

1921-22



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CALENDAR, 1921-22

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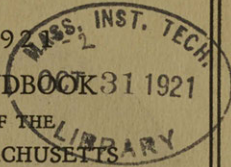
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25th Edition

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HANDBOOK 31 1921

OF THE
MASSACHUSETTS

INSTITUTE OF TECHNOLOGY

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TWENTY-FIFTH ANNUAL EDITION

1921-22

Presented by the

Technology Christian Association

To _____

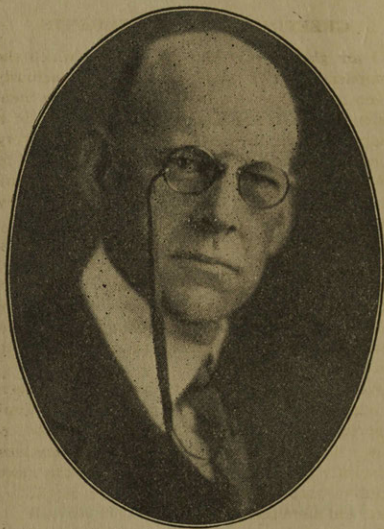


Photo by Bachrach

DR. ERNEST FOX NICHOLS

Inaugurated President of the Massachusetts
Institute of Technology, Wednesday, June 8, 1921.

GREETING TO NEW STUDENTS

I am glad to take this opportunity which the compilers of this little book have generously given me to greet the incoming Technology men. Being myself a newcomer to "Tech," I am in a happy position to know how you feel. I very much hope this little book will prove as useful to you as it surely will be to me and that you may find the Association which issues it as friendly and congenial as I have.

I have looked through last year's copy of the Technology Handbook and have been unable to find any propaganda or ax grinding in it. It is just what it appears to be, a book compiled by unknown friends of ours to help you and me to an understanding appreciation of what the Institute has to offer us.

We are all looking at the Institute as a place of opportunity—intellectual, moral, and spiritual opportunity. No one of these can we afford to miss. Without regard to age we find ourselves constantly preparing for something, and the most inclusive purpose of our preparation is for fuller, freer, and more useful living.

This book lists many chances not stressed in the Institute's official publications and thus may well serve us as a useful supplement.

ERNEST FOX NICHOLS.

A HISTORICAL SKETCH

The history of the Massachusetts Institute of Technology is directly associated with the lives of three great men, William Barton Rogers, Francis Amasa Walker, and Richard Cockburn MacLaurin. In 1860, Rogers prepared a memorial asking that certain land in Back Bay be set apart for a polytechnic college; and in the fall of that year the Institute was founded.

When the Institute opened in 1865, there were only fifteen students. President Rogers guided the destinies of the growing school until 1870 when illness compelled his resignation. The decade from 1870 to 1880 was the most critical one in the Institute's history, and but for the heroic devotion of the Faculty and the generosity of a few stalwart friends, the Institute would have had to close its doors. Despite his failing health, President Rogers again undertook the duties of the presidency. Death came to him upon the platform in Huntington Hall while he was addressing the graduating class of '82. In the words of his successor, "All his life he had borne himself faithfully and heroically, and he died, in the harness, at his post, and in the very part and act of public duty."

General Walker was inaugurated as president in 1881. During his administration the Institute grew "from a struggling technical school to a great scientific university." In 1897 Walker died, like Rogers, at his post. At the time of his death there were twelve hundred students, but of far more consequence than the mere growth in numbers, was General Walker's influence upon the intellectual and moral tone of the school. His courage, energy, enthusiasm, and aggressive furtherance of the Institute's plan of education, were the main elements in its successful development.

After General Walker's death, Professor James M. Crafts acted as president for a short period, and upon his resignation, in 1900, Dr. Henry S. Pritchett was called to the presidency. Dr. Pritchett had previously been director of the

Coast and Geodetic Survey. During his administration the social activities and physical conditions of the Institute were greatly developed.

In 1905 a plan for affiliation between the Institute and Harvard University was carefully considered but it was finally decided that each institution should be developed independently along its own characteristic lines. Again in 1908, the matter of consolidation came up because of the McKay fund which was donated for the establishment of a technical school at Harvard, and which it was thought might be used to pay Harvard professors at Technology. The Supreme Court finally decided that any such plan would be a violation of the McKay trust. Consequently, there is no connection whatever between the two institutions except for the School for Public Health Officers, for graduate students.

Dr. Pritchett resigned in 1907 and his place was temporarily filled by Dr. Arthur A. Noyes, who was Director of the Laboratories of the Physical Chemistry at the Institute. Dr. Noyes held the chair for two years and made notable progress along educational lines.

On November 11, 1908, Prof. Richard C. MacLaurin, of the Department of Physics at Columbia University, was inaugurated as President of the Institute. In the ten years he was associated with the Institute, he succeeded in raising funds for a larger and greater Technology, attained his idealistic vision with the dedication of the new building at Cambridge in 1916, put the Institute at the service of the Government in the time of war, and then labored for an endowment fund which should leave him free to carry out his plans for more perfect organization for usefulness. Worn out by his successful struggle for money, he died on January 15, 1920. To him, more than to any single man, the world owes the new Institute. All Technology holds in sorrow now, and will hold in enduring pride throughout the future, the memory of Dr. MacLaurin, physicist, lawyer, administrator, intimately associated at previous periods in his career with the academic life of three continents, the self-sacrificing guide of America's greatest scientific school.

After Dr. MacLaurin's death the affairs of the Institute were taken over by a committee of three: Professor H. P. Talbot, of the Department of Chemistry, as chairman, Professor E. B. Wilson, of the Department of Physics, and Professor E. F. Miller, of the Mechanical Engineering Department. Mr. Elihu Thomson, of the General Electric Company, was appointed acting president.

On March 30, 1921, Dr. Ernest Fox Nichols, former president of Dartmouth College, was elected president of Technology. Through his appointment, Technology received another great scientist and educator. Intensely interested in research, Dr. Nichols has become one of the foremost investigators of his day. To this may be added his keen foresight and executive ability, which makes him especially fitted to assume the leadership of Technology and to guide her on new plans of service.

WALKER MEMORIAL

The Walker Memorial is a gift of the Alumni to the undergraduates of Technology to be used as a social and recreational center. It was completed in 1916 at a cost of over half a million dollars, but was only available to the students for a comparatively brief period, having been turned over by the Institute to the United States Naval Aviation Detachment for quarters and executive offices.

The building contains offices for student activities, a large dining room, seating 900 people and three small dining rooms seating 200, 60, and 50 respectively; a library and reading-room; a faculty and alumni reading-room, and two lounge rooms; a large gymnasium, with locker room and showers; two handball courts and a boxing room; as well as bowling alleys and pool and billiard tables. On the grounds adjoining the Memorial are two baseball diamonds and eight tennis courts.

The government of the building is vested entirely in the hands of students and is administered by a sub-committee appointed by the Institute Committee.

M. I. T. ATHLETIC ASSOCIATION RECORDS

Event	Record	Holder	Year
100-yard dash	10 1-5 s	R. S. Franklin	1903
		C. W. Loomis	1915
		T. P. Spitz	1921
220-yard dash	22 s	C. W. Gram	1909
440-yard run	50 3-5 s	A. D. Smith	1920
		T. P. Spitz	1921
880-yard run	1 m. 57 s.	Garvin Bawden . . .	1921
1-mile run	4 m. 24 4-5 s.	R. G. Brown	1915
2-mile run	9 m. 35 3-5 s.	F. F. Cook	1915
120-yard hurdles	16 2-5 s.	F. L. Ovington	1904
220-yard hurdles	25 4-5 s.	G. P. Burch	1899
Shot put	42 ft. 6 in.	F. H. Leslie	1914
Hammer throw	158 ft. 6 in.	C. G. Dandrow	1921
Discus throw	127 ft. 1-2 in.	W. D. Pinkham	1921
High jump	6 ft. 7-16 in.	C. D. Heywood	1893
Broad jump	22 ft. 7 1-4 in.	C. S. Reed	1916
Pole vault	12 ft.	Nagle	1919
56 pound weight	32 ft. 6 in.	C. G. Dandrow	1921

INSTITUTE CALENDAR

	1921	1922
College Year Begins.....	Oct. 3	Oct. 2
Semi-Annual Examinations.....	Dec. 16-22	Dec. 15-21
Christmas Vacation	Dec. 23-Jan. 2	Dec. 22-Jan. 1
	1922	1923
Second Term Begins	Jan. 3	Jan. 2
Condition Examinations *and March Recess...	Mar. 12-19	Mar. 11-18
Third Term Begins.....	Mar. 20	Mar. 19
Third Term Ends	May 29	May 29
Annual Examinations	May 31-June 12	May 31-June 12
Last Examination, Fourth Year	June 2	June 1
Commencement Day	June 9	June 8
Surveying Summer Camp Begins.....	Aug. 1	Aug. 1
Entrance Examinations Begin.....	Sept. 23	Sept. 23

Exercises are omitted on legal holidays.

*Condition examinations of the first term are held during the first part of this week.

ABOUT THE NEW TECHNOLOGY

March 19, 1913—Architect, Mr. Wm. W. Bosworth, was chosen.

December, 1913—Contractors, Stone & Webster, authorized to begin.

April, 1914—First run of concrete.

Cost of educational buildings now under construction, approximately five million; as planned, seven million.

Total cost of complete plant as planned, ten million.

Construction of reinforced concrete, faced with Bedford Limestone, except on interior courts which are faced with brick.

Practically all the foundation on piles from 15 to 40 ft., 25,000 piles being used.

Single floor area, $3\frac{1}{2}$ acres.

Great court, 360 feet square.

Minor courts, 165 feet square.

Buildings about the major court, four stories.

Wings about the minor courts, three stories.

Height of library dome, 150 feet.

Area for present educational buildings, 12 acres.

Area for future educational buildings, 14 acres.

Area for student portion, Walker Memorial, dormitories, etc., 8 acres.

Area of athletic field, 7 acres.

Total grounds, 50 acres.

Entered, fall of 1916.

Dedication exercises of new M. I. T., June 12, 13, 14, 1916.

Cornerstone of Walker Memorial laid June 2, 1916.



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Photo. by Lieut. Haggkovist, '16

ADVICE FOR THE FRESHMEN

1. The colors of Technology are cardinal red and silver gray.

2. The Institute songs and yells are given in this book. Freshmen are expected to know them all. The Stein Song is your Alma Mater song.

3. Know your classmates. They are the ones who will make your stay at the Institute enjoyable and be helpful to you in later life.

4. Lead the strenuous life; athletics and activities welcome you. The Institute is more than a mere workshop; it is a place of opportunity for the development of all that is best in a man. The more you put into it, the more you get out of it.

5. No insignia or numerals other than those awarded by the Advisory Council or M. I. T. A. A. may be worn by undergraduates in the Gymnasium or on the Athletic Field.

6. The Walker Memorial is a building for your use and offers not only social advantages, but also eating facilities at a reasonable price. Patronize your college cafeteria and grill room. The offices of the Student Activities are also in the Walker Memorial Building.

7. Payment of the Student Tax enables you to obtain expert medical advice, free of charge, from the Institute physician, whose office is in room 3-015.

8. Suitcases, coats, and similar personal effects may be checked free of charge in the basement of Walker Memorial.

9. Do not reserve your room before arriving in Cambridge. The best way to get a good room is to come a few days early, get a list of approved rooms at the T. C. A. and make a personal investigation of various rooms in different localities before making a selection.

10. Technology is one of the hardest engineering schools in the country, but that is no excuse for becoming a grind. Go out for some activity, and follow it up. It will furnish excellent relaxation, as well as giving valuable training and experience.

THE WORDS OF THE FOUR PRINCIPAL TECH SONGS

A STEIN SONG

Give a rouse then, in the May-time,
For a life that knows no fear!
Turn the night-time into day-time
With the sunlight of good cheer!
For it's always fair weather
When good fellows get together,
With a stein on the table
And a good song ringing clear.

Chorus:

For it's always fair weather
When good fellows get together,
With a stein on the table
And a good song ringing clear.

Oh, we're all frank and twenty
When the spring is in the air;
And we've faith and hope a-plenty,
And we've life and love to spare;
And it's birds of a feather
When good fellows get together,
With a stein on the table
And a heart without care.

Chorus:

And it's birds of a feather
When good fellows get together,
With a stein on the table
And a heart without a care.

For we know the world is glorious,
And the goal a golden thing,
And that God is not censorious
When His children have their fling;
And life slips its tether
When good fellows get together,
With a stein on the table
In the fellowship of spring.

Chorus:

And life slips its tether
 When good fellows get together,
 With a stein on the table
 In the fellowship of spring.

When the wind comes up from Cuba,
 And the birds are on the wing,
 And our hearts are patting juba
 To the banjo of the spring,
 Then life slips its tether
 When good fellows get together,
 With a stein on the table
 In the fellowship of spring.

Chorus:

Then life slips its tether
 When good fellows get together,
 With a stein on the table
 In the fellowship of spring.

TAKE ME BACK TO TECH

I wish that I were back again
 At the Tech on Boylston Street,
 Dressed in my dinky uniform,
 So dapper and so neat.
 I'm crazy after Calculus;
 I never had enough,
 It was hard to be dragged away so young;
 It was horribly, awfully tough—
 Oh! give me some 'Ology, 'Ology,
 tra-la-la-la———
 Any old kind of 'Ology,
 Tra-la-la-la-la-la-la-la-la-la.

Chorus:

Take me back on a special train
 To the glorious Institute—
 I yearn for the inspiration of
 A Technological toot!—
 I'd shun the physical, quizzical Prof.,
 And chapel and all that;—
 But how I would love to go again
 On a Scientific Bat.

Oh, back to the days that were free from
 care
 In the 'Ology 'Varsity shop,
 With nothing to do but analyze air
 In an aneometrical top;
 Or the differentiation
 Of the trigonometric powers
 Of the constant pi that made me sigh
 In those happy days of ours.

'Rah for TECHNOLOGY!
 'OLOGY, 'Ology, oh———
 Glorious old TECHNOLOGY!
 'Ology, 'Ology, 'Ology, 'Ology.

M-a-S-s-A-c-H-u-S-e-T-t-s
 I-n-S-t-I-t-U-t-E- o-F t-E
 C-h-N-o-L-o-G, and Y comes after G.
 Massachusetts Institute of Technolo-gee.

'Rah for TECHNOLOGY!
 'OLOGY, 'Ology, oh———
 Glorious old TECHNOLOGY!
 'Ology, 'Ology, 'Ology, 'Ology.

TECH IS HELL

WE ARE HAPPY—TECH IS HELL!
 T-E-C-H-N-O-L-
 O-G-Y TECHNOLOGY!
 TECHNOLOGY!
 TECHNOLOGY!
 TEAM!
 TEAM!
 TEAM!

THE CARDINAL AND THE GRAY

The team is out, all sing and shout,
 We'll show them how to win.
 The men are strong, the battle long,
 And now they're digging in.
 So shout and cheer and let them hear
 That Tech is with them now.
 Cheer Tech—Cheer Tech—Cheer for the victory.

Chorus:

Three cheers for Tech—Our lay will surely win
 the day;
 All shout and sing for the Cardinal and the
 Gray.
 With every "T" let your voice and spirit be,
 Fight with all your might and give to Tech the
 victory.
 Rah—Rah—Rah—Three cheers for Tech—
 Our lay will surely win the day!
 All shout and sing for the Cardinal and the Gray.
 With every "T" let your voice and spirit be.
 Fight with all your might, and give to Tech the
 victory.

When Tech is out, we all will shout,
 And loudly we will cheer.
 Our colors high will ever fly,
 Our voices all will hear,
 For Tech is best and tall the rest
 Cheer Tech—Cheer Tech—Cheer for the victory.

THE TECH CHEER

M. I. T. Rah! Rah! Rah!
 M. I. T. Rah! Rah! Rah!
 M. I. T. Rah! Rah! Rah!
 Technology! Technology! Technology!

RETROSPECTION

For Optimists and Pessimists

Air: Auld Lang Syne.

Oh TECH as I look back to thee
My eyes are filled with tears;
I'll ne'er forget the place in which

I spent such { happy
 wretched } years.

And as I look upon my life
 { With fortune at my beck }
 { Which is a total wreck } }

I { bless with all my heart and soul, the day }
 { wish that I'd been sent to jail, before }
I entered TECH.

The old professors { kind and good }
 { sour and cross }

To whom I did recite,

How { grieved } they'd be when I would fail,
 { pleased }

How { glad } when I'd be right,
 { sad }

And as I look (etc.)

The Faculty, their { kindly note }
 { cursed vote }

With { joy the fact did state, }
 { pain I did receive, }

Informing me in { friendly } tones
 { gleeful }

That I would { graduate. }
 { have to leave. }

And as I look (etc.)

The things I studied while at TECH

 { How useful they have been! }
 { Such useless, foolish truck! }

I've used this knowledge { many times }
 { just two times }

 { My way in life to win. }
 { And each time I got stuck. }

And as I look (etc.)

CLASS OFFICERS

1922

President	D. F. Carpenter
Vice-President	D. R. Linslye
Secretary	A. L. Johnson
Treasurer	W. C. Roberson
Institute Committee.....	{ H. J. Horn, Jr. T. H. Gill
Executive Committee.....	{ L. S. Vadner A. S. King

1923

President	C. C. Taylor
Vice-President	R. P. Shaw
Secretary	J. H. Evans
Treasurer	G. A. Rowen
Institute Committee	{ A. J. Wescott D. C. Sayre
Executive Committee.....	{ H. J. Flanagan P. C. Putnam

1924

President	A. J. Kemp
Vice-President	D. H. Keck
Secretary	Miss H. W. Hardy
Treasurer	W. G. Peirce
Institute Committee	{ L. P. Marsh E. S. Bates
Executive Committee	{ C. M. Phelps G. F. Eaton

UNDERGRADUATE ACTIVITIES

If you come to Tech with the preconceived notion that all you are expected to do is study, get it out of your head as soon as possible. You will have to study and study hard. But remember that the grind rarely makes the good engineer. Go out for activities, and thereby serve Tech and enrich your own college life. As soon as you enter Tech in the fall start to get a line on the various activities. Choose some one, or possibly two, for which you feel yourself especially fitted, either through liking or natural ability and, **stick to them.** Avoid scattering your efforts over too many, else you are likely to lose out altogether.

Below will be found short articles on most of the important activities:

FIELD DAY

During the past twenty years the athletic leadership of the two lower classes has been determined by athletic contests held at FIELD DAY. This does away with the old cane rushes and fight between the freshmen and the sophomores and in their place substitutes a sporting proposition that has proved most successful.

For the freshmen, Field Day is more than a contest against the sophomores, as it is the beginning of their lives in activities at the Institute. Make your start a success and your career as a live man is assured. It is here that the majority of your acquaintances begin from which your best friends are formed. Don't miss the opportunity of being one to help engrave the numerals of your class on the Field Day Cup.

Field Day consists of four parts; a football game, a crew race, a relay race, and a tug-of-war. Football and the relay race each count four points, crew three, and tug-of-war, two, the class winning the greatest number of points being the winner. As the contests are held in the early part of November it means that the winners must show some pep in getting their practice started. Coaches and supervising managers are furnished by the upper classes, the juniors being the sponsors for the freshmen and the seniors for the sophomores.

M. I. T. ATHLETIC ASSOCIATION

The M. I. T. A. A. consists of the captains and managers of recognized athletic teams at the Institute and also the three undergraduate members of the Advisory Council on Athletics. Its object is to promote and supervise athletic interests at Technology.

The managers and assistant managers of all athletic teams are elected by the Athletic Association and are directly responsible to that body.

The M. I. T. A. A. awards all class numerals, and passes upon and recommends all other insignia rewards to the Advisory Council on Athletics, which awards them.

TECHNOLOGY ATHLETIC CLUB

The Technology Athletic Club was organized in 1920 for the purpose of stimulating interest in athletics. Its membership is open to any member of the undergraduate body, faculty, or alumni. The activities of the Club are carried on by an Executive Committee, composed of the President, the Vice-President, the Secretary, the Treasurer, the President of the Athletic Association as an ex-officio member, and the Chairmen of the Committees on Arrangements, Publicity, and Entertainment. The officers of the Club are elected by popular ballot, cast by the members of the Club, and the chairmen of committees are appointed by the Executive Committee after the results of the year's competition have been made known by the ex-chairman.

The duties of the Executive Committee are (1) to direct the policy of the organization in regard to its relations with the Athletic Association, the undergraduate body, and the alumni; (2) to promote any new function which may seem desirable for the furthering of athletics; (3) to act as a check on the different branches of the organization.

The Publicity Committee promotes interest in Technology athletics in general through photographic, newspaper and poster work.

The Arrangements Committee takes care of the ticket sale for all athletic events at the Institute, the seating of the audience, and other details of the meets.

The Entertainment Committee supplies suitable entertainment and accommodations to visiting teams.

THE TRACK TEAM

Track is Technology's athletic mainstay, and has, for a long time, been the major sport at the Institute. There are three important divisions in track; Cross Country in the fall, Relay and Indoor Meets in the winter, and Outdoor Meets in the spring. Besides the Varsity teams there are Freshmen teams in all of these events.

The Varsity last fall schedule included cross-country runs with Harvard, Dartmouth (Hanover) the N. E. I. C. A. A., and the I. C. A. A. A. A. (New Haven). The Freshmen teams also run against Harvard and in the I. C. A. A. A. A.

In the winter, relay teams and individuals participate in the B. A. A. indoor meet, Millrose (New York), Legion Meet, and the Johns Hopkins Meet (Baltimore). The Freshmen were in the B. A. A. Meet, and had dual indoor meets with Andover (Andover), and Worcester (Worcester) Academies.

The Varsity spring schedule included the following outdoor meets: Handicap Meet, Inter-Class Meet, Penn Relays (Philadelphia), Harvard Dual Meet, Dartmouth Dual Meet, N. E. I. C. A. A. and I. C. A. A. A. A. Meets. The Freshman outdoor schedule included the Handicap and Inter-Class meets and contests with Exeter, Andover, and Worcester Academies, away from home.

Technology has always put a strong team into the field and has produced not a few Intercollegiate champions. But few teams are composed wholly of champions, and the Track Team offers almost unlimited opportunities for everyone.

CREW

The aim in Crew has been to benefit as many men as possible by giving large numbers of men

enough coaching to row with correct form rather than to concentrate the efforts of the coach on one or two crews.

In the fall the freshmen and sophomores practice in preparation for the field day race, which occurs on the first Friday in November. Very keen rivalry exists in this field day event. Last year the class of 1923 won from the class of 1924 by one-eighth of a length and broke the course record. Preliminary to the first race the second eight race is held. The winning first crew and its manager are awarded numerals.

Last spring about 175 men turned out for first practice, 50 of whom were carried through the season. The varsity crew had races with Norton Boat Club, Harvard, Union Boat Club, and Yale.

The freshmen eight had seven races with trips to Exeter, N. H., Groton, and Worcester. Races were also secured for the junior varsity and second varsity as well as the second freshmen eight and the freshmen four so that all crews had outside races.

There are four places in the management open to freshmen, the awards being made after a short competition in the fall and spring months.

SWIMMING

The Swimming Team has made a record within the last six years which places it among the foremost college teams in the country. The season consists of from eight to twelve dual meets with the fastest university and college teams in the east, including Harvard, Dartmouth, Penn, Yale, Annapolis, and other colleges. The call for freshman and varsity candidates is issued shortly after Field Day, and each candidate is given individual attention. Previous experience, while desirable, is by no means necessary, for some of Technology's best swimmers, divers, and plungers have developed from inexperienced men. Practice is held at the Boston Y. M. C. A. pool on Huntington Ave. The freshman team has a schedule of about eight meets with leading academy and college freshmen teams. Freshmen may substitute swimming for the regularly required gymnasium work.

WRESTLING

Wrestling, one of the oldest, has now become one of the important sports at the Institute. Last season the team was very successful, having on its schedule Harvard, Yale, Princeton, Brown, and others. Several men won gold medals and championships in the N. E. A. A. U. meet, following which a man was sent out to California to take part in the National Amateur Championships.

Technology is particularly fortunate in having for this year as instructor, Cyclone Burns, the well-known professional, who so successfully coached the team last season. It is not necessary that men shall have had previous experience, as the coach gives individual instruction to all men. Numerals are awarded to the freshmen team and wTt's to the varsity.

Plans have been arranged for a lively schedule and several good trips this season, so all men are urged to come out and participate in a sport which may be substituted for freshman gym and is a great assistance to physical development.

TENNIS

The freshman teams, like the varsity have been of excellent quality, and are considered among the best college freshman teams in New England. During the fall term a tennis tournament is held, the winner of which is awarded a tTt. Positions on the team are decided by elimination matches, and subsequent changes in the ranking are made by challenging. The four highest men comprise the team. The varsity plays the leading college in New England, while the freshmen play college second and freshman teams, as well as those of the leading preparatory schools. The varsity also participates in the National Intercollegiates. The freshmen teams, like the varsity, have been of excellent quality, and are considered among the best college freshmen teams in New England.

FENCING

Last year the team fenced Harvard, Yale, Bowdoin, Columbia, and the Bridgeport Y. M. C. A. and the results of these meets showed the great possibilities for the coming year. By special arrangement with the B. A. A., their coach will also coach Technology's men. Work includes not only the foils, but also the epee and the sabre. There is room on the managerial staff for three freshman assistants, who will be selected by a competition started soon after the opening of school.

HOCKEY

Last year the varsity hockey team played Dartmouth, Boston College, Harvard, and other colleges. A professional coach is employed and practices are held at the Arena three times a week. This gives men interested in hockey not only a chance to learn more about the game but also to possibly represent their college in collegiate competition.

To the freshman, Hockey should appeal strongly. It may be substituted for compulsory gym work during the winter. An attractive freshman schedule is arranged with Harvard, Tufts, and some of the surrounding high school teams. A trip to Andover and Exeter are also arranged. Three positions are open to freshmen on the managing staff. Two are chosen from these to be sophomore assistants, from which one is made manager in his junior year. By coming out for Hockey the freshman will have a chance to earn his numerals, and learn the game. This will put him in a good way to make the varsity team in later years.

THE GYM TEAM

Gym is steadily increasing in popularity in America as a college sport and especially so at Technology. The success of the past two years makes it apparent that Technology's Gym Team ranks high among college teams. The schedule for the coming season includes some big trips.

As in other years it is planned to meet Harvard, Princeton, Yale, Dartmouth, Haverford, and Penn, and in addition, Brown. Besides the regular meets, the Intercollegiate Gym Meet is to be held at Technology this season. Freshmen may substitute Gym Team work for the usual physical training requirement.

BOXING

Boxing, although one of the Institute's youngest sports, has, in the two years since its establishment become one of our most popular forms of athletics. Last season's varsity and freshman teams gave very creditable exhibitions and the successful candidates were awarded their insignia. Under Coach Boutelier, the candidate for Boxing will get an excellent opportunity to develop and quicken his mind and body and will find Boxing a real man's sport. Freshman candidates for Boxing are excused from the compulsory Freshman Physical Training. Freshmen are eligible to compete for the position of second assistant manager, with the possibility of becoming manager in their Junior year.

BASKETBALL

Last year basketball was a very active sport at the Institute and the varsity played many of the leading colleges. As the basketball season is during the winter there is an excellent opportunity for track and crew men to keep in condition and at the same time partake in an interesting sport. As basketball was just started last year new men enter the sport without the handicap of playing against veterans who have played together a long time.

THE RIFLE TEAM

Since the building of the new range on the east side of the athletic field, the facilities for rifle practice at Technology have been greatly improved, as the range is one of the best in New England. The teams have been very successful during the last few years. The varsity season

consists of a series of ten matches for the Inter-collegiate championship, and about eight dual matches with such colleges as Harvard, Princeton, Columbia, and Dartmouth. The freshman team has a similar schedule. Institute insignia are awarded to the varsity and numerals to the freshmen. Positions on the managing staff are open to freshmen; competition starting about the middle of January, and lasting till March.

ASSOCIATION FOOTBALL

Association Football (Soccer), although comparatively new at the Institute, is now firmly established at Technology as a minor sport, and the third season has an extremely promising outlook. The varsity schedule includes Dartmouth, Harvard, Amherst, Clark, and Springfield Y. M. C. A. College. The freshmen will play Worcester, Andover, and several other teams. Varsity men are awarded a minor sport letter and freshmen their numerals. It may be substituted for the required gym work.

TECH SHOW

The Tech Show, which is produced each year during Junior Week, is a musical comedy written, staged, acted, and orchestrated entirely by undergraduates. It is one of the largest activities at Technology, over one hundred and fifty taking part in its production each year. Several performances are given in Boston, and trips are made to various New England cities including Northampton, where the show is regarded as one of the foremost college dramatic productions. The profits are used for various benefits. Those from Tech Show, 1921, went towards establishing a stage in the Commons Room at Rogers Building and towards the permanent fund for Tech Show.

The Tech Show is one of the large college activities entirely managed by undergraduates. Competitions for positions on the management are started early in the fall, and all the students are allowed to compete. The actual production of the play begins immediately after the Tech Show Smoker, which is held about the last of November.

At this time a call for candidates for the cast, chorus, and the ballet is issued. Competitions for lyrics, music, and the best poster and program cover are held during the fall term. The scenery and costumes, also designed by undergraduates are chosen by competition, and as a result, the most modern ideas in staging and producing are presented each year.

Under Tech Show management is the M. I. T. Orchestra with a membership of about forty men. A professional conductor is employed to coach the orchestra members. Concerts in and around Boston are given early in the year and then work is started on music for the Tech Show. All students who can play are welcome to try for a position in the orchestra.

MUSICAL CLUBS

The Combined Musical Clubs, co-ordinated under one management, is composed of the Glee, Mandolin, and Banjo Clubs. Of these the Glee Club is the oldest, having been started in 1880.

The personnel varies in number, twenty-five to thirty men being retained on each club after the first cuts. About forty men are taken on the annual trip. Each club has a leader and an assistant leader who instruct the men, assisted by professional coaches.

The requirements for admission to the various clubs are not hard and every man who has a voice or instrumental skill is urged to try out. There will be room this year for added specialties, and men who can recite or do solo work of any character are especially wanted. Tryouts are held soon after the opening of the school year, notice being given by means of the bulletin boards.

The Management of the Combined Musical Clubs is made up of a General Manager, a Treasurer a Publicity Manager, and four Sophomore Assistants. There are also four Freshmen Assistants selected by a competition which begins during the fall term. The survivors of this competition take an active part in the work of the clubs, thus gaining valuable business experience, and are in line for the higher positions during sophomore and junior years.

The chief musical events of the Institute year are the winter and spring concerts. The former was held last season in January at the Copley-Plaza and was the most largely attended in years. The spring affair which opened Junior Week festivities was held in Walker Memorial. In addition to these two functions the Clubs took a trip during the Christmas holidays through New York, Philadelphia, and Washington, giving concerts at these places and intermediate cities. There were also twenty local concerts, generally followed by dancing, given in the vicinity of Boston.

TECHNIQUE

"Technique" is the year-book of the Institute, and forms a permanent record of the events of the Institute year, including statistics regarding all Institute activities and organizations, and a portfolio consisting of a photo of each member of the Senior Class.

The Board of Publishers is made up of members of the Junior Class, and includes the following positions: Editor-in-Chief, Business Manager, two Associate Business Managers, Treasurer, Art Editor, two Associate Art Editors, Athletic Editor, Portfolio Editor, Societies Editor, Statistics Editor, Faculty Editor, Grinds Editor, Photographic Editor, and Associate Editor. There is also a Junior Board composed of sophomores and freshmen who compete for positions on the Technique Board for their respective classes. The Business Manager and his Associates, the Treasurer, and the Art Editor and his Associates are chosen by a competition conducted by the previous Board. The Editors are elected by the Technique Electoral Committee, which is composed of twenty-five sophomores chosen by their class in a popular election. The book is first distributed at the Technique Rush, the first event of Junior Week. Twenty copies autographed by the President of the Institute, are given to the winners of the Rush.

THE TECH

THE TECH, the undergraduate newspaper and official organ of Technology, was established November 16, 1881.

The scope of THE TECH includes the reporting of all student activities at the Institute of official notices, the doings of Technology alumni in the United States and abroad, and other articles of particular interest to the readers of the paper. Through the Eastern Intercollegiate Newspaper Association, of which THE TECH is a member, timely news from other colleges is available.

Calls for candidates are made several times during the year, the first competition, opening at the beginning of the fall term, being particularly for freshmen. Candidates may select either the operating or the financial division. The first includes news, editorial and feature writing, the sporting, alumni, photographic and art departments; the second embraces advertising, treasury and circulation work. The financial division offers an excellent opportunity to meet men in business and industry, and a chance to learn how to approach them. The editorial division gives men experience in meeting and interviewing other men, as well as in accurate, clear and interesting writing.

VOO-DOO

"Voo-Doo" is Technology's humorous publication. It appears monthly throughout the school year and enjoys a circulation unusually large for a college publication. The management consists of a literary department, art department, and a business department. Elections to the staff and board of all departments are made following open competitions.

Freshmen have a wide field in which to exercise their talents, for business, humorous, editorial, and artistic ability are needed for the proper management of the magazine. Any undergraduate is eligible for membership on the staff, leading to positions of greater responsibility for capable men.

TECH HANDBOOK

This 136-page booklet is published annually for the benefit of freshmen and transfers and is distributed at the opening of the fall term. It is intended to acquaint students more thoroughly with Technology and its student activities, to help them to acquire the true Technology spirit, and to provide them with a compact pocket source of information. It is given free of charge to all new men, and those remaining of the 2000 copies are given upon request to old men.

Competition for the business staff is held during the fall term and competition for the editorial staff starts with the second term. The editorial work furnishes an excellent opportunity to become thoroughly acquainted with Technology's activities, while the business work is very valuable and interesting experience.

THE TECH ENGINEERING NEWS

"The Tech Engineering News" appears monthly during the school year. Its purpose is to furnish general information of interest to undergraduates and alumni through the publication of up-to-date articles on engineering and technical subjects. It affords students an opportunity to develop a professional attitude by keeping them in touch with happenings in science, industry, and engineering.

This journal was organized under the sponsorship of THE TECH in November, 1919, and the first issue appeared in February, 1920. Since that time the development of every phase of its activity has been very rapid. New men of all degrees and varieties of talent will find the "Tech Engineering News" offers exceptional opportunities to gain practical journalistic and business experience. The News, Editorials, Advertising, Circulation, Treasury, and Publicity departments, each definitely organized, afford a very broad range of activity. Competitions for staff positions are open throughout the year.

CLEOFAN

Cleofan is a social club, to which any woman student at Technology is eligible for membership. Its purpose is to help women students to become better acquainted and to provide activities. Cleofan welcomes new women students to Technology, informs them of the "ins and outs" of the Institute, and tries to make them feel as much at home as possible.

CLUBS AND SOCIETIES

On page thirty-seven of this Handbook is a list of clubs and societies at Technology. Membership in those in the first group is elective, men being generally chosen from the three upper classes.

Membership in the second group is limited only by the qualifications indicated in the clubs' name. Only upper classmen (sophomores and above), are admitted to membership in the professional societies.

TECHNOLOGY CHRISTIAN ASSOCIATION

Officers

A. L. Johnson, '22.....	President
G. W. Potter, '22.....	Vice-President
G. P. Schumacker, Jr., '22.....	Treasurer
W. M. Ross.....	General Secretary

Cabinet

A. B. Kinzel, G.....	Employment Bureau
C. Y. Chittick, '22	Freshman Advisors
M. S. Dimmock, '22	Boys' Work
H. C. Gayley, '22.....	Room Registry
C. H. Hubbard, '22.....	Foreign Students' Work
J. S. Rafferty, '22.....	Church Relations
D. R. Shotwell, '22	Meetings Department
L. S. Vadner, '22.....	Technology Handbook
C. A. Brantingham, '23	Membership
J. M. Keck, '23	Social Department
D. Massey, '23	Bible Study
H. J. MacMillan, '24.....	Book Exchange
F. Stapleton, '24	Industrial Service

Advisory Board

P. R. Ziegler, '00, Chairman
H. S. Ford, Treasurer—Bursar, M. I. T.
Prof. H. P. Talbot, '85.
Prof. G. B. Haven, '94.
Prof. F. R. Kneeland.
W. B. Snow, '82.

Purpose

The Technology Christian Association aims to be of practical service to every student at the Institute, to help every man live up to the best

that is in him, and to help Technology realize its highest ideals. Its purpose is "To foster among the members of the Institute the best ideals of Christian living and to enlist them in active Christian service."

Membership

All students and members of the Institute who are in sympathy with the objects of the Association and wish to co-operate in promoting them are eligible to membership. No membership fee is charged but subscriptions to the budget of the Association are solicited.

Organization

There is an Advisory Board of alumni and faculty who maintain a General Secretary and his Assistant and sustain advisory relations with the undergraduate organization. Direction of all Association affairs is in the hands of the Cabinet composed of the officers and heads of departments. In the interim of Cabinet meetings, the business of the Association is carried on by the Executive Committee, which comprises the officers plus one Cabinet member, and meets weekly.

History

Previous to 1895 there was an organization of a few men known as the Technology Christian Union. In 1895 this was disbanded and a M. I. T. Y. M. C. A. was organized as a student branch of the Boston Y. M. C. A. In the spring of 1908 the Association was reorganized as the Technology Christian Association, a self-supporting, individual, Technology organization. Its affiliation is recognized with the Student Department of the Young Men's Christian Association of North America.

SERVICE RENDERED BY THE T. C. A.**Institute Year 1920-21**

- (1) 1300 Technology men furnished with rooms.
- (2) 1500 Handbooks distributed containing useful information about M. I. T. and surrounding community.
- (3) \$18,136 worth of work given to 476 different men.
- (4) \$1925 worth of books sold for and to students.
- (5) 460 freshmen furnished with advisors.
- (6) 19 men served weekly in Greater Boston as leaders of Boys' Work.
- (7) 22 men gave time weekly in factories, etc., to the human side of engineering.
- (8) 2100 different men attended three social and religious meetings led by Mr. Sherwood Eddy.
- (9) 254 foreign students in the "Stute" from 37 different countries. Special attention shown these men by special department.
- (10) 26 churches within one and one-half miles radius of Tech furnished with names of students of their denominations. Sunday attendance and young people's work promoted.
- (11) 9.00-5.30 office open daily in Walker. General Secretary or some person there to be of any assistance to everyone.

CHURCHES

The following churches in Boston and Cambridge* are the ones which Tech men attend most frequently.

Baptist

The First Baptist Church in Boston—Commonwealth Ave. and Clarendon St. Morning service, 11.30; Students' Bible Forum, 12.00; Students' Social Club, 7.30.

First Baptist Church in Cambridge*—River St. near Central Square; Morning Service, 10.30; Bible School, 12.00; Christian Endeavor, 6.15; Evening service, 7.30.

Old Cambridge Baptist Church*—Massachusetts Ave. and Harvard St. Morning service, 10.30; Students' Bible Class, 12.00; Christian Endeavor, 7.00.

Tremont Temple—Tremont St., near School St. Services 10.30 and 7.00.

Christian Science

First Church of Christ—Falmouth, Norway and St. Paul Streets. Sunday services, 10.45 and 7.30. Testimonial meeting every Wednesday evening, 7.30.

Congregational

Central Church—Corner Berkeley and Newbury Sts. Morning service, 10.30; Vesper service, 4.30; Central Club, 7.00.

Mount Vernon Church—Corner Beacon St. and Massachusetts Ave. Service, 11.00; Young People's Social Tea, 6.00; Evening service, 7.45.

Old South Church—Copley Square. Services, 10.30 and 7.30.

Prospect St. Congregational Church*—Near Central Square. Morning service, 10.30; Evening service, 7.30; Christian Endeavor, 6.30.

Episcopal

Trinity Church in the City of Boston—Copley Square. Morning service, 11.00; Evening prayer and sermon, 4.00.

The Cathedral Church of St. Paul—Tremont, at Park St. station. Services, 11.00, 4.00, and 7.30.

Church of the Advent—Mt. Vernon and Brimmer Sts. Services, 10.30 and 7.30.

Jewish

Temple Adath Israel—Commonwealth Ave. and
Blanford St. Services, Saturday, 10.30; Sunday
11.00.

Lutheran

St. Mark's English Lutheran Church—29
Winthrop St. Roxbury. Morning service, 10.30;
Sunday School, 11.45.

Boston Norwegian Lutheran Church—28 Bart-
lett St., Roxbury. Service 10.30.

Swedish Lutheran Agustana Church*—311
Broadway. Services, 10.30 and 7.30.

Methodist

Epworth Methodist Church*—Massachusetts
Ave. opposite Cambridge Commons.

Bromfield-Tremont Church—Concord and Tre-
mont Sts. Morning service, 10.30.

Grace Methodist Church*—Magazine St., cor-
ner Perry St.

Presbyterian

First United Presbyterian Church*—Inman
square. Service, 10.30.

First Presbyterian Church in Boston—Columbus
Ave. and Berkeley St. Service, 10.30.

Roman Catholic

The Cathedral—Washington and Union Park Sts.
St. Cecilia—Belvidere and St. Cecilia Sts., near
Boylston St. and Massachusetts Ave.

St. Mary's*—Harvard and Norfolk Sts.

Unitarian

First Church in Boston (1630)—Corner Berkeley
and Marlboro Sts. Morning service, 10.30;
Young People's Meeting, 6.30.

Second Church in Boston—Beacon St. and
Audubon Circle. Morning service, 11.00.

First Church in Cambridge*—Harvard Square.
Morning service, 11.00.

Arlington Street Church—Corner Arlington and
Boylston Sts. Morning service, 11.00; Junior
Parish Service for Students, Sunday 5.00.

Harvard Street Unitarian Church*—Corner
Harvard and Hancock St. Services, 10.45 A.M.

FRATERNITIES

- Alpha Tau Omega, 37 Bay State Rd., Boston.
Phone: B.B. 53137.
- Beta Theta Pi, 106 Sewall Ave., Brookline. Phone:
Bkline 57710.
- Chi Phi, 44 The Fenway, Boston. Phone: B.B.
3515.
- Delta Kappa Epsilon, 104 Charles River Rd.,
Cambridge. Phone: University 56598.
- Delta Psi, 428 Charles River Rd., Cambridge.
Phone: University 5667.
- Delta Tau Delta, 4 Ames St., Cambridge. Phone:
University 54755.
- Delta Upsilon, 526 Beacon St., Boston. Phone:
B.B. 54375.
- Kappa Sigma, 512 Commonwealth Ave., Boston.
Phone: B.B. 51568.
- Lambda Chi Alpha, 398 Marlboro St., Boston.
Phone: B.B. 57197.
- Lambda Phi, 493 Commonwealth Ave., Boston.
Phone: B.B. 8839.
- Phi Beta Delta, 57 Texteth St., Brookline. Phone:
Bkline 3777-R.
- Phi Beta Epsilon, 400 Charles River Rd., Cam-
bridge. Phone: University 52341.
- Phi Gamma Delta, 28 The Fenway, Boston.
Phone: B.B. 55921.
- Phi Kappa, 299 Newbury St., Boston. Phone:
B.B. 58468.
- Phi Kappa Sigma, 203 Bay State Rd., Boston.
Phone: B.B. 51369.
- Phi Sigma Delta, 1132 Commonwealth Ave.,
Brookline. Phone: Bkline 1998.
- Phi Sigma Kappa, 517 Beacon St., Boston. Phone:
B.B. 54565.
- Sigma Alpha Epsilon, 484 Beacon St., Boston.
Phone: B.B. 51395.
- Sigma Alpha Mu, 28 Plympton St., Cambridge.
Phone: University 53764.
- Sigma Chi, 532 Beacon St., Boston. Phone: B.B.
54057.
- Tau Delta Phi, 1234 Massachusetts Ave., Cam-
bridge. Phone: University 7532-J.
- Theta Chi, 161 Bay State Rd., Boston. Phone:
B.B. 55549.

- Theta Delta Chi, 344 Harvard St., Cambridge.
Phone: University 52966.
- Theta Xi, 406 Marlboro St., Boston. Phone: B.B.
54967.
- Tau Epsilon Phi, 234 Newbury St., Boston.
Phone: B.B. 54269.
- Zeta Beta Tau, 535 Newbury St., Boston. Phone:
B.B. 4317.

CLUBS AND SOCIETIES

- | | |
|---------------------------|------------------------|
| K ₂ S | Osiris |
| Pi Delta Epsilon | The Beaver |
| Theta Tau | Stylus |
| Masque | Alpha Chi Sigma |
| Vectors | Walker Club |
| Hexalpha | Cheops |
| Woopgaroo | |
| Latin American Club | Cosmopolitan Club |
| Catholic Club | Menorah Society |
| Rifle Club | Cleofan (Woman's Club) |
| Aeronautical Eng. Society | M. I. T. Radio Society |
| Norwegian Club | British Empire Club |
| California Club | Golf Club |
| Army Club | Chess Club |

PROFESSIONAL SOCIETIES

- | | |
|------------------------|------------------------|
| Civil Engineering | Mechanical Engineering |
| Architectural | Naval Architecture |
| Electrical Engineering | Corporation XV |
| Mining Engineering | Chemical |

MANAGERS OF TEAMS

- Track and Cross Country—M. N. Waterman, 39 Bay State Rd., Boston. Phone: B.B. 55921.
- Swimming—E. H. Miller, Tech Dormitory. Phone: University 57077.
- Wrestling—H. F. Pike, 400 Charles River Rd., Cambridge. Phone: University 52341.
- Hockey—F. A. Kinch.
- Crew—R. H. Smith, 4 Ames St., Cambridge. Phone: University 54755.
- Boxing—J. C. Nowell, 428 Charles River Rd., Cambridge. Phone: University 5667.
- Tennis—E. Bancroft, 428 Charles River Rd., Cambridge. Phone: University 5667.
- Gym—L. J. Porter.
- Rifle—J. V. Lund, Riverbank Court, Cambridge. Phone: University 2680.
- Soccer—J. E. Hoffman.
- Fencing—C. H. Blake.
- Basketball—R. S. Mahaffy, 104 Charles River Rd., Cambridge. Phone: University 56598.

Miscellaneous Phone Numbers

- M. I. T. Dormitories, 104 Charles River Rd., Cambridge. Phone: University 57077.
- The Tech, 302 Walker Memorial. Phone: University 7415.
- Voo Doo, 309 Walker Memorial. Phone: University 7849-M.
- The Tech Show, 301 Walker Memorial. Phone: University 7960.
- The Musical Clubs, 310 Walker Memorial. Phone: University 4186-W.
- M. I. T. A. A., 307 Walker Memorial. Phone: University 4186-M.
- T. C. A., 7 Walker Memorial. Phone: University 7416.
- Tech Engineering News, Walker Memorial. Phone: University 7415.
- Technique, 308 Walker Memorial. Phone: University 7922.
- Institute Committee, Walker Memorial. Phone: University 7849-W.
- Massachusetts Institute of Technology, Charles River Rd. Phone: University 6900.
- M. I. T. Radio Society, Building 35. Phone: University 58502.

CONSTITUTION
OF THE
Massachusetts Institute of Technology
Undergraduate Association

Preamble

Whereas, it seems wise that all activities among the students of the Mass. Inst. Tech. should be so organized and conducted as to work for the good of the welfare and renown of the MASSACHUSETTS INSTITUTE OF TECHNOLOGY, it is fitting that some central organization, chosen and controlled by the student body, should, as representing that body, have and exercise general powers as supervision over all individual activities insofar as they affect the student body as a whole.

To this end it seems necessary that the entire body of undergraduates should be brought together as a unit in order that legislation and executive powers may be transferred upon such a central body as is mentioned in the preceding paragraph. It is, therefore, enacted by the undergraduates attending the MASSACHUSETTS INSTITUTE OF TECHNOLOGY that such a general organization should be effected, and to this end the following constitution governing the student body is adopted:

CONSTITUTION

ARTICLE I

Name of Organization

The name of this organization shall be the MASSACHUSETTS INSTITUTE OF TECHNOLOGY UNDERGRADUATE ASSOCIATION.

ARTICLE II

Purpose

The purpose of this organization is to regulate and control the acts of the student body in its relation to the Institute and to the general public,

and to exercise such supervision over the several student activities as will insure that the same are conducted in the best interest of the student body as a whole and to the credit of the MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

ARTICLE III

Membership

All registered students at the Massachusetts Institute of Technology are by virtue of such registration members of this organization, such membership to be subject to such rules and regulations as may be herein or hereinafter enacted by this organization.

ARTICLE IV

Institute Committee

Section 1. All the legislative and executive powers of this association are hereby invested in a representative body to be chosen as hereinafter provided. This body shall be known as the INSTITUTE COMMITTEE.

Section 2. All acts and decisions of the Institute Committee shall be considered to be facts and the decisions of this Association, except that on petition presented in writing by fifty students, within ten days of the enactment of such acts and decisions by the Interstate Committee shall be presented to the Association for ratification or rejection, as is provided in Section 3.

Section 3. On receipt of a petition as provided in Section 2, the Institute Committee shall, within four days, issue a call for a general vote on the matter in question, the same being taken by written ballot within fourteen days but not earlier than seven days, after the issue of such a call. Two-thirds of the ballots cast shall be necessary to annul any act or decision of the Institute Committee.

Section 4. The Institute Committee shall consist of three members of each class, of whom one

shall be the Class President, the other two to be elected at large; and one from each of the following undergraduate organizations:

Architectural Society
Chemical Society
Civil Engineering Society
Cosmopolitan Club
Dormitory Committee
Electrical Engineering Society
Finance Committee
M. I. T. A. A.
Mechanical Engineering Society
Mining Engineering Society
Musical Clubs
Tech Show
Technique
Technology Christian Association
THE TECH
The Voo Doo
Naval Architecture Society
Walker Memorial Committee.

Section 5. Any other activity now existing or hereafter duly organized by the undergraduates may, by two-thirds vote of the Institute Committee, be granted representation thereon, and any activity having a representative on the committee may, by a similar two-thirds vote, be denied such a representation, provided notice of the proposed action of the committee shall have been given the members of the activity and full opportunity granted them to present arguments and reasons why such action should not be taken.

Section 6. After the acceptance of this Constitution by the student body, the election of representatives on the Institute Committee on the part of class organizations or other student activities shall be deemed an acceptance of this Constitution and its authority.

ARTICLE V

Organization of the Institute Committee

Section 1. The officers of the Institute Committee shall consist of a President, Vice-President, Secre-

tary and Treasurer, who, with two members elected from the Committee-at-large, shall constitute an Executive Committee.

Section 2. The President of the Senior Class shall be the President of the Institute Committee. All other officers of the Committee shall be chosen annually by the Committee by written ballot.

Section 3. The Institute Committee shall enact such By-Laws as may be deemed necessary, and not inconsistent with the provisions of this Constitution.

ARTICLE VI

Amendments

Amendments to this Constitution may be recommended by the Institute Committee or by a petition of one hundred (100) members of the association. Any amendments so recommended shall be submitted by the Institute Committee to the entire body for consideration and adoption. Full notice of such proposed amendments shall be submitted to the entire student body for consideration, by publication for posting at least thirty days before the day set for voting; two-thirds of the votes cast shall be necessary to adopt the same provided twenty-five percent (25%) of the total membership vote.

Article V, Section 1, was amended during the year from the original section reading:

"The officers of the Institute Committee shall consist of a President, Vice-President and Secretary-Treasurer, etc."

BY-LAWS

ARTICLE I

Name

The name of this organization shall be the Institute Committee, as provided for in Article IV, Section 1, of the Constitution of the Massachusetts Institute of Technology Undergraduate Association.

ARTICLE II

Purpose

The function of this Committee shall be such as is stated in Article IV, Section 1, of the Constitution.

ARTICLE III

Membership

Section 1. The membership of this Committee shall be as provided for in Article IV of the Constitution.

Section 2. The members of this Committee shall be chosen by the several classes and activities, and shall assume office upon election. Each activity shall send to the Institute Committee the name of its representative upon his election. In case the official representative cannot be present at a meeting the Institute Committee may send a substitute.

Section 3. The members of this Committee shall hold office for one year.

Section 4. All vacancies occurring during the school year shall be filled by the activity in question at a special election. With the representatives to the Committee from the classes the Governing Boards of the classes are given the right to fill such vacancies.

ARTICLE IV

Organization

The officers and executive committee of this Committee, as provided for by the Constitution, Article V, Sections 1 and 2, shall, with the exception of the President, be elected by written ballot at the first meeting of the Institute Committee after class elections in May.

Section 2. The Standing Committees of the Institute Committee shall be the:

- Walker Memorial Committee
- Point System Committee
- Bulletin Board Committee
- Budget Committee
- Activities Committee.

Section 3. The members of the Point System Committee and Bulletin Board Committee shall be appointed by the Executive Committee within two weeks after the first meeting of the Institute Committee, such appointments to be subject to ratification by the Institute Committee.

The Chairman of the Point System Committee and the chairman of the Bulletin Board Committee shall be chosen from the student body at large and shall be members of the Institute Committee, ex-officio.

The chairman of the Walker Memorial Committee shall be appointed from the Junior Class by the Executive Committee subject to ratification by the Institute Committee at its first meeting in May of each year, and shall hold office for one year.

Three other members shall be appointed at the same time as the chairman. At least two of these shall be Sophomores or Juniors during their term of office. The fifth member shall be the Walker Memorial Proctor, appointed by the Bursar.

The Budget Committee shall consist of the Treasurer of the Institute Committee as chairman, the Treasurer of the M. I. T. A. A., the chairman of the Finance Committee, two undergraduate members elected by the Institute Committee and three alumni members elected by the Alumni Council, and subject to the ratification of the Institute Committee.

The Chairman of the Finance Committee shall have a seat, ex-officio on the Budget Committee and the Chairman of the Budget Committee shall have a seat on the Finance Committee.

Section 4. Special Committees. There shall be a Finance Committee, which shall consist of a chairman, who shall be a Senior elected by the Institute Committee; and Treasurers of all the various classes and activities; and three Alumni members, the latter to be appointed by the Alumni Council, subject to ratification by the Institute Committee. Any activity shall be fined \$0.50 every time its treasurer is absent from a regular meeting of the Finance Committee.

Section 5. There shall be a Dormitories Committee, composed of seventeen duly elected residents of the dormitory, whose chairman shall be a dormitory resident and ex-officio a member of the Institute Committee.

Section 6. There shall be an Activities Committee, consisting of three men appointed by the Executive Committee, subject to the ratification of the Institute Committee. The chairman of this committee shall be ex-officio a member of the Institute Committee.

Section 7. A "Tech Night" Committee shall be appointed by the Institute Committee to arrange for the celebration of "Tech Night."

Section 8. Such other committees as may be found necessary shall be appointed from time to time.

ARTICLE V

Duties of Officers and Committees

Section 1. It shall be the duty of the President to preside at all meetings of the Executive Committee. It shall be his further duty to countersign all checks issued by the Institute Committee.

Section 2. The Vice-President shall assume the duties of the President in the absence of the latter.

Section 3. The Secretary shall keep all records of the Institute Committee and shall send notices to all members of the committee prior to each meeting.

Section 4. The Treasurer shall receive and have custody of all moneys of the Committee and shall disburse money only upon vote of the Institute Committee. He shall be bonded for such an amount as the Executive Committee deems advisable, at the expense of the Institute Committee. He shall be chairman, ex-officio, of the Budget Committee.

Section 5. The Executive Committee shall receive and consider all matters brought before it by the student body, and shall present to the

Institute Committee for action such matters as are deemed important, together with facts and recommendations pertaining thereto.

The Executive Committee shall hold a regular meeting before every regular meeting of the Institute Committee.

Section 6. It shall be the duty of the Point System Committee to enforce the Point System, which shall be as hereinafter provided for.

It shall be their further duty to keep the records of the Point System, and to report to the Institute Committee at every regular meeting the name of any man having overpoints.

Section 7. The Budget Committee shall investigate all proposed expenditures of the Institute Committee in excess of five dollars, and report through the Executive Committee on the advisability of the same. It shall, at the third regular meeting of the Institute Committee of each Institute year, present a budget of the Institute Committee finances for that year.

It shall investigate all proposed expenditures of any undergraduate organization receiving money from the Student Tax, and approve or disapprove of this expenditure as it sees fit. No Student Tax money shall be spent by undergraduates until such expenditures have been approved by the Budget Committee.

It shall submit copies of all approved budgets of undergraduate organizations spending Student Tax money, to the chairman of the Finance Committee, and also, shall submit copies of all approved budgets of athletic organizations spending Student Tax money, to the Treasurer of the M. I. T. A. A.

Section 8. The Walker Memorial Committee shall have charge of the student administration of the Walker Memorial and shall have the power of appointing any sub-committees it deems necessary, subject to the ratification of the Institute Committee. The Committee shall have published in each issue of THE TECH a schedule of undergraduate events. It shall maintain in the Walker Memorial a calendar of all undergraduate activities, on a board provided for that purpose.

The Committee shall cause to be posted a list of the names and addresses of the officers of all undergraduate activities, on a board provided for that purpose.

The Committee shall, by consent of the Dean, be authorized to assign all Institute rooms for the use of undergraduate activities, and shall, so far as possible, prevent any activity from holding meetings that would conflict with each other.

It shall be the duty of the Committee to demand of each class or activity a list of coming events; the list to be constantly kept up to date.

The Committee shall have the power of fining any activity which holds a meeting unauthorized by the Committee, the fine to be one dollar (\$1.00) payable to the Treasurer of the Institute Committee. Until such fine is paid, the Committee shall refuse to approve any application made by that society or club or class for reservation of time or room.

Section 9. The Bulletin Board Committee shall have charge and be responsible for the bulletin boards of the undergraduate body. All bulletin boards under the control of the Bulletin Boards Committee are hereby denied outside commercial interests.

They shall enforce any rules made by the Institute Committee, regarding the bulletin boards.

They shall report at every regular meeting of the Institute Committee.

It shall be the duty of the Committee to remove from the bulletin board such posters as do not conform to the standard size of 11 in. x 17 in.

It shall be the duty of the Bulletin Board Committee to receive posters, at the option of the activities and to affix thereto the stamp of the Institute Committee stating such posters to be the property of the Institute Committee. Each poster shall also be numbered and the number registered with a descriptive title.

Once a year or oftener the Bulletin Board Committee shall dispose of such posters by auction sale.

Section 10. The Finance Committee shall hold regular monthly meetings at such dates as they shall themselves choose. Special meetings may be called by the chairman of the Finance Committee.

It shall be the duty of the Finance Committee to make sure that all money appropriated by the Budget Committee is disbursed as allotted.

It shall also be the duty of the Committee to insist upon a clear businesslike financial report from every activity before the seventh day of each month, for the month preceding; such report to cover the following items at least:

Cash on hand at first of last month
Expenditures and liabilities
Receipts and assets
Balance on hand at end of month.

The Finance Committee shall have the power to audit the accounts of any activity when it thinks such action is advisable.

If the financial condition of any activity is such that in the opinion of the Finance Committee the activity will not be able to pay any debt incurred, the Committee shall have the power to insist upon some guarantee from the activity that the amount to cover such indebtedness will be raised.

In case any activity does not comply with the above measures the Committee shall refer the action of the activity to the Institute Committee.

Section 11. The Dormitories Committee shall be responsible for the student administration of the dormitories.

Section 12 The duties of the Activities Committee shall be:

1. To make an extensive report each year showing the number of men in activities, the percentage enrolment in activities on scholastic standing, the activities record of prominent alumni, the advantages of carrying some activity, the effect of activities, and the large amount of activities work to be done.

2. To prepare detailed lists and charts showing the organization of various activities, the offices of each and how they are secured, and the duties of such offices.

3. To give all possible publicity to its reports, lists and charts ; and

4. To keep in touch with various activities, keep a record of positions open and, by due publicity, endeavor to secure keen competition for these positions.

Section 13. The duties of any special committee appointed by the Institute Committee shall be such as are stated at the time of said appointment.

ARTICLE VI.

The Point System

Section 1. There shall be a Point System with ratings of all offices and membership in the several classes and activities, as follows: (Here a list of the ratings which may be found in the accompanying report of the Point System Committee.)

Section 2. No man shall be allowed to carry more than ten points except that a man may be in athletics or be a member of the musical clubs and hold one other office even though the total exceeds ten points.

Section 3. The exception in Section 2 shall not apply to managers or assistant managers of athletic teams.

Section 4. There shall be no commutation of points except by unanimous vote of the Institute Committee.

Section 5. Any student placed on probation by the Faculty is, during his probation, ineligible for any activity,* and is required to withdraw from any activity with which he is associated.

No one shall be allowed to resign from an office received by virtue of popular election in order to hold a subsequent position attained in a like manner.

ARTICLE VII.

Meetings

Section 1. The Institute Committee shall hold regular meetings every two weeks throughout the school year.

Section 2. Special meetings may be called at any time by the President or the Executive Committee. After three days, the President shall call a meeting of the Institute Committee, upon written request of ten members.

Section 3. The order of business for Institute Committee meetings shall be as follows:

1. Roll Call.
2. Reading of minutes of previous meeting.
3. Special business.
4. Reports of Standing Committee.
5. Reports of Special Committee.
6. Old business.
7. New business.

Section 4. "Roberts' Rules of Order" shall cover all procedures of this Committee except those covered by the Constitution and By-Laws.

ARTICLE VII.

Quorum

Section 1. A quorum necessary to transact any and all business of the Institute Committee shall consist of twelve men.

Section 2. No meeting shall begin or continue unless at least a quorum is present.

ARTICLE IX.

Dues

Section 1. The dues for representation on the Institute Committee shall be two dollars a year for representation and shall be payable during the first five weeks of the school year.

Section 2. Any representative whose dues are not paid by the second regular meeting each year of the Institute Committee shall automatically lose all vote and voice in the proceedings of the Committee—such loss to continue only until his dues are paid.

Section 3. The names of all activities delinquent in the matter of dues, shall be published daily in THE TECH until such dues are paid.

ARTICLE X.

Lateness and Absence at Meetings

Section 1. No fines shall be levied for lateness or absence of this Committee.

Section 2. The names of all members absent or late shall be published in the next issue of THE TECH after the meeting at which such lateness or absence occurs.

Section 3. If the full official representation of any activity is not present at two consecutive regular meetings of the Institute Committee, that activity shall forfeit its right to representation on the Committee, which representation shall not be allowed until the Institute Committee has been in receipt of a formal petition from the activity in question and has passed on the same in conjunction with the requirements for admission as stated in the Constitution.

ARTICLE XI.

Requirements for Institute Committee Representation

Section 1. The Committee recommends that, for the purpose of consideration, all undergraduate organizations applying for representation shall be classified either as an activity or a society. Activities shall be those organizations whose membership is determined by competition open to the entire undergraduate body, or by electoral committee election. All other organizations shall be classified as societies.

Section 2. It shall be required that an activity or society applying for representation on the Institute Committee present proof that it has been in existence for three consecutive terms.

Section 3. Activities applying for representation may be admitted to the Institute Committee provided they fulfil the prerequisite time requirement, and meet one or more of the following standards:

1. **Financial Standard.** The activity must show that a minimum of one hundred men entered in competition for positions on the activity during one Institute term.

2. **Tradition Standard.** The activity must have traditions which in the estimate of the Institute Committee, render it worthy of representation. The vote of two-thirds of the members of the Institute Committee shall be necessary to admit an organization under this standard.

Section 4. Societies applying for representation on the Institute Committee may be admitted provided they fulfill the prerequisite time requirement, and one of the following requirements:

1. **Membership Requirement.** The society must present proof that its organization includes fifty active members. The society must present proof that its membership is open either to all undergraduate students or all members of an Institute course.

2. **Service Requirement.** The society must present proof to the Institute Committee that it has been and is of service to the Massachusetts Institute of Technology in one of the following lines:

- (a) Service to undergraduates.
- (b) Dissemination of technical knowledge.

The Institute Committee must decide by the vote of two-thirds of its members whether the service is of sufficient value to render the organization worthy of representation.

ARTICLE XII.

Changes in By-Laws

Section 1. These By-Laws shall not be changed in any way so as to conflict with the Constitution of the Massachusetts Institute of Technology Undergraduate Association.

Section 2. Proper changes in these By-Laws may be made by two-thirds vote of the Institute Committee at any meeting of that body.

ARTICLE XIII.

Section 1. Chairman of the Election Committee.

1. One of the two Senior Class representatives on the Institute Committee shall be chosen Chairman of the Committee in charge of all elections.

2. The Chairman of the Elections Committee shall have the power to appoint the other members of his Committee; these appointments being subject to the approval of the Executive Committee of the Institute Committee.

3. It shall be the duty of the Chairman to see that all elections are carried out according to the rules herein stated.

4. The Chairman shall keep a complete list of students eligible to vote arranged according to classes in a book provided for the purpose. The official lists of voters shall be taken from this book. The book shall be revised yearly and whenever corrections are necessary.

5. The Chairman shall turn over to the Secretary of the Institute Committee, all ballots after an election, who shall keep them for one month and then destroy them.

Section 2. System of Voting.

1. The system of voting for all Class Elections and Junior Prom Committee Elections shall be the Australian ballot.

2. The system of voting for Technique Electoral Committee and Senior Class Day Committee Elections shall be the Hare-Spence system.

Section 3. Eligibility.

1. For elections to the Technique Electoral Committee Junior Prom Committee, Senior Class Day Committee, and Freshman Class Officers, the Chairman shall post a list of those eligible to vote for one week commencing ten days before the day of election.

2. Men whose names do not appear on these lists and who wish to vote shall apply in

writing to the Chairman, who shall notify the applicant as to whether his name has received approval.

Section 4. Nominations.

1. Those men whose names appear on the list provided by the Chairman shall be eligible for nomination.

2. The nominee shall have a nomination blank signed by his sponsors and himself.

3. For all Class Elections there shall be ten (10) sponsors' signatures to each nomination blank.

4. For the Junior Prom Committee, the Senior Class Day Committee, and the Technique Electoral Committee, there shall be five (5) sponsors' signatures to each nomination blank.

5. The nomination blank shall be submitted in the following form:

We, the undersigned, members of the Class of....., do hereby nominate.....
for..... of the Class of.....

At the bottom of the blank:

I hereby accept this nomination.

(Signature of nominee)

6. The list of nominees for all elections except for Senior Class Day and Technique Electoral Committees shall be submitted to the Chairman of the Point System Committee for approval. If he does not approve the nomination, the candidate shall be so informed.

7. Nomination papers shall be deposited in a locked box provided for the purpose.

Section 5. Form of Ballot.

1. The ballot shall contain a complete list of nominees.

2. It shall be perforated across one and one-half (1½) inches from the bottom edge. The lower portion shall contain a space for the voter's signature and shall have a number corresponding to that on the upper portion of the ballot. Each ballot shall be numbered consecutively.

3. In the annual spring Class Elections, the ballots of each Class shall be of a different color.

Section 6. Time of Election.

1. The Freshman Class Elections shall be held during the second week following Field Day.

2. The Technique Electoral Committee Election shall be held during the third week of January.

3. The Junior Prom Committee Election shall be held during the 2nd week of February.

4. The Senior Class Day Committee Election shall be held during the first week of March.

5. The annual spring Class Elections shall be held during the second week after Junior Week.

6. Elections shall be held on the Tuesday or Friday of the week specified. Nominations shall be published in the regular issue of THE TECH preceding the day of election. The nominations shall close at noon on the day before date of said issue.

7. The date of election and the date that nominations are due shall be announced two (2) weeks before the day of election.

Section 7. Regulations for Voting.

1. The regulations for the conduct of elections shall be announced in the issue of THE TECH preceding the day of election.

2. The voting for all elections shall be done in the room selected for the purpose by the committee, and there shall be no balloting by mail.

3. The room for election shall have one door for entrance and another for exit. The voter shall receive his ballot on entrance, which he shall fill out in a booth or screened table provided for the purpose. There shall be a space set aside for the voting booths. No one except those in charge of elections shall be admitted to this space unless there is an empty booth. The voter on exit shall separate the two portions of his ballot, dropping the upper portion in the ballot box, and giving the lower portion containing his signature to the attendant at the exit.

4. There shall be a locked ballot box, the key of which shall be held by the Chairman.

5. No votes shall be counted until the completion of the election.

6. Counting shall be done by members of the Election Committee only.

Section 8. Time of Taking Office.

1. The representatives of the Institute Committee elected at the annual spring Class Elections shall have no vote at the first meeting of the Institute Committee following said elections, except in the election of all members of the Executive Committee of the Institute Committee which shall take place at this meeting.

2. At the following meeting, the Executive Committee of the Institute Committee shall present nominations for Chairman of the following committees:

Walker Memorial Committee.

Bulletin Board Committee.

Point System Committee.

Activities Committee.

Finance Committee.

Section 9. General.

1. Any criticisms must be made in writing to the Chairman at least one day before elections.

2. Any question that arises in the conduct of elections that is not covered by the above regulations shall be left to the discretion of the Chairman to decide. Appeal from which can be made to the Executive Committee of the Institute Committee.

THE POINT SYSTEM

The Point System which has just been revised aims to prevent a student from carrying too much outside work to the detriment of his studies and to enable more men to take part in student activities. Each office and activity is assigned a definite number of points, and no man is allowed to carry more than a total of ten points excepting: that—a man may compete on an athletic team or be a member of the musical clubs other than managing, even when such participation given him is more than ten points.

The system was put in operation by the Institute Committee in the fall of 1908 and is enforced by the Point System Committee.

A man may not resign from a popular election position to accept a subsequent position.

A man on Institute Committee by virtue of some other office which he holds, shall have only the points attached to that office provided they exceed or equal 5: otherwise he shall have 5 points.

The ratings of the Point System are as follows:

The Classes: President: Senior 10, Junior 9, Sophomore 7, Freshmen 6.

Vice-President, all cases, 1. Secretary, all cases, 2. Treasurer, all cases, 3, Institute Committee, 5, Executive Committee 1, Junior Prom Committee 6, all other committees 1.

Athletic Association: President, 10, Vice-President 1, Secretary 4, Treasurer 8, all members of teams and all candidates 5. All captains 2 extra. Advisory Council 2.

Track: Manager 9, Sophomore Assistant 5, Freshman Assistant 4.

Swimming and Crew: Manager 7, Sophomore Assistant 5, Freshman Assistant 4.

Hockey, Wrestling, Tennis, Basket Ball and Gym: Manager 6, Sophomore Assistant 5, Freshman Assistant 4.

Rifle, Boxing, Golf, Fencing, and Soccer: Manager 5, Sophomore Assistant 4, Freshman Assistant 4.

Class Teams: Manager 4, Assistants 2.

T. A. C.: President 5, Secretary 2, Treasurer 3, Vice-President 1, Standing Committees 2.

The Tech: General Manager 10, Editor-in-Chief 9, Treasurer 9, Managing Editor 8, Advertising Manager 8, Circulating Manager 8, Chairman Editorial Board 8, Department Editors 7, Associate Editors 7, Assistant Advertising Manager 6, Assistant Treasurer 6, Assistant Circulation Manager 6, Editorial Board 5, News Staff 5, Business Staff 5, all candidates 4.

Technique: Editor-in-Chief 10, Business Manager 9, Treasurer 8, Societies Editor 8, Portfolio Editor 8, Athletic Editor 8, Grinds Editor 8, Statistics Editor 8, Faculty Editor, 8, Art Editor 8, Photographic Editor 8, Associate Editor 8, Associate Business Managers 7, Associate Art Editors 6, all candidates 4.

Voo Doo: General Manager 10, Managing Editor 9, Business Manager 9, Advertising Manager 8, Circulating Manager 8, Treasurer 8, Publicity Manager 7, Art Editor 8, Board of Managing Editor 7, Assistant Managers 5, Members of Business Staff 4, Members of Editorial Staff 4.

T. E. N.: General Manager 9, Editor-in-Chief 8, Treasurer 8, Advertising Manager 7, Managing Editor 7, Publicity Manager 7, Circulation Manager 7, Features Editor 6, Undergraduate Editor 6, Research Director 6, Chair Editorial Board 6, Assistants 5, Business and Editorial Staffs 4, all candidates 4.

Tech Show: General Manager 10, Junior Managers 8, Sophomore Asst. Managers 6, Candidates and Freshmen 4, Principals (Cast) 6, Chorus, Ballet, Orchestra 4, Directors, Scenery, Music, etc., 7.

Musical Clubs: General Manager 10, Treasurer 8, Publicity Manager 8, Leaders 6, Assistant Managers 4, Members of Clubs 4.

M. I. T. Orchestra: Managers 8, members 4.

T. C. A.: President 10, Vice-President 4, Treasurer 4. Director Freshman Advisors 4, Director Room Registry 4, Director Employment Bureau 4, Director Industrial Service 4, General Manager Handbook 4, Business Manager Handbook 3, Managing Editor Handbook 3, Director Boys' Work 3, Director Foreign Student's work 3.

Institute Committee: Treasurer 9, Secretary 8, Members from class 5, Members of Executive Committee 2 extra. Members and chairman of Election committee 1 extra. Members and chairman of Standing committees 1 extra. Members of standing committees not on Institute Committee 2.

Walker Memorial Committee: Chairman 8, Junior Members 5, Sophomore Members 3.

Point System Committee: Chairman 6, Members 4.

Bulletin Board Committee: Chairman 6, Members 4.

Activities Committee: Chairman 6, Members 4.

Finance Committee: Chairman 8, Secretary 2.

Executive Committee: Chairman 3.

Dorm Committee: Chairman 6, Treasurer 2, Other members 1.

Dorm Dance Committee: Chairman 3, all others 1.

Professional Societies: President 6, Vice-President 1, Secretary 2, Treasurer 2. Members of Governing Boards, directors, etc., 1.

Clubs and Societies: President 3, Vice-President 1, Secretary 2, Treasurer 2, Members of Governing Boards, directors, etc., 1.

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Manager.

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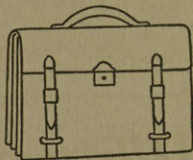
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11.00 A.M. Sermon and Holy Communion on the First, Third and Fifth Sundays. Morning Prayer and Sermon on the Second and Fourth Sundays.
4.00 P.M. Evening Prayer and Sermon.
7.15 P.M. Singing of Hymns.
7.30 P.M. Service and Address.

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FRIDAY

8.00 P.M. Public Service in Chapel.
(Dr. Gordon's Addresses: November to February.)

The Old South Club, an organization of the men of the church, meets on the second Monday of each month from October to April. Dinner is served at 6.30, and is followed by an address upon some topic of general interest by a speaker of eminence. A special invitation to attend the meetings of the club and to become members is extended to Technology students. Full particulars will be gladly furnished by the Corresponding Secretary, Mr. F. M. Erlenbach, 40 State Street, Boston.

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9-10							9-10
10-11							10-11
11-12							11-12
12-1							12-1
1-2							1-2
2-3							2-3
3-4							3-4
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12-1							12-1
1-2							1-2
2-3							2-3
3-4							3-4
4-5							4-5

