murray Mitchell, '50, working in conjunction with faculty advisor, Professor D. P. Keily, the exhibits will be six in number. Arranged on the fifth and sixth floors of Building 24, the displays include a large radarscope, used to detect the presence of cloud formations, a dropsometer, for detection and determination of the size of rain drops in clouds, and a demonstration of weather map formation with information telegraphed from stations throughout the nation.

The radarscope will be set to scan a 120-mile circle surrounding Boston so that visitors will be able to see formations of rain clouds, prominent landmarks, and the general position of the shoreline. Trained operators will be on hand to trace the courses of ships and planes as they cross the field of the scope.

Radiosonde balloons, devices sent aloft with instruments for relaying high-altitude weather conditions to a ground station by a built-in radio set, are also to be demonstrated.

All Synoptic plotting rooms will be opened to the public so that it may see the actual plotting of a weather map. Regular plotters will be on hand to take information from the four teletypes and transfer this information into weather maps. Members of the department will explain the various symbols and give an actual prediction for Saturday's and Sunday's weather.

Chemical Engineering

"Stretch it like putty. Roll it up and bounce it like a rubber ball" is the cry of the future Chemical Engineer in charge of the exhibit of silicon polymers. These silicones exhibit the remarkable characteristics of being stretchable and bouncible; when in the form of a ball the polymer becomes elastic, when pulled or stretched it exhibits low cohesive forces, and remains permanently distorted.

The most spectacular exhibit planned for Open House is the one on flame propagation which is the result of a thesis investigation aimed at keeping a flow of gas at high pressure from blowing itself out. Thru a redesigned jet tube it is hoped these "blow backs" can be prevented.

One of the most interesting exhibits planned for Open House is the fluidization pond. Picture painted ducks swimming around in a pond. With a press of the button the level recedes, and the ducks are left high and dry on a beach of white sand. With another press of the button, and a whir, the ducks are floating around again in the fluidized sand. This fluidization process takes place when air bubbles are evenly distributed throughout a finely divided solid, and it has to be seen to really be appreciated.

Business and Engineering

New techniques in marketing, personnel management, and manufacture are the principal thesis behind the display sponsored by the Department of Business Administration and Engineering. On public display for the first time will be a detailed plant layout of a local manufacturing concern. This project which served as a thesis for eight course XV students was made to assist in a study to find more efficient production methods in various phases of plant manufacture.

Displays in Personnel and Marketing will consist largely in bulletin board demonstrations supplemented by short lectures by members of the staff. Work simplification techniques, comparing old and improved methods of production, will be illustrated by short motion pictures to offer a visual conception of actual operating processes.

Professor Weisskopf Says Space Filled By Theoretical Particles

Speaking on "The Function of the Void in Theoretical Physics" before the Physics Society on Tuesday, Professor V. F. Weisskopf explained that space is not so empty as is commonly thought. Many properties must be assigned to the void, or vacuum, to explain the transmission of light and the creation of matter out of "nothing."

Scientists became concerned with the void when it seemed necessary to assume an incompressible solid, the ether, filling space, in which light waves could vibrate. Now light-transmission is considered a property of space itself, not the unsatisfactory ether. Recent theory indicates that these vibrations can never stop completely. In outer space, far from matter and light, there is still wave motion.

When intense light beams cross, a positive and a negative electron may be formed. Physicists postulate that the void is filled with electrons of negative mass. When a light beam knocks one of these electrons out of place, we observe a normal electron and the hole left, which acts like a positive electron. Professor Weisskopf mentioned that this theory is in the same stage as the ether hypothesis of a century ago.

Food Technology

Coffee processing, the vacuum drying of eggs and orange juice, and two-minute cake baking are some of the exhibits which the Food Technology has planned for Open House.

One of the many laboratories which the department has open shows the process by which cakes can be baked in two minutes on the radar range. Finished products of the exhibit are being served to visitors with possibly whipped cream as an added attraction.

The process by which foods such as eggs and orange juice are vacuum dried without adding any heat is being shown along with a demonstration of bread baking and an exhibit of organisms that spoil foods and some foods which have been spoiled by these organisms.

Visitors are being given a chance to participate in one of the labs where the four sensations of taste are being demonstrated. They will also be used as guinea pigs in an odor identification test in which odors are sprayed out of atomizers and the participants try to identify them.

Engineering Advances Summed For Past Year

During the past year, as in previous years, many new engineering advancements have originated at the Institute. Although each of these discoveries may be significant from the standpoint of science, many are complex in theory and hold limited interest for the average reader. In the brief survey that follows, those advancements at the Institute of greatest common interest shall be considered rather than others which may actually contribute more to the fundamental progress of engineering.

Dr. John G. Trump (right) shown examining test films under the two-million volt X-ray machine for deep cancer therapy.

Speed of Light Approached by New Synchrotron

Unsurpassed in the field of nuclear research, the new 300 million electrostatic volt synchrotron is the largest of its kind in the world. This huge electron accelerator which consists mainly of a 55-ton electro-magnet was completed at the Institute last January. It can accelerate particles up to a velocity of 98% the speed of light. At this speed the missiles used for nuclear bombardment have increased their mass 600 fold due to their tremendous increase in kinetic energy.

Also from the Departments of Electrical Engineering and Physics has come a promise of a major advance in X-ray cancer therapy. Initiation of the patient-rotation technique in X-ray treatment for cancer is a new method developed by Dr. John G. Trump in which prolonged X-ray dosage can be focused on the diseased area. One of the chief factors limiting the amount of treatment a patient can receive is the burning effect the rays have upon the undiseased tissue between the skin surface and the cancerous region. By slow rotation of the patient X-rays can be focused on the injured part continuously while the undiseased parts are rotating in and out of the ray path.

Development of Propeller-Jet Turbine

The development of gas turbines has become increasingly important, especially in the field of aeronautics. In the gas turbine laboratory a considerable amount of research is being carried out in the study of supersonic flow of gases in jet turbines to learn the phenomena of high speed shock waves around the turbine compressor. The most important and most complicated operating section of the gas turbine is the compressor; consequently its effect upon supersonic gas flow within the engine is most important.

Perhaps of considerable significance in the future is the trend in the jet propulsion field which was contributed recently through Institute research. This concerns the use of the propeller-jet engine rather than the present type in use. By using a modification of the conventional airplane propeller driven by gas turbine propulsion, not only propeller thrust is produced as from the internal combustion engine but jet propulsion as well.

Metallurgy

A department of Technology which is playing an increasingly important role both in student instruction and research is that of metallurgy. During the past few years this department has done much to develop the study of metals and materials from memory look-and-feel courses to ones involving a more rational application of science. At the present time Dr. E. Orrowan, world renowned scientist from Cavendish Laboratories in England, is visiting the Institute and aiding in the study of materials and their joint application to physics, mechanical engineering and metallurgy.

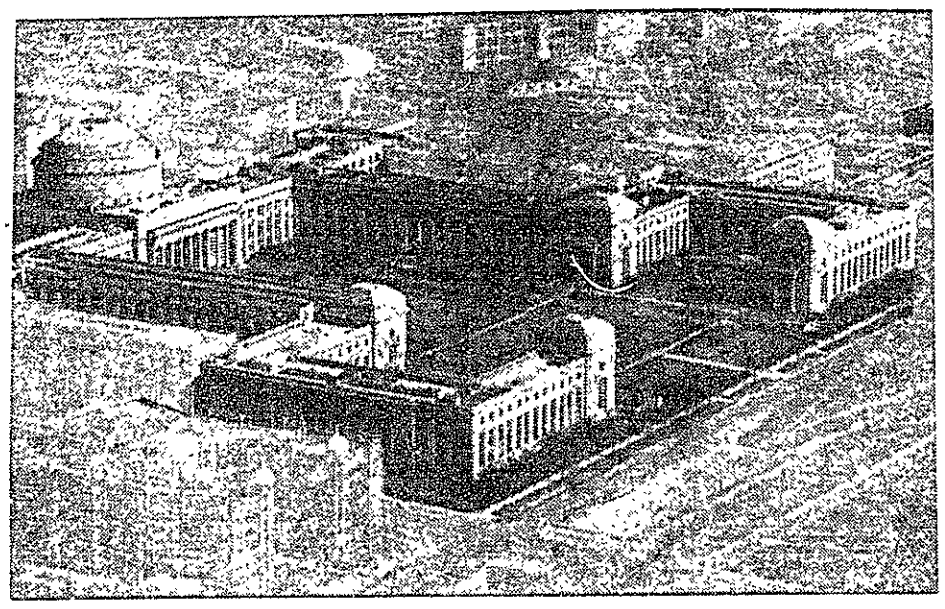
Also in the search for more efficient and more effectively controlled processes in steelmaking, is Dr. Karl Wagner working with the metallurgical staff. Dr. Wagner, in Germany during the last war and world authority in thermodynamics and steelmaking, was virtually snatched from the Russian's grasp and taken to this country after the war was over. Since fulfilling a contract with the U. S. Government, Dr. Wagner has been attached to the Institute.

English and History

Books, maps, and photographs illustrate the interests and work of the English and History Department in Hayden Library Saturday. The literature and history of the world is indicated by maps and representative volumes. Dramashop is also planning an exhibit with this department.

Included are the research projects of two Institute professors, John I. Bastian and Edward N. Hartley. Professor Bastian has been editing a vast collection of the letters of Theodore Roosevelt, while Professor Hartley is investigating the history of the early American steel industry. Arrangement of the exhibits is largely the work of graduate student John Rau.

Last Quarter Century Sees Buildings Treble



Unshaded portion of the photograph represents all that was Technology in 1916.

When W. Welles Bosworth designed the buildings for Technology in Cambridge, he introduced a revolutionary plan for college buildings, and at the same time, foresaw the tremendous expansion of the Institute even before the Cambridge plant was constructed. The device he used was to house all the departments under one roof about a great court flanked by lesser courts.

In the new plan, those departments most likely to grow were so placed that as needs arose, a wing could be thrown out towards the rear or an addition made to connect existing wings. Indeed as the need arose, expansion has taken place, even beyond the then farsighted expectations of Mr. Bosworth.

The Institute in 1926

As can be seen in the accompanying photograph, all that had been completed in the first construction begun in 1916 were Buildings 1, 2, 3, 4, 8, 10, Walker Memorial, and the President's house. By 1925-26 a great deal of expansion had already taken place, with the acquisition of most of the buildings on Vassar St. as well as the Old Senior House, the Old Dorms, Boat House, Rifle Range, and Building 5. However, comparison of the accumulative totals of actual square foot areas of all buildings in 1926 shows it to be but one-half of the actual square foot area of buildings built or acquired since that time.

During the ten years following '26, Buildings 11, 33, 31, and 6 were added, the latter being one of the largest wings added to the main building as provided for in Bosworth's plan.

1937 Begin Big Building Era

In 1937 the sailing pavilion was added to bring the total square foot area devoted to recreational purposes up to 112,000 square feet. This figure has since grown to 182,000 square feet with the building of Briggs Field House, the Swimming Pool, and Rockwell Cage. From 1937 to the present has been the period of greatest construction. Besides twenty-seven others, the more familiar buildings which arose in this period are Building 7 (Architecture), Building 24, Building 22, Westgate, Eastgate, New Dormitory and Hayden Library. Also acquired in this period were the Graduate House and Bexley Hall.

Since 1925, the biggest years in building have been 1938-39 and 1941-42. Moreover, the last four years have been conspicuous for consistent growth, the total amount of land occupied by buildings increasing from 2,400,000 to 3,000,000 square feet between 1946 and 1950. In the same time, campus living area has more than quadrupled, occupying nearly 1,000,000 square feet at present.

The remainder of 1950 and the immediate future appear in prospect to be big building years, with the 12 MEV building, the Metals Processing Building and the Biology and Food Technology Laboratory, under planning or construction. As soon as the parking spaces, the lawns and the 20 million dollars are gone, the program will be ended.

Stratton Contest

(Continued from Page 1)

Chosen as first and second alternates are Kai Eeg-Henriksen '50, I, "The Construction of a Tunnel Under the English Channel," and Roy Weinstein '51, VIII, "The Cathode Ray Oscilloscope."

Professor Thomas H. D. Mahoney acted as chairman and the judges were Professor Milton Shaw and Professor Frijhof Raven. The finals are scheduled for Wednesday, May 17, in Room 1-190 at 4:00 p.m. The winner will receive a prize of $100 while second and third place winners receive $50 and $20, respectively. The remaining three finalists each receives a book worth $10.

This year's winner will speak at the Class Day exercises.

Hydraulics Lab Promises New Ship Precision

One-ten thousandths of a pound accuracy in the measurement of towing force and one thousandth of a knot accuracy in measurement of the speed of a ship model are two important features included in the towing tank of the new Hydraulics Laboratory.

Located on the corner of Vassar and Main Streets, the new building houses offices for the research staff and, of course, the towing tank. The Naval Architecture and Marine Engineering department, which has control of the lab, will remain in Building Five.

Tank to be Used for Research

Primarily the laboratory is to be used for the instruction of students in Naval Architecture, for thesis studies, and for research in Marine Engineering. Aside from the study of the usual problems of hull design, the new tank will provide facilities for research in the effect of longitudinal wave motion on large scale models of ships.

Computation and registering of the speed of the models is one of the most striking features of the new lab. One of the pulleys around which the towing line passes has two thousand slits around its outside edge. The pulley is of a size such that one revolution of the pulley per second corresponds to two knots per hour. A photoelectric cell, scanning these slits, measures the speed of rotation of the wheel; and a computing device calculates the velocity of the model and flashes it on a tote board.

"Frictionless Pulleys"

Constructed for as much precision as in a good watch, the pulleys are almost perfect examples of the physicist's "frictionless pulley." Each end of the shaft on which each pulley is mounted rotates between two discs which are in turn mounted in precision bearings.

Because the precision instruments and much of the final equipment necessary to the operation of the laboratory has not yet been installed, the new building will not be open for Open House.

Pillars of Institute Rest On Soft Foundation of Clay

When construction began in 1916 at Technology's new Cambridge site, the Boston newspapers were full of dire predictions that the buildings would soon sink into the soft blue clay on which they were built. Such predictions were not entirely unfounded, for some of the new buildings had sunk as much as three inches even before the construction was completed.

Elaborate preliminary borings were made into the ground on which the buildings were to stand. Two members of the Corporation were sure that the bog—"made land" pumped up from the bottom of the Charles twenty years earlier—would swallow up the buildings. Land near Soldiers Field (God forbid) was their choice. Results of the borings led to construction at the present site.

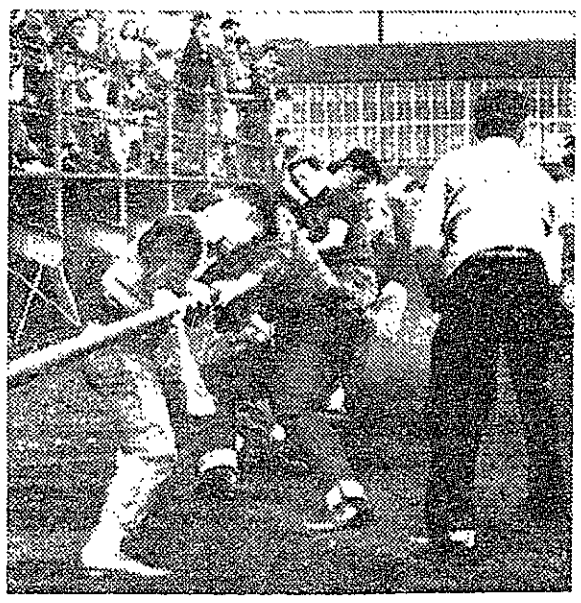
In more recent times construction of proper foundations for the swimming pool presented two special problems requiring solution in an unorthodox manner.

A minimum differential settlement was required to facilitate drainage of the pool curb and to ensure proper appearance of the scum gutter. In addition, it was decided that the differential settlement between both ends should not exceed 0.25 inches, compared with the seven inch differential settlement of some of the main buildings.

Although the layer of sand and gravel overlying the clay was absent at the deep end of the pool, it was seven feet deep at the other end. With ordinary foundations it was feared that there would be a tendency toward significantly greater settlement at the deep end. Donald W. Taylor, '34, Assistant Professor of Soil Mechanics, therefore developed a foundation introducing an unconventional system designed to increase the settlement at the shallow end in order to give uniform settlement to the pool as a whole. Some of the caissons were carried below the surface of the sand strata. Bell-shaped caissons with diameters proportional to the load were used in the clay area. So very successful were these measures, that the average differential between the two ends is only 0.05 inches—well below the prescribed 0.25 inch.

CAMPUS CAMERA

Two scenes from the 1949 Field Day won by the sophomores who swept all but one event. That event was the hectic glove fight shown on the left. The class of 1953 succeeded in wresting more of the gloves from the opposition than the class of 1952. On the right the sophs pull to victory in the tug-o-war which they won by two successive pulls. A dance highlighted the end of the day's sports activities with the class of 1952 taking home the cup until another year's battle.



Photos by Honigsberg

With the brass band playing "Stars and Stripes Forever," *The Tech*'s entry into the Harvard Bridge Race is pictured below as it pulls ahead of Governor Dever's limousine on November 9 of last year. In this event, staged in celebration of the completion of repairs which had closed the bridge in September, The Tech placed second, finishing a few lengths behind Governor Dever.

A moment after this picture was taken, *The Tech*'s maroon Cadillac was delayed by four Boston policemen, who wondered how ten Techmen, a brass band and two clowns had gotten into the official procession. Pulling ahead of competition in a strong finish, however, The Tech had the honor of being the second to cross the newly completed surface.

Photo by Honigsberg

Joseph S. Gottlieb '50 and Dotty Liffig shown below cavort on the stage of the Cambridge High and Latin Auditorium in "Stranger in Town," the Tech Show production since 1950. Revived after the war, the show this year played to large audiences and brought cheers from the Tech's critics. Graduates Robert P. Abelson and Adrian VanStold wrote the book and John Lemer '52 composed and conducted the music. After its Cambridge showing "Stranger in Town" visited the Connecticut College Campus early in April.

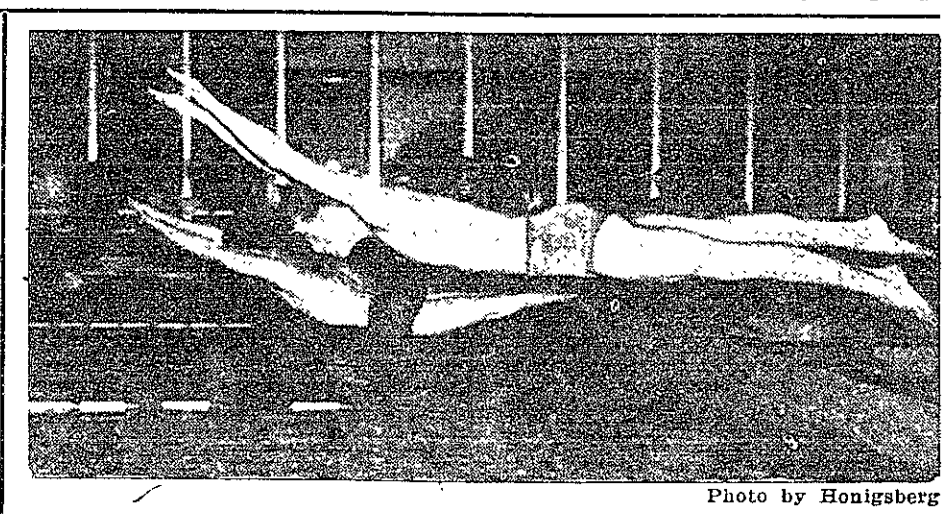


Photo by Honigsberg

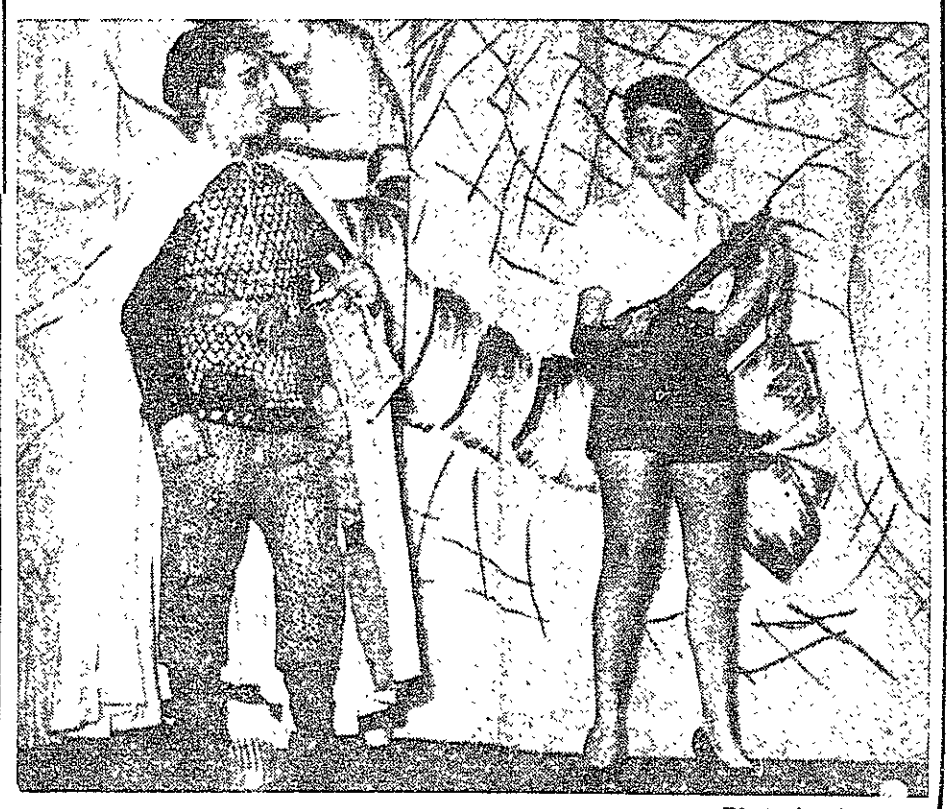


Photo by Astrachan

Bob Edgar and Garthe Coombs shown at the start of the fifty yard freestyle event against the University of Connecticut last winter.

Photo by Honigsberg

Reverend Billy Graham, well-known evangelist, combats the devil at a revival in Rockwell Cage under the auspices of the T.C.A. Thirty-five spectators affiliated with the Institute attended the meeting in which Graham cited Christianity as the answer to Communism. Visiting lecturers on a multitude of subjects address the Institute during the year. Speakers this year included Walter White of the American Association for the Advancement of Colored People; Cord Meyer, Jr. of the United World Federalists; Lewis Mumford, well-known critic and historian; Martha Graham, modern interpretive dancer; and George Gamow, author of popular science books. Concerts are also part of the regular schedule of extra-curricular events.

Crews To Race In Intercollegiate Sprint Championships Tomorrow

By GIL STEINBERG

Saturday the Beaver oarsmen will take to the water for the third time this season when they compete against twelve other crews in the annual sprint championship races of the Eastern Association of Rowing Colleges. Now that the Poughkeepsie Regatta has transferred to Marietta, this race looms as the season's biggest in the East.

The contest will be held at Annapolis on the Severn River over a course equaling the Olympic distance of 2,000 meters. Instead of the usual method of heats, the shells will only race once, twelve abreast with the stronger crews together in the middle of the river.

Engineers a Threat

Tech due to its two good showings against Harvard are seeded third behind the Crimson and Pennsylvania. Twice this season the Beavers have been beaten by Harvard, once on the Charles by less than a length and once in the Compton Cup Regatta by the scanty margin of one foot in a one and three-quarter mile race. The Tech Varsity, with the heaviest crew in the competition is a definite threat to take first place honors on the Severn tomorrow.

Harvard's coach, Tom Bolles said last week that Tech had the best physical potential of any boat in the East and are a definite threat in any race. Coach Jim McMillin has been working the crew hard all week in preparation for this big race and the boys should be in good shape to put up a real battle. The Beaver shell, unchanged since the beginning of the year will be Bowman Alexander Urling, Donald Christensen in the two slot, John Casson, Paul Smith, Richard Semple, Captain Bob Weber, and Forrest Monkman follow with Allan Fonda as stroke and Donald McGuire as coxswain.

Harvard is Favored

Harvard, the defending champions in all three of the races, will put an undefeated shell into the waters of the Severn and stand as the team to beat. The Crimson have won three races this year, two close ones from Tech and a quarter length victory from Penn last week. The Quakers have an excellent boat and are very dangerous at short distances such as this sprint. They have won four races this year defeating Rutgers, Columbia, Yale, and Princeton.

From past performances, the other crews, Cornell, Yale, Princeton, Columbia, Wisconsin, Rutgers, BU, Navy and Syracuse, aren't expected to push the favorites to any extent.

In the JV race, the Engineers are not given too much of a chance. However, they have improved greatly this past week and should be in there battling all the way. The boat seems to have finally settled down and are rowing smoothly. They could be a sleeper in this one. Harvard is seeded first in this race also.

In the Freshman contest Boston's undefeated oarsmen are considered the crew to beat. Tech's Frosh have not shown much so far this season and are not expected to give the leaders too much trouble.

SPORTS SLATE

Friday, May 12

Freshman Tennis—M.I.T. vs. Boston College—Briggs—2:00

Golf—N.E.I.G.A. Matches—Oakley C.C.

Saturday, May 13

Varsity Baseball—M.I.T. vs. American Inter. Coll.—Briggs Field—2:00

Track (V. & F.)—M.I.T. vs. Northeastern U.—Briggs Field—3:00

Heavyweight Crew (all crews)—EARC Championships—Annapolis

Varsity Lacrosse—M.I.T. vs. Stevens—away—2:00

Freshman Lacrosse—M.I.T. vs. Univ. of New Hampshire—Briggs Field—2:00

Freshman Tennis—M.I.T vs Tufts—Briggs Field—2:00

Golf — N.E.I.G.A. Matches—Oakley C.C.

Monday, May 15

Varsity Tennis — M.I.T. vs. Holy Cross—Briggs—3:00

Food Technologists Elect Ford Pres.

At a recent business meeting of the Institute of Food Technology held in the library of Building 20, Thomas Ford '51 was elected President for the coming year. Other officers elected were Lester Preston '50, Vice-President; Andy Hager '51, Secretary; David Weber '52, Chairman of the Publicity Committee; Margaret Irby '51, Chairman of the Social Committee; and Alan Geisler '52, Chairman of the Program Committee.

The last social event of the season will be a beer party at a local beach on Sunday, May 14.

Jumbos Outlast Engineer Stickmen In 11-8 Victory

Tuesday afternoon on Briggs ield the Engineer lacrosse team, layed a postponed game with ufts, went down to defeat by an 1-8 score, despite a game last min-te rally. The men from Tufts took commanding lead in the early noments and managed to hold it ntil the final gun.

8-3 at Intermission

In the opening frame the Jumbos scored twice before Bolta finally hit he net for Tech. Bolta's goal, how-ever, served merely to spur Tufts on to three more tallies in the next ew minutes.

In the second period the Tufts-men scored twice before Miller could counter for the Beavers. Another goal by Tufts and one by Aycrigg for Tech made it 8-3 at the ntermission.

Again in the third period the Jumbos scored twice before Madsen finally hit for the Beavers. Another counter by Tufts made it 11-4 at the end of the third canto. Fighting gamely against an overwhelming lead the Engineers held their opponents scoreless in the final quarter while Aycrigg, Bolta, Hucke and Shumway each scored once. The rally fell three goals short, however, as the Jumbos hung on long enough to pull out an 11-8 victory.

Penalties Important

The large number of penalties in the game proved to be a major factor in the decision. The eighteen and one-half minutes of penalties called on Tufts, against eleven and a half on Tech, nearly lost the game for the Jumbos.

In a frosh game at Tufts Wednesday the young Beavers lost out 6-3. The scoring for Tech was done by Friedethal, who hit twice, and Trevett.

Trackmen Defeat U. of N. H. Capture Second Victory 78-57

Winning firsts in ten out of fifteen events, the Tech track team evened its outdoor record with a surprisingly easy 78 1/3-56 2/3 victory over New Hampshire on Briggs Field last Wednesday afternoon.

Al Dell'Isola and Jack Adams led the way for the Engineers, amassing a total of 31 points between them. Dell'Isola turned in three victories, winning the 100 and 220 yard dashes and the 440 yard run, but Adams captured individual scoring honors by winning the hammer throw and the discus and taking second place in both the shot put and the javelin. For the third straight week Adams broke his own MITAA record in the hammer throw as he topped his throw of 167' 6½" with a heave of 168' ⅜".

Beavers Sweep

The big events for the Techmen were the half-mile, where Ed Olney, Bud Simpson and Chuck Vickers combined to give the Beavers a sweep of all three places, and the mile and the 120 yard high hurdles, in each of which the Techmen added first and second places. Carol Belton and Simpson were the scorers in the mile, while Frank Anderson and Spangler took honors in the high hurdles. Anderson also won the low hurdles and Roy Roth won the high jump to account for the other Tech victories.

With Parker and Parsons piling up 43 points between them, the New Hampshire Freshmen easily defeated the Tech Frosh by an 86-40 count. Parsons won four events: the 100 yard dash, the 220, the 120 yard low hurdles and the 220 yard high hurdles. Parker won the broad jump, high jump and javelin, took second in both hurdle events, and took third in the shot put and discus for a total personal score of 23 points.

The varsity score:

100-yard dash: 1, Dell 'Isola, M.I.T.; 2, O'Brien, N. H.; 3, Fracas, M.I.T. Time: 10.4s.

220-yard dash: 1, Dell 'Isola, M.I.T.; 2, Harmon, N. H.; 3, Childs, M.I.T. Time: 23.1s.

440-yard run: 1, Dell 'Isola, M.I.T.; 2, Harmon, N. H.; 3, Sweet, N. H. Time: 50.7s.

880-yard run: 1, Olney, M.I.T.; 2, Simpson, M.I.T.; 3, Vickers, M.I.T. Time: 2:00.9.

1-mile: 1, Belton, M.I.T.; 2, Simpson, M.I.T.; 3, Cole, N. H. Time: 4:33.9.

2-mile: 1, Bodwell, N. H.; 2, Chase, N. H.; 3, Hunt, M.I.T. Time: 10:05.4.

120-yard high hurdles: 1, Anderson, M.I.T.; 2, Spangler, M.I.T.; 3, Weeks, N. H. Time: 16.2s.

220-yard low hurdles: 1, Anderson, M.I.T.; 2, O'Brien, N. H.; 3, Hall, N. H. Time: 27.0.

High jump: 1, Roth, M.I.T.; 2, (tie) Varney and Johnston, N. H., and Thompson, M.I.T. Height 5' 10⅜".

Broad jump: 1, O'Brien, N. H.; 2, McKee, M.I.T.; 3, McCallum, M.I.T. Distance: 20' 6½".

Pole vault: 1, Langevin, N. H.; 2, Thompson, M.I.T.; 3, Mascolo, M.I.T. Height: 11' 6".

Hammer throw: 1, Adams, M.I.T.; 2, Mullen, N. H.; 3, Grant, N. H. (new MITAA record). Distance: 168' ⅜".

(Continued on Page 8)

Tech Baseball Team Plays Host To A.I.C. On Briggs Saturday

By MART MERRIAM

Open House visitors will get an opportunity to see Technology's diamondmen in action when the Beavers engage American International College Saturday afternoon on Briggs Field.

Both teams have played a strong Boston College squad, and on the basis of comparative scores the Beavers appear to have a slight edge. A.I.C. dropped their game by a 3-2 score, whereas the Engineers played the Eagles to a 2-2 deadlock. Last year's meeting between Tech and the Amcols resulted in a prolonged and bitter struggle, with the Beavers finally losing 3-2 in a 12 inning marathon.

Dixon on Hill

Amos "Dixie" Dixon will go to the post for the Beavers in quest of his second win of the regular season. Dixie, a strong-armed right-hander in his Sophomore year, has been involved in every one of Tech's decisions this year, since the team returned from the Southern training trip, was outstanding for last year's frosh, and bids fair to become one of the most effective moundsmen in Tech's baseball history. Standing by will be Sophs Cliff Rounds and Wade Greer, as well as Senior fireman Frank Hogan.

Reliable Gene Lubarsky will be on the receiving end of Dixon's slants, as he has been all season. Another veteran, Warren Fenster, will hold down the initial bag,

TO FACE A. I. C.

Photo by Hall

Amos "Dixie" Dixon, Coach Warren Berg's nominee to face American International College, Saturday, checks a base runner.

while veteran utility man Mike Celantano will cover the Keystone sack. Converted outfielder Pete Phillipou, who has been providing most of the power this season will be stationed at third, and Ron Thompson, recently recuperated from a foot injury, is scheduled to play short. The outfield is not yet set, but Barney Byrne and ex-second baseman Mike Johnson will probably play in left and center respectively, with right still in doubt.

Baseball was not initiated at Tech until three years ago, when a team was organized because of student demand. The sport has made tremendous strides in its short life here, and all indications point toward its continued popularity.

NOTICES

ORCHESTRA CONCERT

The M.I.T. Symphony Orchestra is giving its final concert of the season tonight in Morss Hall. Professor Klaus Liepmann will conduct the orchestra in the following works: Haydn's Symphony No. 101 ("The Clock"); Concertino for Clarinet and Orchestra of Weber with Nat Levine as soloist; Copland's Outdoor Overture and Quiet City; "Pieces" by Hindemith.

SPRING REPORTS

Reports for the Spring Term 1950 will be mailed on Thursday, June 8, to the addresses indicated below:
Foreign students, Term Address
All others, Home Address

Students who wish to have their reports sent elsewhere must call at the Registrar's Office, Room 7-142, not later than Friday, May 26. Duplicate reports for students who are under age will be sent to the parents.

Reports are not sent to students who are candidates for a degree in June, 1950.

EXTRA-CURRICULAR

All activity heads will gather in Litchfield Lounge, next Tuesday, May 16, to compose the official calendar of extra-curricular events for the coming school year. The meeting is under the direction of Harold Rich, '51, Walker Memorial Committee Social Chairman.

Development

(Continued from Page 1)

nanced by the money raised include the completed Charles Hayden Memorial Library, Supersonic Wind Tunnel, and New Dormitory. Projects under way include the 12 Mev Nuclear Generator laboratory for nuclear science and engineering, a metals processing laboratory, and a hydrodynamics laboratory.

Classified Ads

FOR SALE: Outboard Motor $35
5-hp twin, perfect condition.
T. E. PAWEL UN 4-3870

Let's Have Our Copper Bowl.

A copper bowl trophy was taken from the Cambridge Boat Club, April 22. It is needed for a Regatta Sunday. Please return it to Phi Beta Epsilon. No questions asked.

Track

(Continued from Page 7)

Discus: 1, Adams, M.I.T.; 2, Tubber N. H.; 3, Gamble, N. H. Distance: 130' 9½".
Shot put: 1, Tubber, N. H.; 2, Adams, M.I.T.; 3, Glines, N. H. Distance: 45' 3½".
Javelin throw: 1, Gamble, N. H.; 2, Adams, M.I.T.; 3, Tarbell, N. H. Distance: 165' 10".
Total score: M.I.T. 78⅛, N. H. 56⅜.