



## EDITORIAL

There has been much talk in recent years about unreasonable laboratory charges at the Institute. To clarify this issue, The Tech made a survey of other privately endowed colleges and universities which teach similar chemistry courses and have a correspondingly high standard. Answers were received from 22 institutions throughout the United States. These answers were compared with similar figures obtained from the division of chemical laboratory supplies.

Tech students pay less in the freshman year, and more in their Sophomore and Junior years for laboratory supplies than the average of sixteen other colleges.

Freshman	
Tech average	\$10.80
Other colleges average	\$15.20
Sophomore	
Tech average (5.10 and 5.12)	\$34.90
Other colleges average	\$25.40
Junior	
Tech average (5.41-2, 5.61-2)	\$46.00
Other colleges average	\$34.80

(Continued on Page 2)

## Navy Officers To Speak Here

### Lecturers Conduct Salvage Of Submarine Squalus After Accident

Commander Andrew I. McKie and Lieutenant Commander Tussler, of the United States Navy, who were in charge of the rescue of the submarine Squalus, will address a combined group of Senior House residents and Nautical Association members in Room 6-120, Wednesday at 7:15 P.M. Commander McKie who was in charge of all salvage operations that were necessary in the task of raising the sunken ship from her deep grave, will lecture on the difficulties and problems that the job presented. Commander Tussler, who headed the diving crew operations, is to show the comprehensive motion pictures which he took of the entire proceedings from the time that salvage was begun until the V-boat was finally towed to the Portsmouth, N. H., Navy Yard.

#### Spoke To Faculty Club

The two navy officers presented their lecture and pictures to the Faculty Club at a meeting before the Christmas vacation. The pictures, which record one of the most stirring operations in naval annals, were taken to be used as reference for future operations.

(Continued on Page 4)

## Dow Fellowship Research Begun

Extensive studies of the alkali xanthates, important reagents in the flotation process for metal ores, are being conducted here at Technology under the provisions of the newly created Dow Fellowship, made possible through a grant by the Dow Chemical Company.

Kenneth C. Vincent, first holder of this fellowship, is initiating the project, which is to be continued for a year under the direction of Professor Antoine M. Gaudin. Professor Gaudin is known internationally for his work in ore dressing and was recently appointed Richards Professor of Mineral Dressing at the Institute.

#### Studied in Utah

Vincent, a chemical engineering graduate from the University of Utah, also holds a Master of Science degree in mineral dressing from the Montana School of Mines. At the time of his appointment to the fellowship, he was research engineer for the American Smelting Company in Utah.

## Registration Material May Be Obtained Today

Registration material for the second term may be obtained today as follows:

#### First-Year Students

For those taking Chemistry 5.01, registration material will be given out in the 5.01 laboratory sections. All others, including Course IV students, may obtain material at Mr. Pitre's Office, Room 4-258.

#### Other Students

Obtain material in Main Lobby until 1 p.m. After 1 p.m. material may be procured in the Information Office, Room 7-111.

Registration material must be returned to Room 3-107 not later than 1 p.m., Friday, January 12, to avoid the fine of \$5.00.

## Option Sales Open For Dinner Dance

### Formal Dorm Affair Set For February 16; Dr. Bush Will Be Speaker

Options for the tenth annual formal Dormitory Dinner Dance have been on sale since Tuesday and will continue every evening until Monday, January 15, in the Burton Room of the Undergraduate Dormitories.

Dr. Vannevar Bush, former Technology vice-president and present head of the Carnegie Institute in Washington, will be the chief speaker at the dinner, which will last from seven until ten, February 16. Dr. Karl T. Compton is also expected to attend the dinner.

(Continued on Page 4)

## T.E.N. Plans Special Banquet To Celebrate Twentieth Year

To commemorate the completion of its twentieth year of publication, the Tech Engineering News will hold a special banquet in Walker Memorial, Thursday, January 11.

As many members as possible of the managing boards of the magazine during the past twenty years will attend the banquet in honor of the founders. S. Paul Johnson, '21, editor of "Aviation" magazine, and Donald G. Fink, '33, managing editor of "Electronics", will be the special guest speakers at the banquet.

#### Founded in 1920

The Tech Engineering News was founded in 1920 by two students on

## Corporation Gives Position To Stettinius

### Ralph Flanders Is Elected As Life Member Of Corporation

#### MEMORIAL PRESENTED

Edward R. Stettinius, Jr., Chairman of the Board of the United States Steel Corporation, was elected a member of the Institute Corporation at its meeting Wednesday, President Karl T. Compton announced yesterday. At the same time Ralph E. Flanders was elected a life member.

Mr. Stettinius, a graduate of the University of Virginia, was associated with the General Motors Corporation and with the General Aviation Corporation in an executive capacity before accepting his present position with U. S. Steel. In 1932 he was in charge of the national "share-the-work" movement for the second Federal Reserve district. He recently acted as chairman of the National War Resources Board, of which Dr. Compton was a member.

#### Has Many Positions

Mr. Stettinius is also a director of the Metropolitan Life Insurance Company, a trustee of the Roosevelt Hospital, and vice-president and chairman of the finance committee of the New York Museum of Science and Industry. He is also a trustee of Pomfret School and a member of the alumni board of trustees of the University of Virginia. He is a member of the Advisory Council on Social Security, the Business Advisory Council of the Department of Commerce, the Academy of Political Science, and the Economic Club of New York.

Mr. Flanders is president of the Jones and Lamson Machine Company, holder of honorary degrees from many colleges and technical institutions. As a term member of the Corporation, he has been active in its affairs since 1937.

#### Committee Appointed

Dr. Compton announced yesterday the creation of a special committee of the Corporation on student life to

(Continued on Page 3)

## VooDoo Board To Attend Annual Elections Banquet

The Advisory Council of Student publications and the entire staff of the Voo Doo have been invited to attend its annual elections banquet on Wednesday night January 10 in the Captain's Cabin of the Hotel Miles Standish. Board elections will be announced at the affair, and an as yet unannounced speaker will deliver a talk.

## Hockey Team Loses Championship Game To Colgate Raiders

### 5:15 Will Expose Frosh To Dingee Review Course

5:15 Club freshmen are greatly relieved to hear that none of them will flunk the 8:01 final. The club has virtually guaranteed an honor grade for every one of them by securing A. L. M. Dingee of the Associated Tutors to lecture them for an hour this afternoon at 5:15 in the Faculty Dining Room.

It is expected that Dingee will cover the entire fifteen week course in greatest detail during the hour as well as get in a little side pep talk on his ten dollar quiz review course. He is also expected to do problems covering the entire course. The lecture is open to 5:15 Club members only.

## Seniors To Dance With Bob Adams And Orchestra

### Beaver Club Members Asked To Usher At Formal Tonight

Seniors will dance tonight from ten till two to the music of Bob Adams and his band in Walker Memorial. A fountain surrounded by plants is planned for the center of the dance floor, as part of the decorations according to Edwin H. Seim, a member of the committee.

The members of the Beaver Club, honorary Junior society, have been asked to act as ushers at the dance. During the intermission a professional dancing couple will perform.

#### Faculty Members Will Chaperone

The chaperones of the dance will be Dr. and Mrs. Karl T. Compton, Mr. and Mrs. Horace S. Ford, Professor and Mrs. Raymond D. Douglass, Mr. and Mrs. Nathaniel McL. Sage, Mr. and Mrs. Walter H. Stockmayer, Lieutenant and Mrs. Stanley T. Wray, Mrs. James R. Jack, Professor and Mrs. Leicester F. Hamilton, and Mr. Walter C. Wood.

Seniors who have not obtained their tickets yet may still secure them at the T.C.A. office. The dance is free to all seniors.

## Debates Planned For Next Week

The M.I.T. Debating Society has scheduled two debates for next week, the first being with the women's team of Boston University on January 9, and the second with Brown University on January 11.

Alfred Goldis, '42, and Ward J. Haas, '43, will uphold the affirmative side of the question "Resolved: that the United States should grant the Philippine Islands their independence", when they meet the Boston University duo next Tuesday. This debate is another in the series of radio debates broadcast over radio station WAAB.

#### To Debate in Providence

Next Thursday Frank P. Seeley, '42, and Stanley L. Backer, '41, will journey to Providence, Rhode Island, to engage the Brown University debaters. The Institute team will uphold the affirmative of the ever-present question of athletic subsidization.

## Pucksters Deafeat St. Lawrence, Cornell

### Browning, Neal, and Kaneb Were High Scorers At Lake Placid

After battling their way into the finals of the annual Lake Placid Inter-collegiate Hockey Tournament with decisive victories over St. Lawrence and Cornell, the M.I.T. pucksters saw the championship snatched from them as they lost a heartbreaking two-overtime game last Wednesday evening with Colgate's Red Raiders, 5-4.

The first game against St. Lawrence took place at 10:00 A.M. on the morning of January 1st, and resulted in an easy victory for Tech. Browning and Neal were the outstanding men for Tech and they each either scored or assisted in every goal scored.

#### Cornell Beaten

The next game was against Cornell and turned out to be tougher than the first, but owing to the excellent teamwork of the forward line and some well executed plays by Neal and Kaneb, the M.I.T. team downed Cornell 5-3. Neal scored three of these five goals, two of them without assistance.

Tech's pucksters now found themselves in the Finals with a strong Colgate Six to face. The Beaver team started off in championship style to

(Continued on Page 3)

## Harvard To Give Business Awards

### Several \$1000 Scholarships Offered; \$300 Awards Granted

Twenty to twenty-five scholarships of \$1,000 each are being offered to students entering the Harvard Business School in September, 1940, it has been made known by the Boston Club of the Harvard Business School Alumni Association.

Eligibility application blanks may be obtained by writing to John J. Caravan, 19 Winter Street, Boston. Applications should be filed with the dean of the Harvard Business School not later than April, 1940.

#### Other Scholarships Offered

Those men who miss the \$1,000 scholarships will automatically become eligible for a \$300 grant to be applied against the tuition for the year 1940-1941. These prizes will be awarded on the basis of need for financial assistance, scholastic standing, and general character. Candidates must be residents of New England or have attended college there.

## 1940 Technique On Sale Next Week, Main Lobby

The 1940 edition of Technique will be on sale at desks in the Main Lobby and the street entrance between Buildings 1 and 5, Monday and Tuesday, Jan. 8 and 9. The book will cost \$4.50 at this time.

A special desk for Technique sales will also be located in the 5:15 Club Room on Wednesday and Thursday, January 10 and 11.

# The Tech

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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## EDITORIAL

(Continued from Page 1)

In the freshman year Technology students pay nearly twice as much laboratory deposit as the average of ten colleges surveyed. In this analysis only those universities were compared with the Institute which did not charge an appreciable non-returnable laboratory fee, since deposits are naturally lower when such a fee is charged.

Freshman	
Tech average	\$25.00
Other colleges average	\$13.80
Qualitative Analysis	
Tech average	\$25.00
Other colleges average	\$15.05
Quantitative Analysis	
Tech average	\$25.00
Other colleges average	\$16.35
Organic Chemistry	
Tech average	\$25.00
Other colleges average	\$17.20

These figures seem to indicate that the laboratory deposit in the freshman year could be reduced. This is particularly true because the average expense is only \$10.80.

Seventy-six percent of the 21 institutions surveyed charge neither rent nor depreciation for returnable apparatus while it is charged to the students. The Institute charges 1% of the cost a week. According to Mr. Horace S. Ford, treasurer of the Institute, this charge is meant to be a penalty for students who are tardy in returning apparatus. It is felt, that if such a charge was not made, apparatus would be kept in the desks for a long time, making a larger and costlier inventory necessary. The fact that only a small minority of colleges have such a charge indicates that they do not share the opinion of the Institute. It certainly seems that no penalty charge is justified if the equipment is used for a reasonable period only. We feel that rental charges should commence three to four weeks after the apparatus has been checked out.

Of the 22 colleges only 23% refuse to take back slightly scratched but not cracked glassware. Students have often complained that glassware of only slightly depreciated value becomes a total loss because no refund can be obtained. The University of Southern California has apparently found an adequate solution to this problem. Damaged glassware may be returned but a proportional

part of the cost is charged to the student. The student who finally breaks this piece of equipment only pays the balance of the cost. Some such arrangement is needed at the Institute.

Analysis indicates that over 70% of the universities surveyed charged the students for chemicals in some way. About half of these institutions accomplish this by charging a flat non-returnable laboratory fee while the other half, like the Institute, subtracted some amount from the deposit. Columbia University supplies students in some courses with sufficient chemicals to cover normal requirements free of charge. Additional chemicals have to be checked out from the supply room and are charged to the students. This method protects the students who do not waste materials.

On purchases of about \$55,000 the division of chemical laboratory supplies made a profit of over \$5,000 last year. This ratio has been fairly consistent over a number of years. This profit is derived from an 8-10% mark-up above the cost delivered and the rental charge and is handed over to the Institute. The Institute justifies this profit for two reasons. It feels that the students should pay part of the \$22,000 for salaries paid to the division of chemical laboratory supplies. It also feels that the students should pay for intangible costs for the upkeep of laboratories like steam, hydrogen sulfide, etc.

We feel that there is no justification for such a profit whatsoever. There is no charge for equipment, services, salaries, or anything else in any other laboratories. Machine tool, electrical engineering, physics, concrete, and material testing laboratories are examples. All these laboratories cost the Institute a lot of money. This is paid out of the tuition and other normal income of the Institute. There is no reason for discriminating against students using the chemical laboratories for they are the only ones to pay anything for laboratories.

We also feel that a regular check up of the accounts of the division of chemical laboratory supplies should be made regularly by experts outside of the division. This does not mean that the management of the division cannot be trusted. Every sound business enterprise has its accounts checked by certified public accountants at regular intervals, no matter how complicated or difficult such a job may be. The division of chemical laboratory supplies is no more complicated than many other enterprises. A check-up is needed for the protection both of the students and of the Institute.

We wish to thank all the colleges which sent in data for their cooperation. They are: Armour Institute of Technology, Brown University, California Institute of Technology, Columbia University, Dartmouth, Fordham, Harvard, Northwestern, Polytechnic Institute of Brooklyn, Rensselaer Polytechnic Institute, Rice Institute, Tulane, University of Buffalo, University of Chicago, University of Cincinnati, University of Pennsylvania, University of Southern California, Vanderbilt, Washington and Lee, Washington University (St. Louis), Western Reserve University, and Yale.

## CONSIDER THE MAN

Within a year, many of the students now in school here will be voting in a presidential election, most of them for the first time. There appears to be a possibility that they may be voting on Franklin D. Roosevelt, and more than a possibility that they will at least be voting on a man supported by the present President.

But whether or not their vote helps determine the fate of Franklin D. Roosevelt or of a man supported by him, the effects of Roosevelt's eight years as President will be in force for some years to come. It is not out of place therefore to survey the man and his work in the light of the average student's or citizen's knowledge of politics, economics, and statecraft.

Roosevelt's economic ideas are most of all to be questioned. He has placed the country under an immense burden of debt in the support of ideas whose value is at best in the realm of theory. He has tacitly encouraged the activity of labor leaders without being able to prevent that activity from having damaging results, without having sufficient control over that activity.

The President of this country is supposed to be at once a leader and a servant of the people. Roosevelt exhibits strong indications of presuming himself to be only a leader of the people. He is moving towards complete abrogation of the right of decision. His motives in doing this may be beyond question, but his justification is certainly not; and such sincerity is dangerous. He should be more cautious in committing this nation to actions in whose value he may personally have the most profound faith, but of which he simply cannot be certain. History shows that one man, however wise he may be, can make mistakes, and that his mistakes can devastate entire nations. Men with such power simply cannot afford to make serious mistakes, yet many of Roosevelt's policies by the magnitude of their execution must eventually be either tremendous successes or disastrous failures.

He is undoubtedly a man of remarkable power, and it may be that he has accomplished things which no other man could; he has certainly attempted things which few other men would. It may very well be that he has accomplished things, which no other man should attempt. But, Roosevelt having established the precedent which he has, it will be difficult to restrain future presidents. A very dangerous precedent has been established.

Our government is not a monarchy. It depends on the continual succession of able men to its offices. Each administrator must consider the men who will follow him. He has not the right to put into operation forces which only he, through superior ability or through the cumulative effect of his other policies and the force of circumstances, can successfully control. Whether Roosevelt has placed himself, or will, if able, place himself in such a position is a very vital subject of discussion; and should help determine our decision as to whether he, or men of his character, are fit to govern this country.

The question is not of his ability, but of whether he has applied or will apply that ability to the longterm best needs of this country; or whether the

## Reviews and Previews

**SYMPHONY HALL** — The Boston Symphony Orchestra, conducted by Serge Koussevitsky, will play tomorrow at two-thirty and on Saturday at eight-fifteen. Joseph Szigeti will be the featured soloist, performing on the violin.

**WILBUR** — Ruth Chatterton once-famed film actress, stars in the gay stage comedy, *Tonight We Dance*. Matinee shows will be held on Wednesday and Saturday afternoons.

**SHUBERT**—Mamba's Daughters, starring Ethel Waters plays at this theater for its last week.

**PLYMOUTH**—Jack Kirkland's Tobacco Road appears for a last week after an extremely long run.

**COLONIAL**—Three showings are left for the "play with music" at this theater. Paul Robeson, world-famous negro baritone has the featured role.

**METROPOLITAN** — *Four Wives*, sequel to *Four Daughters* arrived at this theater yesterday. The three Lane sisters, Gale Page, and Claude Rains again appear in the picture. Interspersed with comedy in several places, the picture tells a moving and highly interesting story, and is for the most part a well-portrayed and serious dramatization. The second feature on the bill is a photoplay starring Ann Sothern and Lewis Stone, *Joe and Ethel Turp Call on the President*.

**LOEW'S STATE AND ORPHEUM** *Gone With the Wind*, long awaited picturization of Margaret Mitchell's best-selling novel continues here for the third week. Vivien Leigh and Clark Gable are starred. At the STATE all seats are reserved, but at the ORPHEUM non-reserved seats may be obtained during the morning and matinee shows.

**KEITH MEMORIAL**—Victor Hugo's famous story, *The Hunchback of Notre Dame*, starring Charles Laughlin and Maureen O'Hara, continues for its second week and is a horror picture of the first order. The story tells of the ugly and bestial hunchback and of his love for a beautiful young girl. A Walt Disney cartoon and a new *March of Time* are also on the program. As a special attraction pictures of the Boston College-Clemson Cotton Bowl football game will be presented.

good which he himself has been able to do will be outweighed in the long run by the damage which his centralization of power and assumption of authority may enable his successors, from either lack of ability or lack of good intentions, to do.

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# Undefeated Quintet Begins Practice For Strong Brown Team

## Opponents Rated As Best Team In New England

### Tech Will Be Underdogs In Hangar Gym Next Friday

Coach Henry McCarthy put his undefeated basketball quintet through a stiff drill last night, as the team began its preparation for the Brown game next Friday night in the Hangar.

Since Brown with no defeats in six games, is rated as the best team in New England and one of the best teams in the country, this game will be the toughest of the year for the Beaver team.

#### Invaders are Tall

The invading team has five men above six foot two. Thus Tech's chief advantage of height which has proven so effective in the games played so far, will be lost. None of the teams which have been the Tech opposition in games played so far measure up to the ability of the Brown five. Last year Brown gave M.I.T. its only bad defeat of the year when the Engineers came out second on the score of 33-28.

Harry Platt, Brown gift to All-American basketball will be the chief target of the Tech defense. However even the bottling up of Platt would not be enough, for all members of the team are rated as excellent shots. In the game against Northeastern last week, Brown's guards accounted for 40 points. This is just an example of the versatility of the Brown quintet.

#### Tech Hopeful

Although Technology will certainly enter the game as the underdog, the game promises to be no pushover. A good indication that the game might be close can be found in the scores of the games that each have played against Harvard. Tech's winning margin was 14 points while Brown's margin was 11. Basketball is a hard game in which to compare scores, but these facts might be considered as pointing to a close, hard fought game.

Coach McCarthy will have the services of Fred Herzog for the game. Fred has been out with a broken wrist. He saw action for five minutes in the New Hampshire game, and showed that he would be a great asset to the team in the future.

#### Freshmen Play

Mario Conti's freshman five will play the opener against the Brown Freshmen next Friday night. The fresh team played well against Harvard in its first game this year, but looked inexperienced when the New Hampshire cubs overran them in their second encounter. However, the team definitely has promise and should give a good account of itself in future games.

#### Stettinius

(Continued from Page 1)

study methods of enriching student life at the Institute, including living facilities and extra-curricular activities.

The Corporation also approved the conferring of a number of midyear degrees and presented a memorial to the late Dr. Henry S. Pritchett, president of the Institute from 1900 to 1907.

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## Tech Pucksters Show Much Fight

(Continued from Page 1)

score three goals before Colgate got going. Two of these goals were scored before the game was three minutes old, and were the result of fine team work between Neal, Browning and Kaneb. The third was bagged by Kaneb, assisted by Neal at the fifteen minute mark. Colgate managed to break through before the end of the period, and Banbuskirk scored their first goal to make the score 3-1, in Tech's favor.

#### Kaneb Scores

During the first 10 minutes of the second period, the Red Raiders lived up to their name and three goals were scored by Tracy, Wells and Dewey in that order. This gave them the lead of one goal—which was not kept long, for Kaneb started the Tech team going once again when he equalized the score with the period half over. After this, until the end of the period, the Tech team was definitely on top, the puck missing the cage many times by small margins. During this time the fast playing of the Neal-Browning-Kaneb combination was once again prominent with many fast attacks on the Raiders' goal.

The third period was the most evenly matched of the game, neither team scoring but both playing very hard and fast and often-times missing the goal by inches. The Tech front line was once again playing a very fine game, but misfortune laid its heavy hand on its efforts.

#### "Sudden Death" Period

The third period ended with the score still tied at 4-4, and in accordance with the rules of the tournament, a "sudden death" overtime period of ten minutes was played; no increase in score resulted. This period was much like the third, but both teams were playing harder and the game was more exciting. At one time, because of a foul and a technical error in substitution Tech had only four men on the ice for four minutes, but the defense held and the period ended with the score still at 4-4.

The rules of the tournament were once again applied and another "sudden death" period of ten minutes was played in which likewise the first team to score would win the game. This period looked as though it would produce the same result as those which had gone before, but with sixteen seconds to play, a face-off near the Tech goal resulted in the puck going out to the side where Dewey, of Colgate, took it and shot it past the entire Tech team and the goalie, whose view was blocked, to score the winning goal. This gave Colgate the victory after a hard-fought, thrill-packed game by a score of 5-4.

#### Browning High Scorer

The first string Engineer team was on the ice almost all of the game; Sage and Cadogan, the defense men played the entire 80 minutes, except for a minute when Sage went off the ice with a cut from a high stick. The forwards, Neal, Browning and Kaneb, were on

(Continued on Page 4)

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## Winter Track Starts Feb. 13

### Freshman Tryouts Begin Tomorrow Afternoon On Boards

Five major United States indoor track meets and three freshman meets are included in Technology's 1940 winter track season, which opens a week from Saturday with relays in the Veterans of Foreign Wars Meet at Boston Garden and a freshman meet against Roxbury Latin.

Tryouts for the freshman team will take the form of a handicap meet on the boards at 2:00 P.M. tomorrow afternoon. Events are to be 45-yard low hurdles, 50-yard dash, 300-yard dash, 600-yard run, 1000-yard run, 12-pound shot put, high jump, and broad jump.

#### Banquet Friday

The season will be formally ushered in with a banquet to be held in North Hall, Friday, January 12. A noted runner whose name will be announced next week is to speak. Tickets for the five course dinner may be obtained at the track house.

The 1940 winter schedule is as follows:

- January 13—VFW Meet at Boston Garden. Frosh vs. Roxbury Latin here.
- 27—K. of C. Meet at Boston Garden.
- February 3—Millrose Games at Madison Square Garden.
- 10—B. A. A. Games at Boston Garden.
- 24—Freshmen at Exeter.
- 29—Freshmen at Tufts.
- March 2—IC4A Championships at Madison Square Garden.
- 9—Interclass Meet on Tech boards.

## Rifflists To Meet Northeastern U.

### Institute Marksmen Favored In Match; Three Trips On Schedule

Technology's rifle team will meet Northeastern University today in their first scheduled intercollegiate league match of the season, to be held on the Northeastern range.

With three wins out of four matches over civilian teams behind them, the Tech shooters are the favored in this match. Although many of the men on the team are lacking in experience, the veterans Captain Valentine deOlloqui and Manager Joseph Myers should excel. Joe Myers came within one point of breaking the Institute range record in the match with the First Corps Cadets last month, turning in the remarkable card of 186. John Vanderpoel has also been shooting well, having led the field in the Pickwick match Dec. 7 with a score of 182.

#### Other Matches Scheduled

Since the team has an increased budget this year, more matches have been scheduled than ever before, according to Manager Myers. Trips to Army, Navy and New York University are on the card. The following men are scheduled to participate in the Northeastern match: Valentine deOlloqui, C., '40; Charles Butts, '41; Douglas Crawford, '40; Herman Meyer, '40; Joseph Myers, '41; William Orr, '41; Harry Sedgwick, '40; and John Vanderpoel, '40.

# Crippled Mat Squad Slated As Underdog Against Springfield

## The Tech Crushes T.E.N. In Basketball Default

The T.E.N. today withdrew from its basketball game scheduled for this Sunday with The Tech. No satisfactory explanation was given for the action; however, most sources concur that the T.E.N. is bankrupt after footing the bill for the bowling match which it lost to The Tech.

R. Dixon Speas, '40, T.E.N. general manager, made the following statement: "It is getting too near the finals to be playing around all the time when we are going to get hell beat out of us anyway. If my successor sees fit to stick out his neck after next week, the blood will be on his head."

## Racquet Men Meet Harvard Tomorrow

### Squash Team Will Be Out To Avenge Previous Losses To Crimson

An Institute team again clashes with Harvard tomorrow afternoon when Tech's squash masters move up the river to engage the Crimson. The first match will take place at 2:00 P. M.

This team will be attempting to avenge the defeat of the Junior Varsity by Harvard yesterday. The Engineers were blanked out 5-0.

#### Invitation Tourneys

Individual members of the team have been playing at various invitation tournaments during the holidays, according to Manager Clark C. Benson, '41. Capt. Bob Millar, '40, worked out in the Middlesex Bowl Tournament. The University Club of New York City invited Al Barton, '40, and Phil Freeman, '41, to compete in its matches. Barton lasted until the second round, while Freeman was clipped in the first.

## Two Veteran Men Out Of Lineup This Week

### Goodman Will Wrestle In Heavyweight Berth Again

The loss of two regulars from the varsity wrestling team because of injury and academic pressure, will lower Technology's chances for victory when the Springfield grapplers come to Hangar Gym tomorrow afternoon at 3:00 P.M.

Charles Hoffman, '42, varsity 155-pounder, injured his elbow in practice a few days ago and will be out of action for at least ten days, according to trainer "Doc" Johnson. Although he lost his first two matches, Hoffman has been showing rapid improvement and was expected to be a definite threat before the season was over. "Mad Andy" Kopsichiansky, 145-pound performer, also will be lost to Coach Joe Rivers' crew because of scholastic difficulties.

#### Beano Returns

The return of Beano Goodman, burly 200-pound heavyweight, to the wrestling team will add considerably to the strength of the squad. This means that Dick Powers, who has been assuming the unlimited duties, will return to his natural class, 165-pound division.

Coach Rivers hopes that the varsity lineup will be made up of Joe Sullivan in the 121-pound class; Captain Bill Stone in the 128-pound class; George Carnrick in the 136-pound division; either Dan Schaefer, Al Gutttag, or Neb Smith in the 145-pound class; Ed Fettes or Paul Alexander in the 155-pound class; Dick Powers or Ed Fettes in the 165-pound division; Johnny Carleton in the 175-pound class; and Beano Goodman in the unlimited competition. Final entrants in the 145-pound, 155-pound, and 165-pound bouts for the Institute will be chosen in last minute tryouts.

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M-21 (5-7 or 8-10 P.M.) Thu., Jan. 18 **Sat., Jan. 20** *Sun., Jan. 21* (\$6.)	M-21 VII & XV (5-7 P.M. only) Wed., Jan. 17 Sat., Jan. 20 Sun., Jan. 21 (\$6.)	5.61 (8-10 P.M. only) Mon., Jan. 15 Tue., Jan. 16 Wed., Jan. 17 Fri., Jan. 19 †Sun., Jan. 21†	2.40 (5-7 P.M. only) Mon., Jan. 15 Fri., Jan. 19 Sun., Jan. 21 Mon., Jan. 22 Wed., Jan. 24	2.04 (8-10 P.M. only) Sat., Jan. 13 ††Sun., Jan. 14†† †Wed., Jan. 17† Sat., Jan. 20 ††Sun., Jan. 21††

\*10-12 A.M. or 8-10 P.M.  
\*\*2-4 P.M. or 8-10 P.M.  
†Sunday, 2-4 P.M.  
††Sunday, 10-12 Noon.  
‡Wednesday 5-7 P.M.

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# CALENDAR

## FRIDAY, JANUARY 5

4:00 P.M. Varsity Rifle vs. Northeastern University—Away.  
 5:15 P.M. 5:15 Club Freshman Lecture—Faculty Dining Room.  
 6:30 P.M. A.S.M. Dinner—North Hall.  
 7:30 P.M. Senior Week Committee Dinner—Faculty Dining Room.  
 10:00 P.M. Senior Dance—Main Hall.

## SATURDAY, JANUARY 6

2:00 P.M. Squash Varsity vs. Harvard—Away.  
 3:30 P.M. Varsity Wrestling vs. Springfield—Hangar Gym.

## MONDAY, JANUARY 8

5:15 P.M. Italian Student Club Meeting—East Lounge.

## Pictures Shown To A.I.E.E. Men

### Stratton Contestants Spoke Briefly After Movies Were Displayed

A sound motion picture entitled "Rubber Insulated Cables" produced by the Okonite Company was shown last night at the A.I.E.E. meeting held in Room 10-250.

After the picture two of the Stratton Prize contestants spoke in the first of the preliminary competitions. Richard B. Lawrance, '40, discussed "Acoustics Perspective" and John H. McGuigan, '40, explained the workings of the "Voder", an apparatus used to create synthetic speech.

## Squalus

(Continued from Page 1)

ture navy salvage and rescue tasks. E. George Pollak, '40, Commodore of the Nautical Association will act as chairman of the lecture.

Preceding the lecture will be the regular weekly dinner of the Senior House in North Hall of Walker, and a special dinner meeting of the Nautical Association in the Dutch Room of the Graduate House. Admission to the lecture is to be limited to members of these two groups. Tickets will be presented to a hundred members of the Senior House and ninety members of the Nautical Association who belong to the coxswain and bosun class.

### Cups To Be Presented

The main feature of the Nautical Association banquet will be the presentation of cups and awards won during the past sailing season. In addition, special awards will be presented to past and present members of Technology's intercollegiate racing teams.

Jer me T. Coe, '42, will be presented the Vose Cup for a victory in the first division of undergraduate skippers. Thomas T. Crowley, '42, will receive the Consolation Cup for taking top honors in the second division. Herman H. Hanson, G., will be given the championship cup of the graduate division.

### Sailing Insignia Adopted

Eight members of Technology's intercollegiate dinghy teams will be presented special sailing jackets with a newly adopted insignia. This presentation will set a precedent for future sailing team members, the jackets corresponding to the block "T" which is presented to varsity participants in other Institute sports.

The insignia on the navy blue jackets was designed from that used by the Technology Boat Club in 1885-1886 in order to follow the tradition of Institute sailing. The award will be given to the skippers on the teams and the crews of those teams which win intercollegiate championships.

The navy speakers were obtained through the efforts of Mr. Walter C. Wood, master of the Senior House and sailing master. Nautical Association members may apply to E. George Pollak, '40, for tickets to the lecture.

## New "Il Circolo Italiano" To Hold Meeting Monday

The newly reorganized "Il Circolo Italiano" will meet for the first time this year on Monday, January 8, at 5:15 p.m., in the East Lounge of Walker Memorial. The first meeting of the club was held on December 4 under the guidance of D. A. Grieco, '31, with the idea of establishing a permanent Italian Club at Technology.

Since then, a constitution has been drawn up and officers have been elected. The constitution is now awaiting the approval of the Institute Committee. All Italian students at Technology are invited to attend the meeting, at which plans for the future will be made.

## Former Institute Student Now Flies As U. S. Cadet

A. A. Fletcher, Jr., former student in Course XVI at Technology, was transferred on December 20 from the preliminary training base at the Dallas Aviation School in Dallas, Texas, to Randolph Field at San Antonio, Texas. Mr. Fletcher is a member of the flying cadet corps of the U. S. Army.

Of the original 69 cadets, Mr. Fletcher is one of 39 who have successfully completed their course at the Dallas Aviation School, which is one of the nine civilian schools recently designated by the Secretary of War as training bases for the flying cadets.

## Hockey

(Continued from Page 3)

the ice for about 70 of the 80 minutes and during the entire time looked dangerous.

The tournament ended with Browning the high scorer for the Beavers with six goals, while Neal and Kaneb each had five, and Sage and Cadogan, one each.

The Tech team was as follows: Schuchter, goalie; Cadogan, defense; Sage, defense; Neal, center; Browning, wing; Kaneb, wing. Subs.: Christian, defense; Arnold, center; Danforth, wing; Gregory, wing.

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## Dorm Dinner Dance

(Continued from Page 1)

dinner and deliver a few words. Henry A. Rapoport, chairman of the Dormitory Committee, will welcome the men and their guests.

### Kent Bartlett to Play

Kent Bartlett and his orchestra will furnish the music for the affair. Dancing will commence immediately after dinner, at ten o'clock. Bartlett's twelve-piece band will be accompanied by Vita Scott, attractive young vocalist.

The entire facilities of Walker Memorial are to be available to those attending the affair. The dinner will be served in the Main Hall of the building. As a special feature, an early morning breakfast is to be served at 1:30 A.M.

### Dance Is Open Affair

Although the Dorm Dinner Dance, which is one of the highlights of the dormitory social season, is intended primarily for Dormitory and Graduate House residents, the affair will also be open to their friends. Open House is to be in effect in the Dormitories on the evening of the dance. A tea has been scheduled for the following Sunday afternoon and will be held in the Burton.

Lighting effects will form the basic part of the decorations for the Hall, and are to be supplemented by a "1930-1940" theme, in keeping with the fact that this is the tenth anniversary of the establishment of the dance.

## T. E. N.

(Continued from Page 1)

best in the country for three successive years.

### Offers T.E.N. Cup

After the T.E.N. retired the Yale Cup, it offered a cup of its own to take the place of the Yale Cup and it is now presented annually to the most outstanding magazine of the year.

In the year after its birth, the T.E.N. was instrumental in founding the Engineering Magazines Associated, an organization for promoting the mutual interests of all college technical magazines. At the present time twenty-four engineering school publications are members of the organization, cooperating to improve collegiate scientific journalism.

### Final Issue at Banquet

The final issue of the twentieth volume, the January edition, will be first available at the banquet and will go on general sale the following morning. The issue will feature a survey on the athletic setup at Technology.

Members of the 1940-41 boards, which will have charge of the magazine during the coming year, will be announced by R. Dixon Speas, '40, present general manager, at the banquet.

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# Technology Research Perfects Metallic Fluoride Film Process

By coating camera lenses with evaporated metal fluorides, Dr. C. Hawley Cartwright, of the department of Physics at Technology, has succeeded in greatly increasing the effective speed of the lenses besides eliminating flare and ghost images.

Announcement to the scientific world of this new process was made in paper form by Dr. Cartwright before a recent meeting of the American Association for the Advancement of Science in Columbus, Ohio. Included in his report were studies of a highly corrected F:2 lens, composed of five separate elements, on all surfaces of which a fluoride film had been deposited.

### Speed Doubled

The effective speed of this lense was almost doubled. According to Dr. Cartwright, the extent of improvement by coating depends on the complexity of the lens. He found, for example, that the increase in speed obtained by treating a three-element F:3.5 lens was much less than for the F:2 five-element lens.

### Fast Lenses Complex

Faster and more highly corrected camera lenses require a large number of separated elements, with each element reflecting about 10 per cent of the incident light. Thus, good camera lenses ordinarily have transmissions of only about 60 per cent.

Moreover, the light reflected from each surface is not merely lost, but about five per cent of this light is reflected again from other surfaces. Some of the light strikes the photographic plate or film, where it affects

the emulsion, and occasionally produces flares or ghost images. To a great extent, Dr. Cartwright's discovery eliminates these foregoing defects common to many lenses now in use.

### Research Since 1892

Research in this field has not been limited to the present time. In 1892 Dennis Taylor observed that tarnishing of camera lenses tends to increase their effective speed. The tarnished surfaces of the glass elements of high refractive index diminished the reflection of light from the air-glass surfaces, thereby increasing the transmission of the whole camera lens.

Various methods were devised for artificially tarnishing glass, but apparently the results were not sufficiently effective or economical to warrant their adoption by the manufacturers of camera lenses. It is now known that the tarnish is actually a film of transparent material having a lower index of refraction than that of the glass, and to be most effective should fulfill specific conditions which can be better satisfied by the evaporated films of the metallic fluorides.

### Coat Applied in Vacuum

Dr. Cartwright stated that the fluoride film has proved effective for many optical instruments. Since the coating must be deposited in a vacuum, and as each of the elements in a camera lens should be so treated, the application of the film is more easily accomplished in the manufacture of new lenses than on those already in use.

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The Summer Session extending from June to September includes many of the undergraduate subjects given during the academic year.

For information about admission, communicate with the Director of Admissions.

Any of the following publications will be sent free on request:

Catalogue for the academic year  
 Summer Session Bulletin  
 Educational Opportunities at the Massachusetts Institute of Technology

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