

# THE TECH

NEW TECHNOLOGY EQUIPMENT ISSUE

VOL. XXXV. NO. 57

BOSTON, MASS., WEDNESDAY, DECEMBER 22, 1915

PRICE TEN CENTS

## CHEMISTS TO HAVE ALL OF BUILDING SIX.

Special Provision Made for Industrial Research—Better Tables.

The laboratories and offices of the Chemical Department occupy the entire structure known as Building 6, which is parallel with the river and at the back of the small court on the right hand side, about one-half each of the basement, first and second floors of Building 8 at the right hand side of the large court, the whole of the fourth floor of this building, and a portion of the fourth floor of the Building which will be erected for the Mining Department, Building 12. The laboratories in the basement are those of

## LARGEST HYDRAULIC LABORATORY AT THE NEW INSTITUTE

Elaborate Equipment Planned—Facilities To Be Most Complete In This Country—Apparatus Partially Installed at Present.

In the new Technology, a space of about 74,000 square feet has been allotted to the Engineering Laboratories for the Departments of Civil and Mechanical Engineering. These have been divided into sections among which are the Hydraulic and Steam Hydraulic Laboratories. In the arrangement of the apparatus no attempt has been made to keep the sections separate. While they have been planned primarily for purposes of instruction, there is ample opportunity for research work in every branch.

The Hydraulic Laboratory is located in the long building which runs parallel with Massachusetts avenue, and the equipment occupies space in the

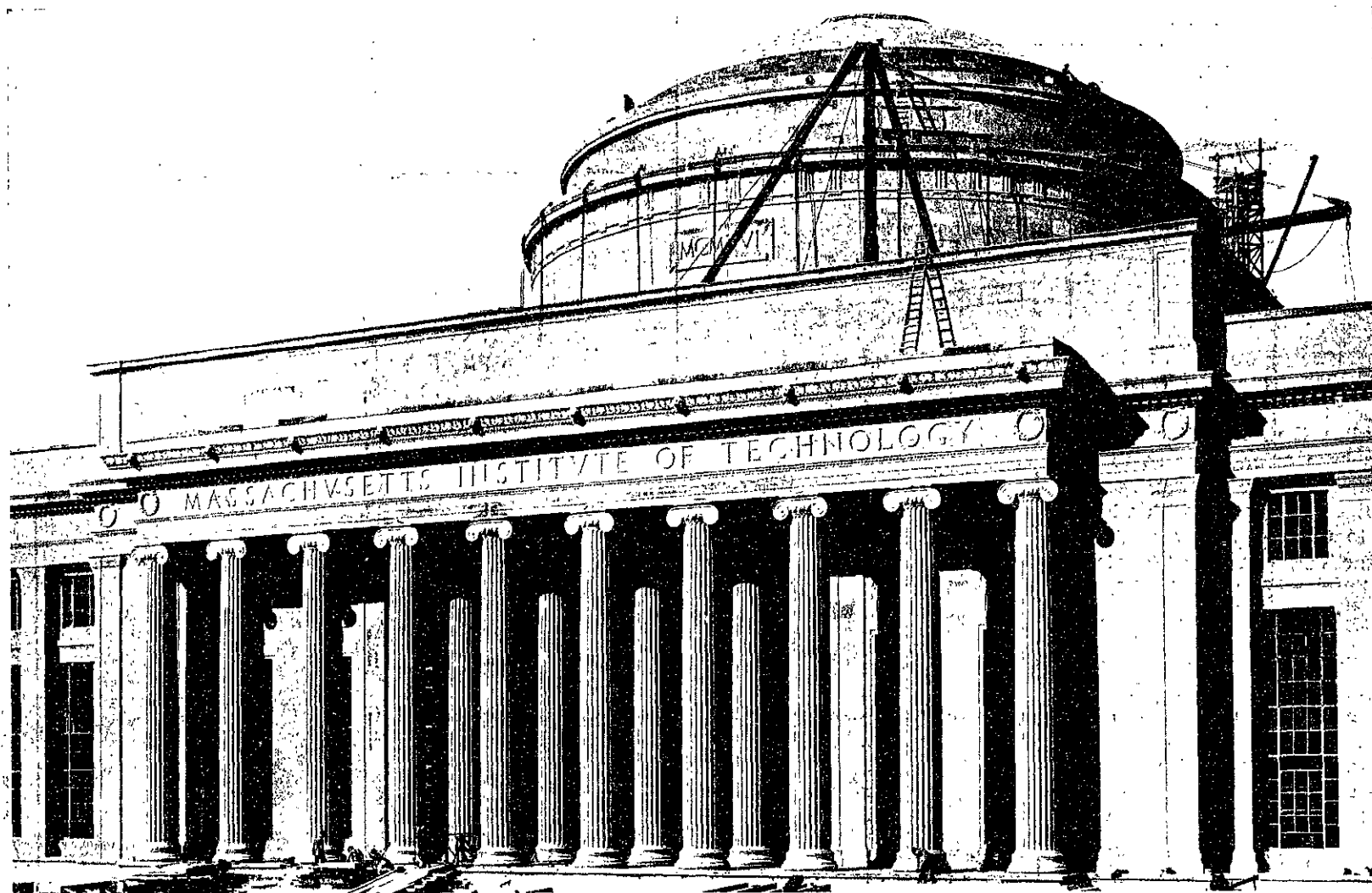
(Continued on Page Two)

## SUPERB ELECTRICAL EQUIPMENT GROWING

Course VI Affords Students Best Opportunities In United States.

The generous appropriations which the executive committee makes for the maintenance and betterment of the laboratories of the different departments have been so wisely used by the Electrical Engineering Department upon apparatus for instruction in its laboratories, that Technology can now boast of the finest and most complete electrical equipment of any engineering school in the United States and probably in the world.

Complete as they are, however, the laboratories are being severely taxed to supply instruction to the



THE LIBRARY FROM THE CENTRAL COURT.

Food and Water Analysis, and Technical Analysis. The entire first floor of Building 6 is occupied by the Industrial Laboratory and rooms connected with it, while the second and third floors of that building contain the Analytical Laboratories. Two large laboratories accommodate 128 students each. These large laboratories are in close proximity to special rooms, like those for spec-

(Continued on Page Seven)

## FACTS ABOUT THE NEW DOME

Built of two towers or drums, one set inside the other, the cap spanning the outer drum.

The inside drum tower is 110 feet in diameter, the outer one is 120 feet, the cap has a radius of 56½ feet.

The top of the cap is 147 feet above the street and 65 feet above the parapets.

Modelled after the Pantheon although smaller. Larger than that of San Sophia at Constantinople or the Christian Science Church in Boston, but smaller than St. Peter's in Rome or the Cathedral in Florence.

large number of students in course VI and allied courses. The apparatus in the dynamo laboratory in Lowell building is in continuous use during the entire week, with the exception of Monday mornings and Saturday afternoons. Increased enrollment has made it necessary to enlarge the equipment.

Since the requirements for instruction have been so thoroughly

(Continued on Page Two)

## PHYSICS DEPARTMENT TO HAVE BETTER ROOM AND FACILITIES

Entire Floor Provided For Electro-Physical Work—  
Special Rooms Arranged For Study Of  
Optics and Radio-Activity.



Concerning the physics department in the new buildings it may be stated that they will occupy part of the two wings directly east of the main dome, where there will be more space and better equipment than at present.

The electro-physical laboratory, at present on the first floor of Walker, will have almost the whole first floor of one wing. The laboratory of electrical measurements also will have a whole floor in another wing with specially fitted rooms for the study of radio-activity and photometry.

On another floor there will be considerable space fitted for the study of radio and wireless work. The instructors and assistants will each have an office instead of being grouped four or five in a room as at present.

Students doing special work in optics and photometry will find fully equipped rooms for this purpose instead of some room which nobody else happens to be using, as in Walker at present. The laboratory for the study of electric furnaces, at present crowded into the basement of Walker, will occupy nearly a whole floor.

## ELECTRICAL ENGINEERING DEPARTMENT

(Continued from Page One)

worked out and filled, no large expenditures will have to be made to make the new laboratories across the river absolutely the best possible. A great deal of Technology's equipment which is at present housed in the Pierce building at Harvard will be placed next year in the New Institute. The small but excellent apparatus of the Harvard Engineering School will also form part of the new equipment.

The department has been fortunate in obtaining plenty of excellent floor space for the housing of its new laboratories and instruction rooms. Two entire floors under the dome, and one floor extending the length of the wing on one side have been given to course VI.

Even after the instruction equipment has been enlarged so as to be amply sufficient for present needs, there will be money left with which to add to the research apparatus. This research division of the Electrical Engineering department, a branch of the department that has been carrying on successful work, will be provided with more room and a better arrangement of space. Already the department has erected and is conducting experiments upon a high tension transmission span. The two towers east of the athletic field, and the wires between are a duplicate of a transmission unit of the Great Western Power Company on the West coast. It is used there for carrying currents of 100,000 volts. The experiments on this span, which will cover a period of three or four years, will eventually afford complete data upon the electrostatic effects between the wires, and between the wires and the ground. The transformers now being used in the work are capable of producing currents under as high a

pressure as 200,000 volts, and it is hoped that presently transformers with a capacity of 300,000 volts can be installed. As stated previously new apparatus for research work will be provided and the electrical equipment of the department considerably augmented at the new Technology.

## HYDRAULIC LABORATORY

(Continued from Page One)

basement and on the first and second floors of the building. In the basement there are two canals, one five feet wide and the other eight feet wide which connect with a reservoir placed under the end of the building. Branches of these canals extend the entire length, one of which passes into the adjacent building. There is also a narrow canal about three feet wide which will ordinarily receive the hot condensing water discharged by the condensers in the Steam Laboratory, this hot water being ejected ultimately back into the River.

When, however, there is a large demand for water, this canal may be connected with the cold water system by means of a gate. The total length of all of the canals is 700 feet. On the Massachusetts avenue side, there is a connection from the canal to two sumps which have been excavated to a level of 26 feet below the basement floor. These two sumps are each supplied with water from a central opening connected with the 5-foot canal, through a 16-inch main valve and a 3-inch adjusting valve, these valves being made with long conical seats, so as to make it possible to hold the level of the water in these sumps at any desired height by regulating the opening of these valves. It will be possible by means of these sumps to test reciprocating pumps with different suction heads.

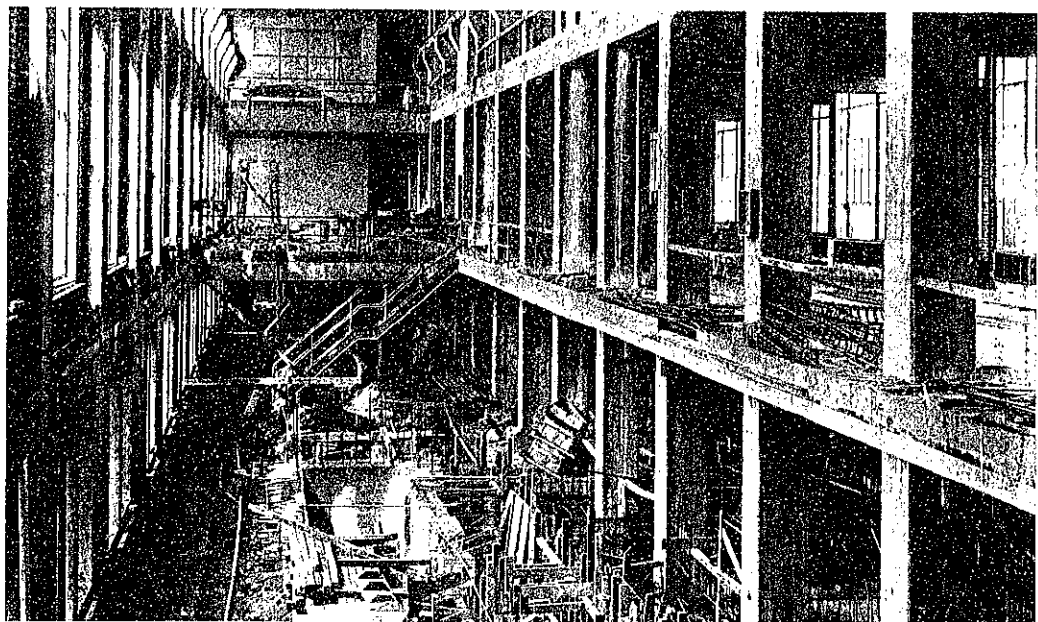
Centrifugal pumps and pumps of that class may be tested by throttling the intake and thereby getting the effect of a deep suction, even though the actual lift is but a few feet.

Built out over these sumps at the level of the first floor, is a wooden platform on which pulsometers and other apparatus of a similar nature may be erected, and tested with different suction. A 14-inch cast iron pipe brings water from the river into the central opening, supplying these sumps and also into another enlargement of the canal which is to provide additional space for setting up pumps and other Hydraulic machinery. The bottom of these canals is five feet below the basement floor. Between the five foot and the eight foot canals, there is a weir box 10 feet wide at the crest, extending about 90 feet. This box at the back end is built up with reinforced concrete walls to the height of the first floor, and on the top of these walls at this point, a steel shell 12 feet in diameter extends up through the second floor. This steel shell has a flat bottom resting on I-beams carried by the side walls.

A draft tube extends from a water wheel, located inside the steel shell or penstock at a height of 6 or 8 feet above the first floor, down through the steel bottom into the chamber at the back end of the long weir box. By means of a gate the height of water in this chamber may be regulated and the effective length of the draft tube varied by changing the level in the chamber. Water is brought to the water wheel through an open canal five feet wide and five feet deep, and about 135 feet long. The water which supplies this canal is delivered by a large centrifugal pump.

At the easterly wall there is a concrete well in every other bay connected by piping to a sanitary manhole located outside the building. A submerged centrifugal pump discharges the oily water from the manhole into the sewerage system.

The first floor over the basement is cut away for some distance and a 10 ton electric crane beneath the ceiling of the second floor serves the whole



INTERIOR CONSTRUCTION OF HYDRAULIC LABORATORY.

area. Through a door on the Massachusetts avenue side, a loaded dray can be brought under the crane.

The pumping outfit which is to supply water for the various experiments

(Continued on Page 3.)

## NEW BUILDING FOR MINING DEPARTMENT READY BY FALL

Separate Structure To Be Used For Course III—  
Provision Made For Research—Structure  
Well Above Ground.

Last year at Tech night at the "Pops," friends of the Institute presented the means to construct a separate building for the Mining Department on the new site. Since that time plans for the structure have been under way and last Thursday, the committee on this work gave them official endorsement.

The Mining Department building which is to be an L-shaped structure with a face 156x108 feet, will be located at the northeast corner with respect to the main buildings." The height as is the case on all the new buildings, will be four stories. According to the plans, the basement will contain the heating and ventilating apparatus, the mining and metallurgical laboratories and a shop for departmental use. On the first floor, the entire crushing and sampling division will be located along with the lower part of the ore-dressing section which will extend to the floor above. A museum, containing all kinds of interesting mining and metallurgical curiosities, together with the Wet Metallurgy division, will occupy the remainder of the second floor. Above them, the Wet and Dry Assaying sections and a spacious storeroom are to be situated, while the uppermost floor will accommodate the department drafting rooms, library and Metallographical laboratories where the study of iron and steel and their relations with heat is carried on. The building, when finished, will contain five large research laboratories, five class rooms, offices for the professors of the department, a general wash room with showers and other modern conveniences and eighty-four lockers for the use of the students.

At the present time, the foundation has been laid and the walls are above the surface level. As the detailed estimate of the cost has been compiled, everything is ready for the erection of the building of which the Mining Department expects to take possession by the opening of school next fall.

### NAVAL ARCHITECTURE.

Department to Have Special Building Under Provision of  
Pratt Bequest.

The Department of Naval Architecture will be given adequate disposition in the new Technology buildings, but its further development is to be postponed until the bestowal of the Pratt bequest, given in favor of this course. A separate building will eventually be devoted to the purposes of the course, and in the meantime the object will be to avoid expenditures for new material which then would have to be repurchased when the Pratt bequest becomes available.

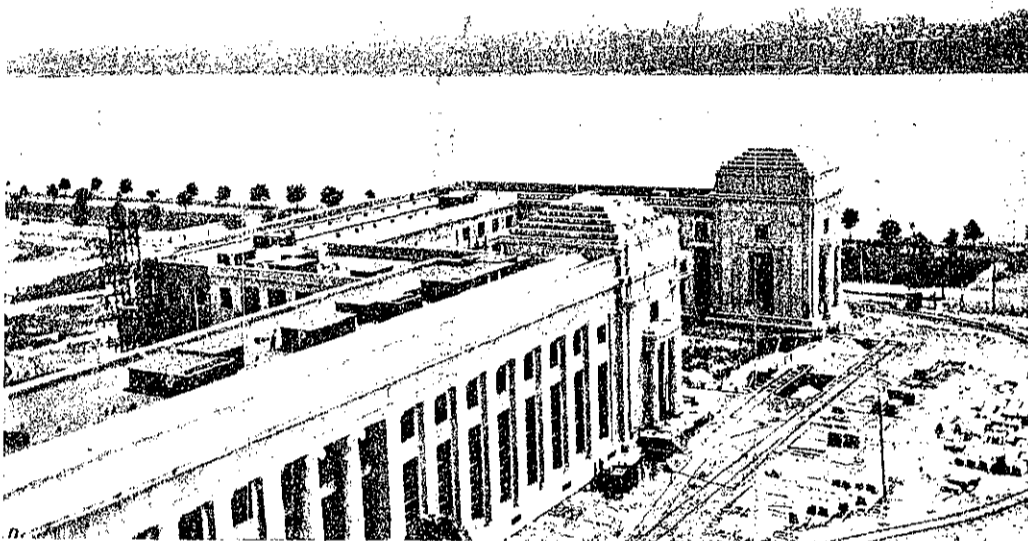
Until new quarters are provided for the department the regular recitation and drawing room work will be carried on in buildings occupied jointly with the Department of Mechanical Engineering.

### HYDRAULIC LABORATORY.

(Continued from Page 2.)

consists of a Douglass triplex pump, a Gould triplex pump, a Davis triplex pump, a 150 H. P. Delaval turbine with directly connected centrifugal pump and a 16 H. P. turbine and centrifugal, of the same type, an Underwriters' fire pump 22x12x24, a 100 H. P. Terry turbine and a three stage Jeanesville pump, two duplex pumps each of about 1000 gallons per minute capacity and a large centrifugal pump of capacity of 22,000 gallons per minute driven by an angle compound engine of 325 H. P.. This unit discharges water through a 30-inch Venturi meter into a steel canal on the second floor. All of the pumps with the exception of the large centrifugal are cross connected in such a way that the discharge from any or all may be utilized in the various hydraulic experiments requiring water under pressure.

For the measurement of large quantities of water there will be two calibrated open tanks ten feet in diameter and ten feet tall. These tanks are operated by valves 10 inches and 15 inches in diameter under hydraulic control. Each tank is provided with a gage glass having scale and vernier on the side. As one tank fills the adjacent empties and by means of a shifting

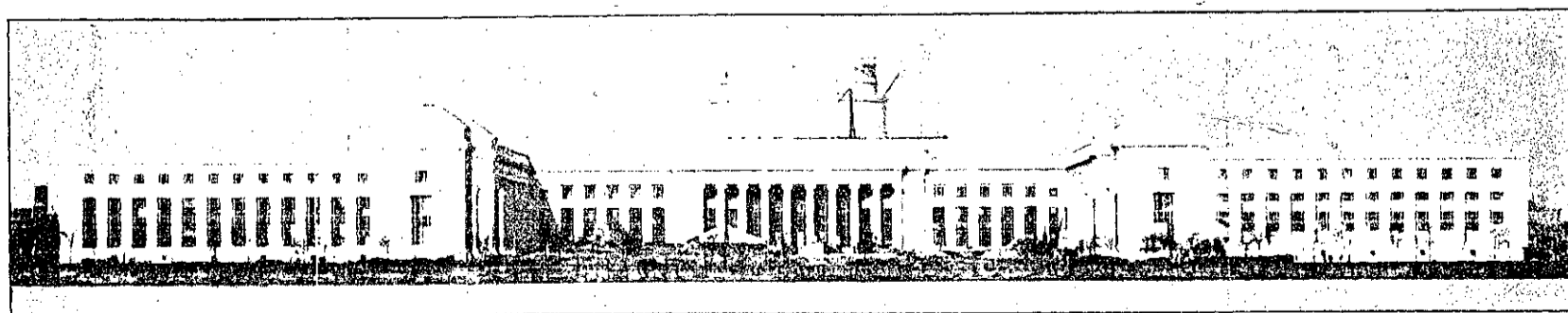


LOOKING TOWARDS BOSTON OVER GREAT COURT

gate overhead, water may be sent continuously from one tank to the other.

On a platform which overhangs the calibrated tanks, two long galvanized iron tanks are to be placed. Into these receptacles a number of weir boxes discharge. In each of these galvanized iron tanks are two large valves covering openings leading to each calibrated tank below. The two valves for each set of calibrated tanks are so connected that when one opens the other closes. An ample overflow has been provided to prevent water from going over the edges in case of accident.

On the second floor the penstock is joined to a steel canal 5 feet wide, 5 feet deep, and about 135 feet long. This is supplied with water at the extreme end through a 24-inch pipe, which brings the water from the large centrifugal pump driven by the angle compound engine in the basement, through a 30-inch Venturi meter into a 24-inch pipe, which is expanded at its upper end into a cone 10 feet long, increasing in diameter from 2 feet at one end to five feet at the end where it joins the canal. This comes gradually reducing the velocity of the water as it enters the steel canal. The canal is built of steel, stiffened sufficiently to keep the maximum vertical deflection in any bay under one eighteenth of an inch and the extreme variation from the dimensions given, due both to errors in workmanship and to deflection, is not to exceed one sixteenth of an inch. This canal may be utilized for a variety of experiments on flows, as well as for furnishing water to the water wheels, to the large weirs, etc. Provision has been made for the installation later of a volute case turbine.



PRESENT VIEW FROM CHARLES RIVER BASIN.

# THE TECH

Entered as second-class matter, Sept. 16, 1911, at the postoffice at Boston, Mass., under the act of Congress of March 3, 1879.

Published tri-weekly during the college year by students of the Massachusetts Institute of Technology.

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Night Phone—Back Bay 5527.

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Subscriptions, \$1.50 per year in advance. Single copies, 2 cents.

Subscriptions within the Boston Postal District, and outside of the United States must be accompanied by postage at the rate of one cent a copy.

WEDNESDAY, DECEMBER 22, 1915

The Christmas spirit prompts The Tech to suggest to the students of Technology a method for applying their energies to the welfare of the Institute. Next June the formal dedication of The New Technology will take place. The alumni are planning the biggest and most elaborate celebration in the history of the Institute. In the midst of these preparations the question arises as to what part the undergraduate will take in the festivities. Plans involving the Technology student should be evolved and co-ordinated.

The Tech believes that the average undergraduate is willing and anxious to give some visible proof of his affection for the Institute.

The Christmas vacation furnishes a lull in the more pressing duties of the student and there could surely be no better way of employing his spare moments than by thinking out suggestions which will enable the undergraduates to truly and creditably represent themselves at the dedication exercises.

The time is at hand when a great majority of Technology men are leaving for home. It is only natural that they should feel proud of the New Technology and all that it represents. Let them not forget, however, that what has made the fame of Technology is the quality of the men she has turned out rather than the

## INSTITUTE COMMITTEE REPORTS ON DORMS.

### Plan For Government To Be Submitted To Alumni Committee.

The following plan of government of the Institute Dormitories was adopted by the Institute Committee and will be submitted to the Alumni Committee immediately.

(1) The government of the dormitories shall be entirely in the hands of the M. I. T. Undergraduate Association.

(2) The dual system of occupancy shall be instituted; one wing comprising several units shall be occupied by Juniors and freshmen, the other wing by Seniors and Sophomores.

(3) The inmates of each unit shall elect an upperclassman to act as chairman of that unit and such other officers as may seem advisable, the election of such officers to be ratified by the Institute Committee.

(5) The chairmen of the several units shall constitute the Dormitories Committee.

(6) The Dormitories Committee shall elect one of its members, preferably a Senior, to be its representative on the Institute Committee.

(7) The Dormitories Committee shall formulate such rules and regulations concerning the government of the dormitories as may be deemed advisable and shall see to the execution of such regulations.

(8) The rules and regulations of the Dormitories Committee shall be submitted to the Institute Committee for approval.

(9) Appeals from the decisions of the Dormitories Committee may be made to the Institute Committee.

(10) The Alumni Council Committee on Dormitories shall act in an advisory capacity to the Dormitories Committee.

### STATISTICS BLANKS

To accommodate those who did not receive the Technique Junior statistics blanks, two hundred extra copies have been printed. These will be distributed to the Course XV men this morning at the 9.00 o'clock class; any others who desire blanks may obtain them at the Cage.

### ORCHESTRA NOTICE

There will be no rehearsal of the Technology orchestra this afternoon on account of vacation. On the first day of school, Thursday, Dec. 30th, there will be a rehearsal at 5.00 o'clock.

### FOUND AT CONCERT

Several articles belonging to ladies were left at the Winter Concert and may be had by applying at the Office of the Combined Musical Clubs and identifying same.

splendor of the handsome buildings in which she is to be situated.

In proclaiming to outsiders the splendid achievement across the river the spirit of Technology should be emphasized more than the material beauty of her equipment.



A MAN'S house is his castle, an' his pipe's a strong defense to keep trouble an' gloom on the outside.

*Velvet Joe*

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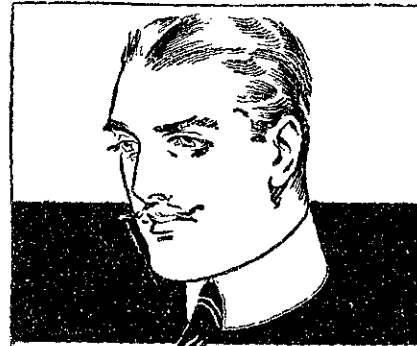
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#### WIRELESS SOCIETY

#### Mr. H. J. Power Describes Erection Of Tower At Medford.

Yesterday afternoon several members of the Wireless Society listened to a talk by Mr. H. J. Power of Tufts College. Mr. Power is at the present time vice-president and general manager of the Atlantic Radio and Research Company and is interested in research work. The station at Medford Hillside was designed by the speaker and he explained the various problems which the engineers and himself had to confront. The tower itself is two hundred and ninety-five feet high and weighs seven tons. It is set in sixteen tons of concrete and is guyed by three sets of guy wires which run from the tower to the ground and are set in concrete. The tower is set on a concrete slab which in turn rests on four insulators which are made to stand a breaking strain of eighty-five thousand pounds.

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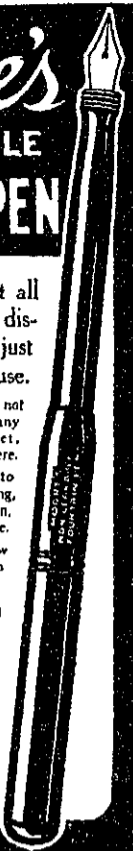
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## ELECTORAL COMMITTEE RESULTS ANNOUNCED

Lorenz Leads The List—Complete Personnel Given Below.

The following men were elected to the 1918 Technique Electoral Committee and the names are arranged in the order of the number of votes each received: O. C. Lorenz, K. Reid, O. D. Burton, L. S. Blodgett, L. F. vanZelm, J. G. May, J. M. Avery, J. T. Leonard, S. W. Fletcher, C. R. Tutein, F. W. White, Jr., J. C. Wooten, L. H. Flett, J. W. Damon, D. G. Bradley, R. A. Wilkins, H. M. Blank, P. H. Kennedy, G. E. Johnson, B. A. G. Merrick, P. W. Carr, P. M. Dinkins, T. P. Kelley, J. L. Ricketts and R. G. Mahoney.

J. W. Clarkson is chairman ex-officio of the committee and the first meeting will be held immediately after the Christmas holidays. The ballot committee who had charge of the election was composed of J. G. May, O. C. Lorenz, and J. R. Clarkson.

### LOST

A 10-inch Slide Rule in a Leather Case has been lost. Name is on case. Finder will kindly return rule to the Cage.

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Neckwear, 50c to \$5.00

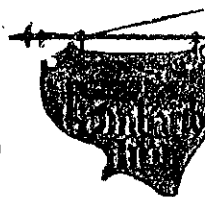
Hosiery, 25c to \$3.00

Gloves, \$1.15 to \$3.00

Handkerchiefs, 25c to \$1.50

## ITALIAN Restaurant

TABLE d'HOTE  
DINNER 5 to 8.30  
A LA CARTE



STRICTLY ITALIAN CUISINE

Italian Wines Music

BOYLSTON PLACE

Near Colonial Theatre

**JUNIOR CLASS DINNER**

The Junior Class Dinner will be held in the Union dining room on Thursday, Jan. 6, 1916, at 6.30 o'clock. This dinner will be a departure from the old order of dinners in many respects. There will be a number of excellent speakers, each of whom will take as his subject a different view of a topic of particular interest to all Juniors. The price per plate will be 75 cents and tickets may be obtained at the Cage and from the officers of the class.

**JUNIOR PICTURE**

**Class Assembled On Rogers Steps Yesterday At One O'clock.**

The photograph of the Junior class, which had been postponed from Dec. 14th, was taken yesterday. Three exposures were made, the grouping arrangement being the same in each case, much like that of last year. The picture will be printed in the Technique, and copies of it may be had after vacation.

**CHEMISTRY**

**DEPARTMENT.**

(Continued from Page 1.)  
toscopic work, for electro-analysis and the like.

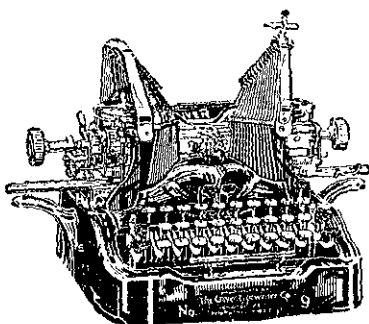
The Inorganic Laboratories for the first year are on the first and second floors of Building 8, and accommodate over 550 men. They are associated with balance rooms and rooms for furnace work, and the instructors' offices are in close proximity. On the fourth floor of Building 8 will be found the Research Laboratory of Physical Chemistry and the instructional laboratories of Theoretical Chemistry and Organic Chemistry, with accompanying offices. The Department Offices are in the pavilion at the junction of Buildings 6 and 8. The lectures in Inorganic Chemistry are to be given in the large lecture room in the building under the dome, where there is also a preparation room of considerable size.

The Laboratory of Industrial Chemistry will be equipped with a considerable amount of additional apparatus intended especially for instruction in Chemical Engineering, so that it really becomes a Laboratory of Chemical Engineering. This is intended to be the best anywhere. The Supply Rooms of the Department are to be found on each floor of Building 8, and special attention has been given to the problem of making them serve their purpose with the greatest efficiency. A notable feature of the laboratories of Inorganic and Analytical Chemistry will be the provision for hoods upon the working tables, which it is hoped will save considerable time to the students.

When the Walker Building was constructed in 1883 with a laboratory to accommodate 108 students, it was said that it "was never likely to be filled." The new analytical laboratories will accommodate 256 students.

**A New Model Typewriter!**

The **No. 9**  
**OLIVER**  
*The Standard Visible Writer*  
**BUY IT NOW!**



Yes, the crowning typewriter triumph is here  
It is just out—and comes years before experts expected it

For makers have striven a life-time to attain this ideal machine. And Oliver has won again, as we scored when we gave the world its first visible writing.

There is truly no other typewriter on earth like this new Oliver "9." Think of touch so light that the tread of a kitten will run the keys!

**CAUTION!**

The new-day advances that come alone on this machine are all controlled by Oliver. Even our own previous models—famous in their day—never had the Optional Duplex Shift.

It puts the whole control of 84 letters and characters in the little fingers of the right and left hands. And it lets you write them all with only 28 keys, the least to operate of any standard typewriter made.

Thus writers of all other machines can immediately run the Oliver Number "9" with more speed and greater ease.

**WARNING!**

This brilliant new Oliver comes at the old-time price. It costs no more than lesser makes—now out-of-date when compared with this discovery.

For while the Oliver's splendid new features are costly—we have equalized the added expense to us by simplifying construction.

Resolve right now to see this great achievement before you spend a dollar for any typewriter. If you are using some other make you will want to see how much more this one does.

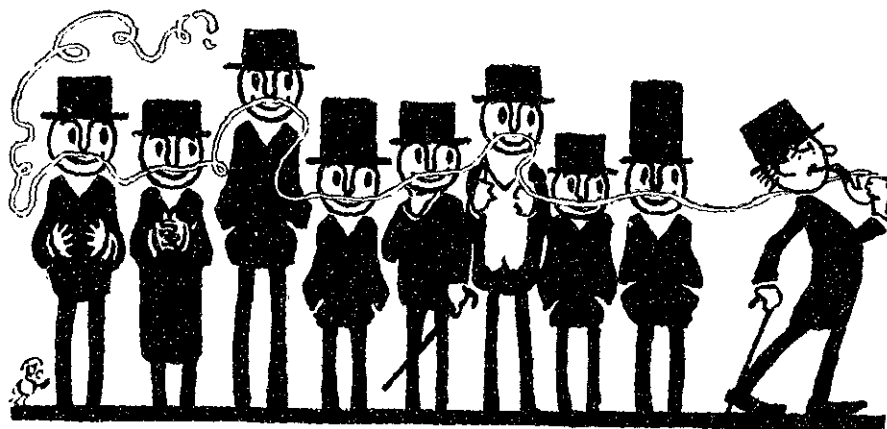
If you are using an Oliver it naturally follows that you want the finest model.

**17 CENTS A DAY** Remember this brand-new Oliver "9" is the greatest value ever given in a typewriter. It has all our previous special inventions—visible writing, automatic spacer, 6½-ounce touch—plus the Optional Duplex Shift, Selective Color Attachment and all these other new-day features.

Yet we have decided to sell it to everyone everywhere on our famous payment plan—17 cents a day! Now every user can easily afford to have the world's crack visible writer, with the famous PRINTYPE, that writes like print, included FREE if desired.

**TODAY—Write for Full Details** and be among the first to know about this marvel of writing machines. See why typists, employers, and individuals everywhere are flocking to the Oliver. Just mail a postal at once. No obligation. It's a pleasure for us to tell you about it.

**The Oliver Typewriter Co.**  
146 Congress Street, - Boston, Mass.



m—m—m—m—m—m—m—m—m—! isn't that lovely!!

Take the trail of any real wise smoker with a pipe between his teeth and snatch a mellow whiff of fragrant "Tux."

Then you'll right away hunt up the nearest tobacco shop and gladly intern a dime in exchange for a green tin of pure smoke-delight.

"Tux" is going ahead of them all with a speed that makes it look like a race between a 60-horse-power motor-car and a steam roller. It's the fastest-growing brand of smoking tobacco in the world.

**Tuxedo**  
*The Perfect Tobacco for Pipe and Cigarette*

Tuxedo is the original Burley smoking tobacco, that made pipe-smoking possible to many men, and the original "Tuxedo Process" has never been duplicated. It stands today as the most effective treatment for making the natural leaf deliciously mild and delightfully fragrant and for removing every trace of "bite."

Spend a week with Tuxedo. Then it will be just one week after another.

**YOU CAN BUY TUXEDO EVERYWHERE**

Convenient glassine wrapped, moisture-proof pouch . . . 5c

Famous green tin with gold lettering, curved to fit pocket 10c

In Tin Humidors, 40c and 80c  
In Glass Humidors, 50c and 90c

THE AMERICAN TOBACCO COMPANY





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Established 1889

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