



THE TECH

Volume XVIII.

Number 10.

December 8, 1898.



"Say, Algy, dea' boy, d' you know why so many Ha'va'd men go into politics?"
"Weally no; do tell"
"They'r all fond of red tape, doncher know."

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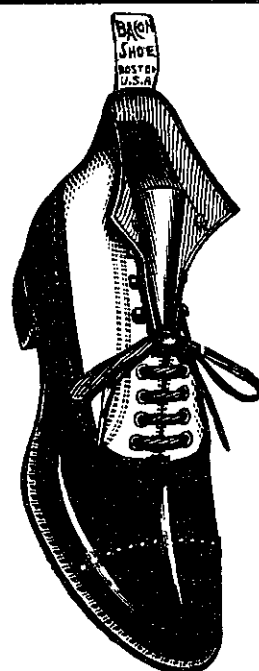
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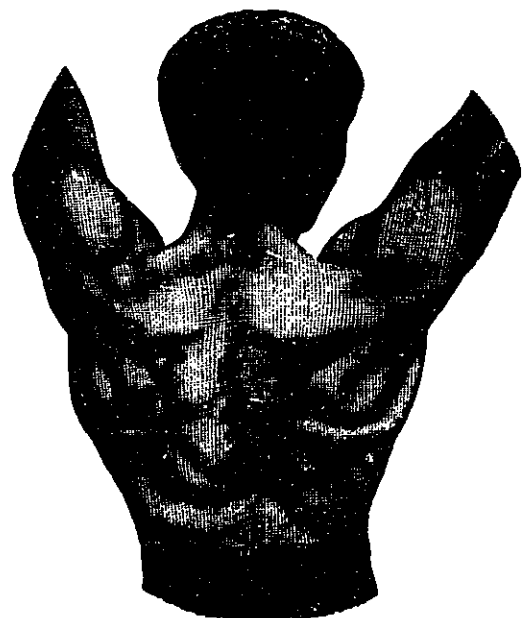
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THE TECH

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THE TECH

Published every Thursday, during the college year, by students of the Massachusetts Institute of Technology.

MORGAN BARNEY, 1900, *Editor in Chief.*

STANLEY G. H. FITCH, 1900, *Assistant Editor in Chief.*

PAUL RAYMOND BROOKS, 1900, *Secretary.*

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Saturday, 12-1 P.M.

Business Manager,

Saturday, 12-1 P.M.

For the benefit of students THE TECH will be pleased to answer all questions and obtain all possible information pertaining to any department of the College.

Contributions are requested from all undergraduates, alumni, and officers of instruction. No anonymous manuscript can be accepted.

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WHILE THE TECH has been read more widely and with more than usual interest this year by the undergraduates at Technology, the number of candidates for the editorial staff has been small.

The Sophomore Class has at present but one man in training for the literary work that de-

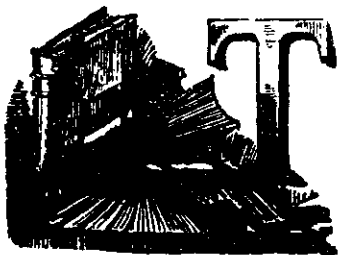
volves on 1901 when, as Juniors, they assume the responsibility of editing THE TECH. There are men in the class perfectly capable of doing the work, if they would sacrifice the small amount of time required. It is the unanimous opinion of all past editors that the practical experience gained, both from a literary and a business standpoint, combined with the pleasant associations resulting from membership on the board, more than makes up for the necessary outlay of time. The Editor in Chief will be glad to meet any students who desire to try for the board, and will give them all the assistance in his power.



THE whole outlook for track athletics is encouraging, although the Institute is singularly deficient this year in men for the pole vault and shot put. In other events there is a fairly good showing. The B. A. A. meet comes off on December 14th, and it is to be hoped that Technology will be represented by capable competitors. On December 17th the M. I. T. Athletic Association holds its annual winter meet in the gymnasium, and everyone should do his utmost to make this event a success from an athletic as well as a financial standpoint. Those who are hesitating about entering the events of these meets should remember that it is the practice gained in these intermediate meets that will count later, and that failure now is not a sure sign of a failure to carry off honors at Worcester in the spring.



THE first meeting this season of the Advisory Council on Athletics is to be held tonight at the Technology Club. This Council, organized last February, supervises athletics at Technology and controls our athletic policy. Last year much was accomplished in the introduction of business methods into the affairs of the Athletic Association. Other measures have done much to establish our athletics on a firmer basis. This year the Advisory Council should be able not only to carry on the work of last year, but to extend its sphere of usefulness. Moreover, as an additional inducement to bring out the men, two individual excellency cups have recently been offered, and the points won on the 17th will help to determine their ownership at the close of the year.



THE first number of the new graduate publication, *The Technology Review*, goes to press this week. A general description of the magazine appeared in THE TECH, Number 4, of this year; but we are now able to give more in detail the contents of that part of the *Review* which relates to undergraduate life at the Institute. This department is conducted by the editors of THE TECH. The first issue will contain a brief account of the work and progress of each society at Technology, an account of the 'varsity Football team's season, the Cane Rush, the Fall Handicap Meet, on Holmes' Field, and a few comments on various subjects affecting more or less directly the social life here. In short, this department will offer a brief *résumé* of the news published in THE TECH; and, it is hoped, present to our Alumni a comprehensive view of the different forces at work in our student life.

Architectural Engineering.

THE present tendency toward the concentration of business in large cities, and the consequent demand for increased floor area in the business houses, have resulted in the development, during the last ten or fifteen years, of a new type of architectural construction.

The introduction of rolled beams of wrought iron and steel, the rapidly decreasing expense of these materials and their ready adaptation to the needs of the architect, have made this new construction possible. The heavy building with solid masonry walls and piers, which was formerly the only prevailing type, reached its practical limit of height before it was a dozen stories from the ground; but with the lighter materials—steel and terra cotta—the architect is enabled to carry his structure fifteen, twenty, or even thirty stories into the air. With this construction, many new and difficult problems present themselves, which require for their solution both the training of the engineer and the experience of the architect.

To meet these requirements the Institute has taken steps that will result next term in a new course in Architectural Engineering, offered as an option in the course in Architecture.

This option begins with the second term of the third year. In place of Academic Design and some of the purely artistic courses, others have been substituted leading to the study of Architectural Engineering. Lectures and problems on the principles of Applied Mechanics, and lectures in the Theory of Structures, including loads and reactions, shears and moments, proportioning of beams, columns, and tension pieces, the computation of plate and box girders, wooden and steel roof trusses, steel framing, wind bracing, fire proofing, foundations, arches, etc., give the student the necessary preparation for practical problems in Structural Design, which will form the important feature of the course. In

the fourth year some time is given to laboratory tests on the strength of building materials.

The course as arranged at present is for undergraduates, but it is hoped that graduate students who have completed the regular course in Architecture will find in the Engineering Option an attractive field for work.

Celtic Wit.

PAT met Mike on the street the other day, and immediately Pat cried out, "Pfwwhy, Moike! Pfwwhat in ther name uv hivin hez happund to yer faice?"

"Aw!" said Mike, "'twuz a quare thing. Yer see, I wint to ther widdin of Miss Vandergilt and ther Juke uv Borrermore ther other day. Oi wuzn't invoited, but Oi pfwalked roight in an' set mesilf down noice an aizy-loike in wan o' thim fitherbid peyews. All to wonst, a man who wuz a-showin' off his big biled shirt, comes up to me an' sez,, 'Pfwwhat biznis hev yez ter come in here? Oi answers bowldly, 'Oi'm in the arkertekchural biznis.' 'Leave the buildin'!' cries he. 'Oi wuzn't er goin' to take it,' sez Oi. Thin he gits mad an' cries, 'Get out, you loafer!' An thin 'twuz Oi that got riled, an' Oi up and Oi yells, 'Who ther divil are yez, anyphway?' 'Oi om ther bist mon!' sez he, jumpin' forninst me, an', *begorrrar, he wuz!*"

"LYTULS."

Freshman Themes.

THE PHILOSOPHY OF A ROPE.

IT is both instructive and amusing to watch the passage of people under a rope stretched some six and a half feet above the sidewalk. First, perhaps, comes a man six feet tall. He bends his head cautiously as he goes under the rope, although he could not possibly have struck it. Next, a lady with an enormous hat gracefully bends her feathered burden as she passes under the rope, which, at most, might have come about five inches from the topmost feather. Then a fellow, possibly five feet in height, carefully stoops to avoid

the obstruction a foot above his head. Does not all this show the tendency of humanity to imagine itself much greater than it is?

W. A. D., '02.

ONE OF ADMIRAL DEWEY'S TRAITS.

ONE of Admiral Dewey's leading traits is a strong aversion to anyone who comes up to him introducing himself as an old acquaintance. This trait was well shown one day on board the Olympia in Manila Bay. A man came up to Dewey, who was standing on deck, and said: "I bet you don't remember me, George." Admiral Dewey replied only, "You win," and walked away.

A. E. L., '02.

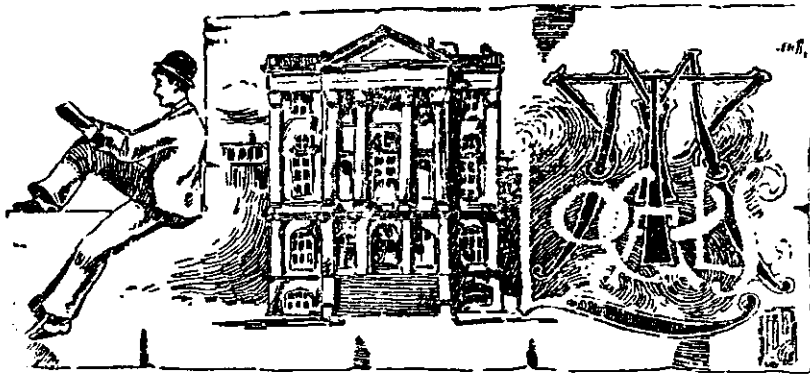
Book Review.

Matter, Energy, Force, and Work. By Silas W. Holman. Macmillan Company, 66 5th Avenue, New York. Price, \$2.00.

In the preface Professor Holman says: "Engineers and members of the other technical professions will find here, it is hoped, an aid to clearer thinking in their practical dealing with the subjects treated. Now, as never before, correct views of energy, force and work are essential in these professions, through the progress of the application of science to the industrial arts."

Institute men, without exception, will find in this book a valuable addition and supplement to the instruction obtained in the lecture room. Besides the presentation of the fundamental physical concepts, the vortex-atom and other theories are dealt with, without going into their abstruse mathematical side, so clearly and concisely that they should be appreciated by everyone.

With a regret born from a long experience, but with a feeling of regard akin to love for the ancient and historical associations of Technology, we beg leave to record the official inauguration of winter with the laying of our too familiar board steps at Rogers Building on Thursday last.



Mr. E. Townsend Howes, '01 (Yale '98), formerly on the *Yale Record*, has been elected an art editor of *THE TECH*.

All desiring to enter the first tournament of the Chess Club should leave their names in Box 73, Cage, as soon as possible.

Professor Gill, as an expert on explosive gases, testified before the court in the Subway Gas Explosion Case, on Thursday.

Thursday, December 1st, was the date of the first concert of the season by the musical clubs. It was given at Milton, Mass., and went off quite well.

Mr. Charles H. L. N. Bernard, of the Institute, is giving a series of readings in French of "Cyrano de Bergerac," with comments and explanations in English.

Next Wednesday evening Mr. Hayes, of the N. E. Tel. & Tel. Co., will speak to the Electrical Engineering Society on "Telephony on Shipboard and Elsewhere."

Reserved seats are now to be had in Rogers' corridor, in exchange for the old advance tickets, for the Home concert of next Thursday, in aid of the 1900 Class debt.

There will be a meeting of the Andover Club, Friday noon, Dec. 9, 1898. All men who have ever attended Phillips-Andover should watch for the notice in Rogers corridor.

The next issue will contain a half-tone picture of the 'varsity Football team for 1898, together with a review of the past season, and a statement of the finances of the Football Association.

Professor Bartlett is a candidate for the Boston School Committee. It is hoped that the voters of the "Hub" sufficiently realize the necessity of keeping this board of educational advisors out of politics, so that Professor Bartlett may be successful.

At a meeting of the Directors of the Co-operative Society, S. C. Sears, '00, was elected Secretary, M. Davenport having resigned. As a result of a very successful year, \$600 was appropriated for scholarships, making a total of \$4,960.50 expended to help needy and deserving students.

At a meeting of "Die Gesellschaft," on Thursday, Dec. 1, Miss MacLeod gave a short talk on the German literature of the Era of the Reformation. This was followed by a series of views illustrating the history of the literature down to that time. The views were explained and discussed by Professor Vogel.

Mr. Guy P. Burch, '99, has been suffering from an attack of appendicitis since Dec. 5. While not yet out of danger, his condition is considered very encouraging. Mr. B. W. B. Greene, 1900, who has not been at the Institute since the beginning of the term, left St. Margaret's Hospital last week. *THE TECH* Board is seriously crippled by the absence of both Mr. Burch and Mr. Greene, and we look forward with pleasure to the time when we shall have them with us again in the positions which they filled so ably.

Two public drills will probably be held before the final competitive drill. They will take place some time after the mid-year examinations, and an effort will be made to introduce voluntary Indian club exercises and Rifle calisthenics as special features. The final drill will be a competitive drill between the different companies. The major of the battalion will not be appointed, in all probability, before February or March. The cap adopted for the battalion is the regulation infantry cap, having M. I. T. in black letters on the front.

At the meeting of the Sophomore Class tomorrow an amendment to the Constitution relating to the Executive Committee will be considered, and some action will be taken in regard to the rushing in Rogers' corridor on the morning of the Freshman election, in order that two members of the class may be released from probation.

Monday evening the Glee, Banjo and Mandolin Clubs went to Salem and gave a concert at the armory of the Second Corps Cadets. It was a very enjoyable affair, quite a crowd turned out, and the clubs did some good work. After the concert the Cadets had arranged a dance for those present, which lasted till midnight. Many of the men went in on the late train, but a number remained all night, and all emphatically declared it a success.

The American Protective Tariff League offers to the undergraduate students of senior classes in the colleges and universities in the United States a series of prizes for essays. The subject of the first essay is: "The American Merchant Marine: Its Restoration by Means of Discriminating Duties." Competing essays should not exceed six thousand words, and should be signed by some other than the writer's name. Essays must be forwarded to The American Protective Tariff League, No. 135 West Twenty-third Street, New York City, on or before April 1, 1899. The manuscript of each contestant must be accompanied by the full name and address of the writer, together with certificate of standing, signed by some officer of the college or university to which he belongs. Manuscripts must be typewritten. The awards will be made as follows: For best essay, \$150; for second best essay, \$100; for third best essay, \$50.

Mr. Boos, Director of the M. I. T. Gymnasium, is to take charge of the new men's department to be opened at the Allen Gymnasium on January 1st. Those wishing to avail themselves of the advantages and priv-

ileges of this Gymnasium should consult the prospectus for particulars. This prospectus will be ready about the last of next week and may be obtained from Mr. Boos. The gymnasium work is to be done in the evening, a fact which should appeal to many men who are, owing to the demands of business, prevented from taking any regular exercise during the day.

Technology Calendar.

December 8.—Meeting '99 Executive Board, 1 P. M. Meeting of the Yacht Club, 22 Rogers, 4.15 P. M.

December 9.—Meeting of the Andover Club, 11 Rogers, 1 P. M. Meeting of the Y. M. C. A., 11 Rogers, 4.10 P. M. Meeting Sophomore Class in Huntington Hall, at 1 P. M.

December 10.—1901 Football team will have their pictures taken at 1 P. M.

December 14.—Meeting L'Avenir, 4.15 P. M., 26 Walker. Home Concert the Musical Clubs in Huntington Hall.

The Diesel Motor.

THE latest and, at least so far, the most efficient type of prime mover has recently been brought to the public attention in the shape of the Diesel motor. As much interest has been shown by Institute students in the motor exhibited at the Mechanics' Fair, a short history and description of it will be given, which may possibly make its operation clearer to some.

Mr. Rudolph Diesel, the inventor, had been a pupil of Zeuner, and was consulting engineer for a large German company. His chief interest had always lain in thermodynamics, and, especially, in the devising of an engine which would, at least, approximate the Carnot cycle. To this end his experiments were made at first on different types of gas engines; and, in his search for a gas whose change of state under pressure and temperature changes was small, he at last hit upon air. By experiment he proved, what he knew from theory, that air can be used not only as the necessary adjunct of fuel, but as a vehicle for

the conveying of the heat developed, and its transformation into work. The better cycle for this purpose he found to be a three-phase cycle composed of an isothermal and two adiabatics; one adiabatic compression taking the place of the isothermal and adiabatic compressions in Carnot's cycle. He worked out very thoroughly and most ingeniously the mechanical constructions and details of the motor, obtained the backing of capital from the great Krupp, and, from that time, it might not be extravagant to say, dates an epoch in engineering history.

The action of the engine is as follows. As the motor which the students are familiar with is a vertical type, much like a marine engine, the action will be described for this type. The cycle is a four stroke, or two-revolution cycle. On the first down stroke atmospheric air is drawn in. The return stroke compresses this to about thirty-five atmospheres, or five hundred and twenty pounds. During the first six per cent of the second down stroke oil is injected by excess pressure of air, obtained by a small air pump on the motor. This burns, on account of the high temperature of the compressed air, and expands during the rest of the stroke. The next up stroke exhausts the spent gases.

The cards taken on the main cylinder and on the air pump show deviations from the theoretical isothermal and adiabatic lines due to the presence of water jackets on both cylinders.

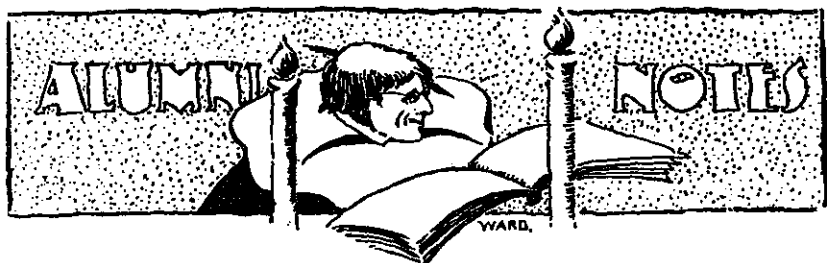
A few details of running and construction follow. There are three cylinders—main, air pump, and oil pump,—all single acting. The air pump and oil pump are driven from the main piston rod through links and levers. When the oil has been injected the remaining air in the air-pump stroke is forced through a by-pass into an auxiliary air tank, which is thus kept at from forty-eight to fifty atmospheres. The use of this tank in starting the engine will appear later. The amount of oil injected by the air pump is controlled by a

wedge moved by the governor, which wedge adjusts a by-pass valve, so that on light loads nearly all the oil is pumped back into the tank from which it came. The fuel valve and the two air valves are operated by cams and levers.

To start the engine the oil pump is first given a few strokes by hand until the oil ducts and clearances are full, the passage to the fuel valve having first been closed, this is then opened again. A lever shifts the exhaust valve cam along on the shaft, so that a special starting cam comes into play which is automatically thrown out when the engine starts. The fly wheel is then turned till just on the dead point; the valve to the auxiliary air pump is opened, and a shifting of the fly wheel a little further forward by the turning lever allows the engine to start immediately, taking a full air charge from the auxiliary air pump on part of the first down stroke, expanding, exhausting on the up stroke, and then taking up the regular cycle as before described when the starting cam is thrown out of gear. To stop the engine the oil pump is disconnected and the air tank valve closed.

The engine as shown at the Fair had the disadvantage of extreme weight,—about five hundred pounds per horse power,—and a somewhat complicated mechanism. This engine was built by the Maschinenbau Actien Gesellschaft, of Nuremberg, and is one of the first ones built, so that many changes will be made in the machines built on this side in the direction of greater simplicity and reduced weight.

When these changes are made, and the machine put on the American market, it is very safe to say that it will supplant in a multitude of services the steam and gas engines now used, as it requires almost no attention while running, gives the same power at from one third to one eighth the cost of running a gas engine, and for the lowest powers has a slightly better economy than the best triple expansion 1000 horse power steam engine.



'74. Mr. Herbert Barrows, I., has moved from Cedar Grove, Cal., to Reading, Mass.

'74. Mr. F. H. Jackson, III., has opened an office as mining and hydraulic engineer, at 105 South Broadway, Los Angeles, Cal.

'76. Mr. Alfred E. Hunt, III., is Captain of Light Artillery, Battery B, Pennsylvania Volunteers.

'77. Mr. G. W. Fabens, I., has been promoted, and now fills the position of train master of the C. B. & Q. R. R., at Ottumwa, Iowa.

'81. Mr. F. D. Chase, III., has moved from Versailles, Pa., to 4 Peter Parley Street, Jamaica Plain.

'81. Mr. N. W. Shed, V., has the chair of assistant professor of Metallurgy, in the State College of Pennsylvania.

'86. Mr. J. F. Seavey, II., now represents the Webb Granite and Construction Co., of Worcester, Mass., in Boston.

'88. Mr. W. H. Gerrish, II., has a position as mechanical draughtsman in the Ordnance Department of the United States Army.

'97. Luzerne Cowles, I, is studying abroad. At present he is in Geneva, Switzerland.

'98. Mr. G. A. Hutchinson, II., is with the Boston & Montana Copper & Silver Mining Co., at Milwaukee, Wis.

'98. Edwin S. Dodge, IV., has been admitted to the Beaux Arts, in Paris, to study architecture. This honor is given only after a most searching examination to the first fifty out of a list of from four hundred to five hundred applicants, including representatives of all nations of the world.



The Gun Club held their regular weekly shoot at Wellington on Saturday.

It is probable that another Tech.-Amherst meet will be held in the spring, if a satisfactory arrangement can be made with Amherst. A movement is on foot to introduce a bicycle race in this meet.

D. M. Pray, '99, took third place in the Cross-country Run, held on Saturday under the auspices of the B. A. A. The course was about four and three fourths miles, and was made in excellent time by the first three men.

It is definitely announced by Dartmouth's leading athletic supervisors that she will withdraw from the tricollegiate league. The question is being reconsidered at this time, not because of Dartmouth's claim to superiority, as she admits Williams was nearly her equal in football this year, but because so little interest is felt in the league that athletics are not supported by the students. This year the Football team lost several hundred dollars, due to difficulty experienced by the managers in getting subscriptions from the college.

"THE GIRLS ARE FOND OF THESE."

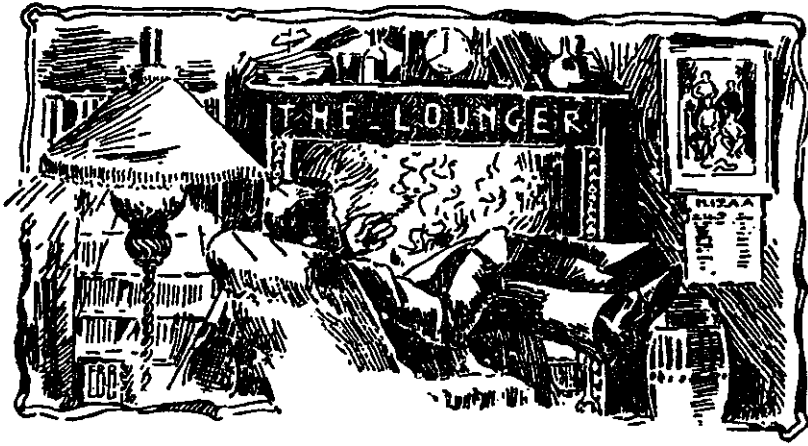


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It is with the deepest regret that the Lounger has recently heard of a somewhat general misunderstanding as regards which member of the department of Mechanical Drawing he referred to in his remarks upon the cane rush last week. It is on this account that the Lounger deems it necessary to state, for the immediate information of the friends of Professor F--nc-, that he was not the gentleman to whom the Lounger had reference. Moreover, it is stated on good authority that the said Professor holds himself in readiness at any time to prove an alibi to all interested parties.

Once more, for the —th time, THE TECH imitates the noble example of history, and “repeats itself” by publishing in another place that startling announcement in regard to the winter apparel of Rogers steps, which annually appears in its columns. While the Lounger cannot help admiring the true spirit of conservatism thus shown by his friend, the Editor in Chief, in these days of radical changes, this feeling is greatly outweighed by his sense of wounded vanity and personal insult in thus having forced upon him the fact that his fast-departing youth has filched another year, and the dark and dreary days of winter are again at hand. Another year (should his studious efforts again fail to impress an unappreciative and relentless Faculty) the Lounger promises to take active steps in due season to prevent the occurrence of this evil.

It is with deep regret that the Lounger feels called upon to note the methods used by the Debating Society to attract new members to join its ranks. The particular incident in question is the poster recently displayed in the corridor, showing a youth and maiden linked in tender embrace, the same bearing an urgent invitation to join the said society. As

the Lounger has yet to hear of this institution becoming co-educational, he feels forced to regard the attractions so delicately hinted as a plain case of obtaining members under false pretences. On the other hand, however, should the allegation prove true, the society is none the less reprehensible, and a thorough investigation by the Y. M. C. A. should be undertaken at once.

During the past week the Lounger has received a large number of communications in regard to a certain photograph which appeared in the advertisement of a well-known photographer in the last issue. The picture in question shows a young lady in very becoming costume, and immediately beneath it the photographer announces that he is “Senior Class photographer to Wellesley College.” The Lounger has never been sufficiently fortunate to witness a gymnastic exhibition at the college referred to, but from hearsay he would judge that even at such times the costume worn is rather more complete than the one shown; therefore he must reply to his numerous correspondents that the connection between picture and statement is as much a mystery to him as to them. He is particularly gratified, however, to find that the advertising columns are so well read.

The Lounger is extremely sorry to note on the part of his friends, the Sophomores, a certain disposition to follow the advice of the poet who said:—

“Throw Physic(s) to the dogs,
I’ll none of it.”

Now entirely aside from all motives relating to the prevention of cruelty to animals and humanitarian sympathy for the dogs (or as J. K. Jerome would put it, “To say nothing of the dog”), the Lounger feels called upon to say a word in time which he hopes may save nine, or even ten. The gentlemen mentioned above, it would seem, have already in the short interval of time since the beginning of the term been sufficiently active in several directions to secure a reputation, which, to say the least, is capable of improvement, and now that the Cane Rush has been gracefully disposed of, the Lounger begs to hint that some little quieting down would not be altogether inconsistent with Sophomoric dignity and importance.

SHE.—“What kind of a man is he?”

HE.—“He is a D. F.’

SHE.—“What fraternity is that?”

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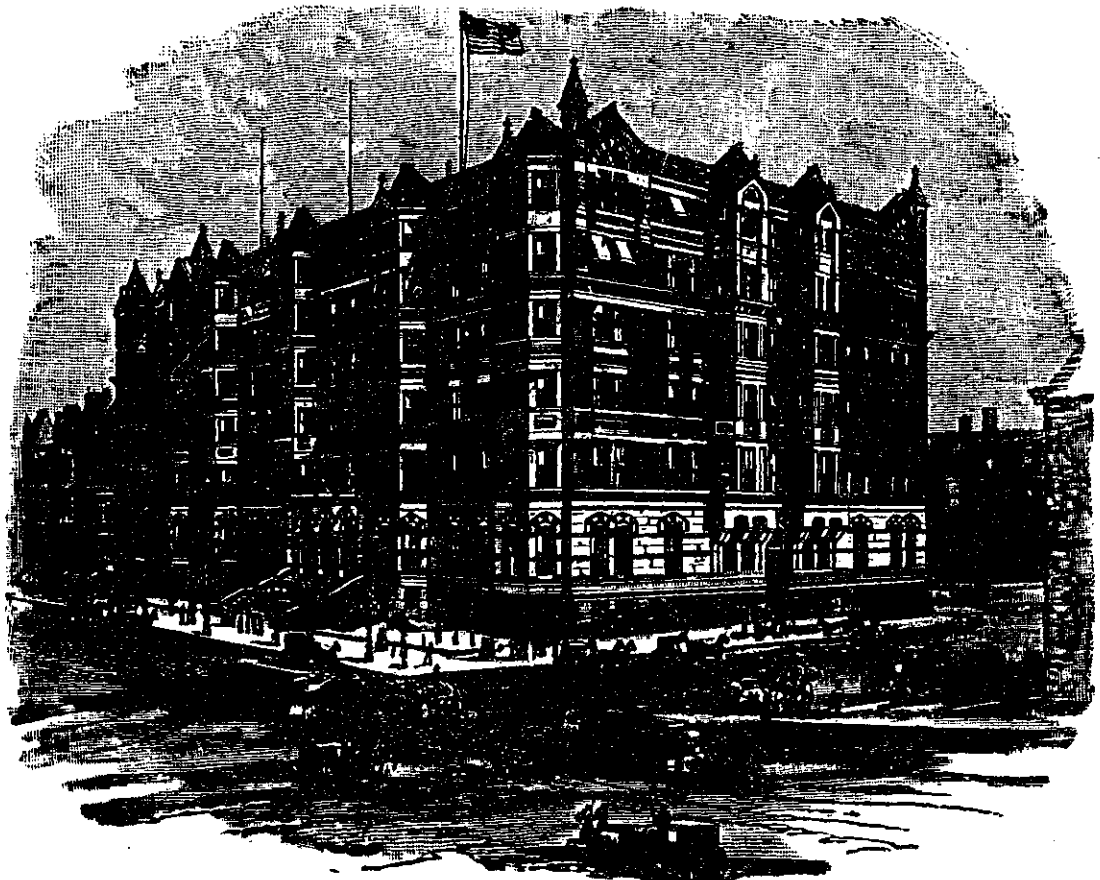
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Boston Theatre.—Miss Edna Wallace Hopper, Thomas Q. Seabrooke, and Walter Jones in the Extravaganza, "Yankee Doodle Dandy," are a combination which is rare, and promises to be rich. The book is by Hugh Morton and music by Gustave Kerker.

Castle Square Theatre.—Monday, Dec. 12, will give the "first night" a chance to see another new play, as "Col. George of Mt. Vernon" will be produced for the first time on any stage. The author is Mr. Augustus Thomas.

Hollis Street Theatre.—Next week the popular Nat Goodwin and Miss Maxine Elliot appear in "Nathan Hale." Mr. Goodwin and Miss Elliot are so well known that no comment is necessary.

Tremont Theatre.—Miss Blanch Walsh and Mr. Melbourne Macdowell commence a two weeks' engagement. "La Tosca" will be presented on the nights of Dec. 12 and 16, and matinee the 14th. "Cleopatra" on nights of Dec. 13, 14, 15, 17, and matinee the 17th.

Park Theatre.—Henry E. Dixey is scoring a great success in the role of a typical circus clown in the Parisian vaudeville, "Hotel Topsy Turvy." David Lythgoe and Alice Athernone assist greatly in the merriment of the piece.

Boston Museum.—Mr. William Gillette has another laurel in the success of "Because She Loved Him So." The New York engagements of the company have been cancelled in order to extend the engagement here. The play is clean, bright, and amusing.

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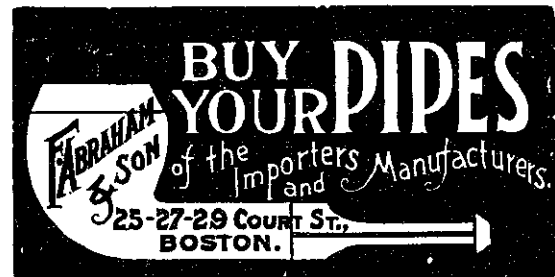
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