

THE TECH

VOL. XVI.

BOSTON, MAY 13, 1897.

NO. 29

THE TECH

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

CHARLES-EDWARD AMORY WINSLOW, '98, *Editor in Chief.*
CLARENCE RENSCHAW, '99, *Assistant Editor in Chief.*
THOMAS EDDY TALLMADGE, '98, *Secretary.*
HARRY DRAPER HUNT, '97.
MORRIS KINNARD TRUMBULL, '97.
WARD WELLINGTON WARD, '98.
HAROLD WELLINGTON JONES, '98.
GEORGE REED WADSWORTH, '98.
WILLIAM EATON WEST, '99.
GERALD MARTIN RICHMOND, '99.
MORGAN BARNEY, 1900.

W. R. STRICKLAND, '98, *Business Manager.*
E. R. SHEAK, '99, *Ass't Business Manager.*

Subscription, \$2.50 per year, in advance. Single copies, 10 cts. each.

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.

Frank Wood, Printer, 352 Washington Street, Boston.

Entered in Post Office, Boston, Mass., as Second Class Matter.

IT is an important thing for the college that the dual games with the Harvard 2d team next Friday afternoon be well attended. The price of tickets is not high, and as the expense is to be divided equally between the two Associations, it would be a decided help to our management if a large M. I. T. contingent were in attendance. Since this is the only athletic attraction at Harvard that day, there will doubtless be quite a delegation on the field to support the crimson, and it is therefore imperative that Technology men should lay their plans to come over to Holmes's Field at three o'clock, and root for the Institute.

NEXT Tuesday afternoon will take place the annual baseball game between the Sophomore and Freshman classes. Both classes have unusually strong teams this year,

and there is every prospect that the game will be an exceedingly good one, and be both close and exciting. Considerable interest has been taken in the sport this spring, and it is hoped that the attendance this year will be larger than in former years. To the members of '99 this game constitutes the last event of their interclass contests, their last chance of victory over the Freshmen. The members of 1900 find in this game one more opportunity to become better acquainted with each other before separating for the summer. Good work has been done by their team, and their chances of success are unusually bright. By all means, then, let each class turn out a large delegation, and aid the respective teams by enthusiastic support.

THE Intercollegiate Drill is fast approaching. Only a single week remains in which the contestants can acquire the finish that is so essential to success. If Technology is to add another victory to her list, every man will have to realize now, if he has not done so before, that he has been selected from many to uphold the honor of his class and of his college. Once appreciating this, he should make every effort to be worthy of the confidence placed in him. The excellence of the battalion depends primarily upon the work of the individuals of which it is composed. Upon those who will represent Technology in the Individual Drill rests even greater responsibility. Each man should feel it his duty to attend the few remaining drills.

There has been a lack of endeavor on the part of some that contrasts not too favorably with the determination shown this year at Brown. However, there still remains time to correct those faults that yet exist.

IT gives us great pleasure to announce the election of Mr. Morgan Barney, 1900, to the editorial board of THE TECH.

Typical Theses.

COURSE XIII.

[A Progressive Speed Test on the Police Boat "Guardian" of the City of Boston. By W. H. Allen, Jr.]

THE object of this test is to determine the distribution of the power developed by the propelling machinery of the "Guardian." A part of this power, only, is used up in overcoming the skin and wave resistance of the boat, the remainder being absorbed by the internal friction of the engine and by the slip and friction of the propeller.

The course over which the tests were made, extends in a direct line with Sunken Ledge Beacon and Boston Light, from a point where the western end of Galloupe's Island and Deer Island Light are in line, to a point where Great Fawn Bar and False Spit Beacon are in line. This course was selected in order to give shelter from the wind, and a proper depth of water, and to obtain the desired direction of the tide, that is, to have the current as nearly in line with the course as possible. It may be stated here that the course has been accurately surveyed by Messrs. Hosmer and Spear of the Senior Class in the department of Civil Engineering.

The tests made were as follows: The boat was run at five different speeds, going over the course ten times; one trial consisting of an outward and inward run, in order to eliminate the tide effect, thus showing the importance of a good course; indicator cards were taken at regular intervals, depending upon the speed of the trial in question.

The time was taken by means of stop watches, which gave the actual time of each run; then the two runs of each trial were averaged, which gave the mean trial.

A signal was given in the engine room just

as the boat crossed the line at the start and finish, in order that the revolutions of the engine might be ascertained, and also to denote the proper time to commence taking the indicator cards.

Water-line measurements were taken before leaving the dock and after the completion of the tests. This was done in order to obtain a mean water line from which the displacement and wetted surface, during the trials, could be calculated; thus taking into account the weight of coal burned, and therefore allowing for the change of trim due to this loss of weight.

The general description of the "Guardian" is as follows: the engine is of the triple expansion type, with three cylinders, 12 $\frac{1}{4}$, 19, and 33 inches in diameter, by 24 inches stroke, and designed for a boiler pressure of 165 pounds. The propeller is four bladed, having a diameter of 7 feet 4 inches and an 11-foot pitch. The hull dimensions are, over all, 112 feet; L. W. L., 102 feet; beam, 20 feet; and draught, 8.5 feet to 9 feet.

With the preceding data at hand, everything is given that is necessary to make the entire calculation of the trial analysis. The results and method of procedure will be fully stated in the thesis itself.

The method that will be pursued is the one developed by D. W. Taylor, Naval Constructor, United States Navy, which he has applied to the United States Gunboat "Yorktown."

Civil Engineering Society.

THE last meeting of the Civil Engineering Society was held on Monday evening, May 3d, in 22 Walker. Mr. F. P. McKibben, of the Civil Engineering department, read a paper on "The Erection of Metal Bridges." The large number of men present felt amply repaid for going, and listened to a bright and forceful discussion of the evening's subject. The paper was necessarily very much con-

densed, as the subject is a broad one, but with the help of thirty or more carefully selected slides, and a judicious assembling of the matter in hand, the hearers obtained a very comprehensive idea of bridge erection.

The introduction comprised a brief definition of terms, and the drawing of distinctions between the "pin connected," or so-called American type of bridge, and the "riveted," or European type. Mr. McKibben says, "The rapidity with which many of our long spanned railroad bridges are placed upon their masonry supports is little short of marvelous. It is due first of all to the adoption of the so-called American type of pin-connected truss. This method of connecting the various members of a truss has been the result of the inventive genius of the American bridge engineer. To be able to place a steel span upon its piers in a minimum amount of time, in order to reduce the liability of damage from floods, ice-jams, etc., and at the same time have a joint as near perfect as possible, has been the problem." Considerable stress was placed upon the fact that ease and speed in erection must be constantly borne in mind during the design.

Many examples of actual erection were presented, which included the "I" beam and plate-girder types, erected generally by means of derricks, cranes, skids, gin poles, and overhead false work, simple trusses erected by old and new types of false work, travelers, cantilevers, arches, and viaducts; the latter types requiring often unusual and specially designed means of erection, although for the most part involving no new principles.

To replace a new bridge for an old one there are many questions to be considered in connection especially with the interruption of traffic. This, of course, involves the support of the track independently, so that the construction will not interfere with the passage of trains.

The new method of erection is very interesting and a great improvement over the old.

Under the old régime the false work for "deck" and "through" spans extended above the highest part of the truss. Now the false work is below, while a traveler running upon the same raises the members to place. The transportation of a bridge or its parts to the site of erection demands the attention of the bridge company to no little extent.

The descriptions of the erection, with slides to illustrate the same, of such structures as the Forth Bridge, New York and Brooklyn Suspension, Niagara Cantilever, Philadelphia Plate Girder, Red Rock Cantilever, the St. Louis Ead's Bridge, and the Washington Arch Bridge over the Harlem River, were listened to with great interest.

The lecture was of great value to the Seniors, considering they have so nearly finished bridge design and were just ready for it; and we may say of equal value to the third-year men, in that they have grasped several introductory ideas in anticipation of their next year's work.

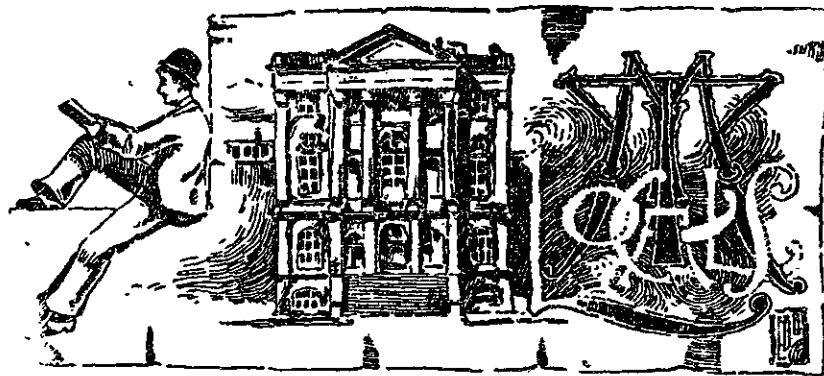
The Tech. Society of Philadelphia.

THE Tech. Philadelphia Society held its spring meeting at Soula's Café, Fifth Street, Philadelphia, Pa., on Tuesday, April 27, 1897, with some twenty members present. E. V. Seeler, '91, was Toastmaster. Routine business was disposed of, and a "Bohemian Luncheon and Smoke Talk" followed.

Action was taken regarding the death of President Walker. Resolutions were adopted and have been received by THE TECH.

The Society is progressing, with a membership of fifty-five. The next fall meeting will be held in November.

Crum, of Iowa University, died last week. Crum's remarkable performance in the Intercollegiate Games of 1895, when he won the 100 in 10 seconds flat, and also the 220-yard dash, is still fresh in the memory of all.



In its recent Junior Week Play the Walker Club cleared between fifty and seventy-five dollars.

A tablet has been placed in the Public Library in memory of Eugene L'Etang by his former pupils and friends.

Captain Bigelow announces that the examination in Military Science will cover lectures XXI., XXII., XXIII., XIX., and the lecture to be given next Saturday.

Captain Bigelow announces that all back drill absences can be made up at any of the special drills to be held in preparation for the Intercollegiate Drill, May 21st.

In the Harvard dual games the Harvard team may use any man who does not compete against Yale at New Haven, whether he is in the regular Mott Haven team or not.

The Co-operative Society have arranged to have the supply rooms in the Engineering and Architectural Buildings open from 9 A. M. to 4.30 P. M., instead of alternately two hours each as previously.

Messrs. James and Russell, Course II., have constructed an apparatus which can be attached to an ordinary micrometer, enabling it to be read to .00001 of an inch. The apparatus is for use in connection with their thesis work.

Owing to the limited floor space, but thirty-two privates from each of the four companies will be able to take part in the Battalion Drill on May 21st. Only the best drillers will be taken, each captain selecting those whom he is to command.

The first volume of *The College Athlete*, a new magazine devoted to college athletics, contains an article on Technology's Track Team, which comments upon our chances at the Intercollegiate Championship meeting.

There will be a meeting of the Technology Wheelmen Thursday, May 20th, at which will occur the election of officers for the year. Nominations were closed May 10th, and the following will be elected: president, vice president, secretary-treasurer, captain, first lieutenant, second lieutenant, ensign, and trumpeter.

On Friday afternoon, May 7th, a party of thirty-five men, made up mostly from Course I., were given an excursion down the Harbor to Moon Island and the Pumping Works. Professor Porter arranged the trip as a supplement to some of his lectures relative to the Sewage Disposal of Boston and other large cities. The city officials very courteously placed at the disposal of Professor Porter and party the city boat, "The Cormorant." At the Pumping Works in Dorchester Bay the students had explained to them the means of bringing the sewage to that point and from there were carried to Moon Island. A splendid idea was obtained as to the relative size and general features of a direct-acting fly-wheel pumping engine and the duplex or Worthington pattern of pump. It was a great surprise to all to see such a difference in size in two plants, both having the same capacity. This illustrated the characteristics of "high" and "low duty" pumping engines. While the party was at Moon Island, the tide running out, the sewage was discharged into the harbor from the storage reservoirs. The six hundred foot line of shafting which operates the gates to the reservoirs was a most interesting feature of the works. The trip was splendidly arranged; the weather was fine; and to close a most instructive and enjoyable day the captain of the Cormorant took an extended run around the harbor.

EVERYTHING NEW AND STYLISH.

Spring Clothing.

COVERT CLOTH SPRING OVERCOATS,

Strap Seam 33 inches long.
 Strap Seam 36 inches long.
 Welt Seam 38 inches long.
 Also with Patch Pocket

Also, Black Worsted, Vicuna Mills.

Our \$12.00 Overcoat is as good as most men will care to wear.

We have them also at \$5.00, \$7.50, \$10.00, \$15.00, and \$18.00.

“TAILOR-MADE” SUITS.

Elegant Styles and patterns, in fancy plaids and checks, Staple Mixtures and Serges . . .

We are particularly strong in our \$10.00 and \$15.00 lines, many of them being equal in quality, fit and style to suits sold elsewhere for \$15.00 and \$20.00. Made from finer goods, \$18, \$20, \$22. They are full of style.

It will pay to call and examine our styles, qualities, and very low prices. They are unequaled.

Don't Forget Our Location. We are in the Wholesale District. Open Saturday Night.

Spitz Bros. & Mork, . . . 67 & 69 Summer St.

BIKE and GOLF SUITS.

L. A. W. Gray, Blue, Black, Fancy Plaids, Checks and Mixtures. Made in Regulation and Golf Styles.

We carry a very large line of our own manufacture. We sell CLOTH to match for Ladies.

OUR LEADERS.

BIKE SUITS (Fancy Plaid) . . . \$3.75
 L. A. W. GRAY BIKE SUITS . . . \$4.00
 BIKE SUITS (Fancy Plaid) . . . \$5.00
 GOLF SUITS, “ “ . . . \$5.50

Strong Materials, Stylish Patterns.

THE BIGGEST BARGAINS IN BOSTON.

Prove the truth of this statement by examining them for yourself.

A large line of COMBINATION SUITS, viz.: Regular Business Suit, with extra Golf or Bike Pants.

T. E. MOSELEY & CO.,

Fine Shoes.

Spring Goods now ready. All the latest styles in Black, Tan, and Patent Leather.

Co-operative Discount to Technology.

T. E. MOSELEY & CO.,

469 Washington Street = Boston.

DECORATING

For Weddings, Teas, Receptions, Etc.

NORTON BROTHERS,

Florists,

CORNER BERKELEY AND BOYLSTON STREETS

UNDER HOTEL BERKELEY,

BOSTON.

BRANCH STORE:

... No. 61 Massachusetts Avenue ...
 Cor. Commonwealth Avenue.

GREENHOUSES AT DORCHESTER.

CONNECTED BY TELEPHONE

Electrical Engineering Society.

LAST Tuesday evening the Electrical Engineering Society held at the Technology Club the last regular meeting of the present year, which has been the most successful in its history. The speaker of the evening was Mr. C. J. H. Woodbury, of the American Bell Telephone Company, who spoke on Electric Protective Devices, paying particular attention to those in use on telephone circuits. At the close of his address President Dougherty introduced Professor Cross, who announced that the Supreme Court had decided the Berliner patent case in favor of the Bell Company, and then gave an interesting outline of this most famous law suit. In closing, he mentioned his appreciation of the fact that the society, in a prosperous condition, was of benefit not only to the members but to the Institute as well. The members then adjourned to the dining room, where light refreshments were served. The remainder of the evening was spent in conversation in small groups, which gradually broke up until all were gone.

Provisional Schedule of Annual Examinations, 1897.

SUBJECT TO CORRECTION BY BULLETIN.

Regular exercises will end as follows: Third and Fourth Years, Saturday, May 22d; Second Year, Wednesday, May 26th; First Year, Saturday, May 29th.

Monday, May 24.—4. Hydraulics,* 9.00, Metallurgy of Iron, 2.00.

Tuesday, May 25.—4. Elect. Eng., Dynamo Design 9.00, Structures A, 9.00; 3, 4. Hist. of Renaissance, 2.00, Pol. Econ. and Indust. Hist., 2.00.

Wednesday, May 26.—4. English Literature, 9.00, Hydraulic Motors, 9.00, Least Squares,* 2.00, Metallurgy, 9.00, Naval Architecture, 9.00, Organic Chem., 9.00, Physical Laboratory,* 9.00, Structures B, 9.00; 3. Applied Mechanics, 9.00.

Thursday, May 27.—4. Arch. of Renaissance, 2.00, Dyn. Testing and Wiring, 2.00, Gas Analysis, 2.00, Machine and Motors, 9.00, Micros. Anatomy, 2.00; 3. Geology, 2.00, Theoret. Electricity, 9.00.

Friday, May 28.—4. Applied Mechanics, 9.00, Bridge Design, 9.00, Elec. Motor Al. Cur. Mac., 9.00, History of Philosophy, 2.00, Mining Engineering, 9.00; 3, 4. Theoret. Chemistry, 9.00; 3. Arch. History, 9.00, Organi

Chemistry, 9.00, Steam Engineering, 9.00, Structures, 9.00; 2, 3. Anal. Chem. (vol.), 9.00; 2. Descriptive Geometry,* 2.00.

Saturday, May 29.—4. Arch. of Ren.,* 9.00, Heating and Ventilation,* 9.00, Electro. Chem., 9.00, Hydraulic Engineering, 9.00, Periodic Currents,* 9.00, R. R. Engineering, 9.00, Theoret. Biol., 9.00; 3, 4. History of Industry, 9.00; 3. Elect. Meas. Inst., 9.00, Indust. Chemistry, 9.00; 2. Physics, 9.00.

Monday, May 31.—4. Applied Mechanics,* 9.00, Dynamo Testing,* 2.00, Electrical Eng.,* 2.00, Geodesy, 9.00, Locomotive Engineering, 9.00, Marine Engineering, 9.00, Mill Engineering, 9.00, San. Biol. Wat. & Sew., 9.00; 3, 4. Political Economy,* 2.00; 3. Physics,* 9.00; 2, 3. American History,* 9.00, English Literature, 2.00.

Tuesday, June 1.—4. Comp. Physiol., 9.00, Dynamo of Mach.,* 2.00, Hydraulic Machine, 9.00, Periodic Currents, 9.00, R. R. Eng.,* 9.00; 3, 4. Anal. Chemistry, 9.00; 3. Arch. History,* 9.00, English Literature, 2.00, Mining Engineering, 9.00, R. R. Engineering, 9.00, Surveying (II.), 2.00, Telegraphy,* 9.00; 2, 3. English Literature, 2.00; 2. Diff. Calculus,* 9.00; 1. Mec. Draw.* (IX.), 2.00, U. S. History, 9.00.

Wednesday, June 2.—4. Anal. Mechanics, 9.00, Diff. Equations,† 9.00, Machine Design,* 9.00, Organic Chem.,* 2.00, Steam Eng.,* 2.00, Structure,* 9.00; 3, 4. Indust. Elect.,* 9.00; 3. Anal. Mechanics, 9.00, Assaying,† 9.00, Highway Engineering, 9.00; 2. Determinants, 2.00, Mach. Tools and Cot. Mach., 9.00, Orders,* 9.00, Phys. Geog., 9.00; 1. Algebra,* 9.00, Military Science, 2.00.

Thursday, June 3.—3, 4. Anal. Chem.,* 2.00; 3. R. R. Eng.,* 9.00, Calculus Adv., 9.00, Naval Architecture, 9.00, Sanitary Chemistry,† 9.00, Theoret. Elect.,* 9.00; 2, 3. Anal. Chem.,* 2.00, Anal. Chem. (grav.), 9.00; 2. Acoustics,* 9.00; 1. Chem.,* 9.00, English,* 2.00; 2. Anal. Chem. (qual.), 9.00.

Friday, June 4.—3. Comparative Anatomy, 9.00, Sociology, 9.00, Surveying, 9.00; 2. Biology, 9.00, Botany, 2.00, Physical Meas., 9.00, Shades and Shadows,* 2.00; 1. Analytic Geometry, 9.00.

Saturday, June 5.—3. Applied Mech. I., XI,* 9.00, Valve Gears,* 9.00; 2. Theoret. Chem.,* 9.00; 3. Botany Crypt., 9.00; 2. Theoret. Electricity, 9.00, Zoölogy, 2.00; 1. Logic, 9.00, Trig.,* 9.00, Solid Geom.,* 9.00.

The number of men in the Class of 1900 who have chosen the various courses may be of interest: Course I., 53; Course II., 71; Course III., 32; Course IV., 21; Course V., 21; Course VI., 44; Course VII., 3; Course VIII., 1; Course IX., 8; Course X., 13; Course XI., 2; Course XII., 0; Course XIII., 11.

* For conditioned students only.

† Regular and condition examinations.

Mid-Lent in Paris.

MI-CAREME, or Mid Lent, is a great festival in Paris. It is celebrated by a carnival entirely organized by the students of the Latin Quarter. The great feature on this momentous occasion is a procession, the principal actors in which are students, and the employees of the lavoirs or wash-houses.

Let us imagine ourselves on Mi-Careme day, seated on a balcony of the Grand Hotel, from which we can obtain an excellent view of the Place de l'Opera, and also of the Grands Boulevards, down which the procession will pass. It is two o'clock. The procession will soon arrive. The circulation of carriages and vehicles of all sorts has been stopped so that the people, with whom the broad Boulevards and the Place are filled, walk through the middle of the thoroughfare without hindrance from or fear of horses. Many of that immense congregation are dressed in wildly fanciful costumes. Many more wear huge, deformed, pasteboard noses or fantastic beards. All are in the best of spirits, laughing, shouting, jesting with every one. All are armed with confetti, little bits of colored paper which are thrown in the face of the nearest neighbor. Battles, in which confetti are the missiles used, are raging everywhere, and clouds of brilliantly colored paper are flying over the heads of the combatants.

Just opposite us are the rooms of the "Jockey Club," whose members are at their windows emptying the whole contents of large canvas bags of confetti upon those below. The effect of these showers is extremely pretty. The bits of paper fall slowly toward the mass of heads beneath with a flitting motion, the white ones reflecting the rays of the sun in their descent. The trees of the Boulevards, as far as the eye can see, are covered with long colored paper ribbons, the ends of which float gently to and fro. These ribbons or serpentins are wound in flat coils and are thrown in the air, one end of the coil being held by the thrower. They

are now being freely used from all the windows round us. In every direction coils are flying, leaving a long tail of unrolled paper behind them.

Suddenly we hear a great cry from those on the boulevard, "Les voilà, les voilà!" They have just caught sight of the procession coming along the Grand Boulevards. In a few moments a body of police force themselves through the center of the crowd, pushing the people toward the sidewalks. The police are followed by a detachment of mounted Republican Guards, who effectually clear the road of any unfortunate person who may have escaped the shoves of the policemen.

After an interval of a hundred yards or so, during which a few Republican Guards gallop up and down the edges of the cleared space in order to keep the people back, another body of horsemen appears. These cavaliers are dressed in the gorgeous costume of musketeers. Any one of them might be taken for one of the heroes of Dumas's novel,—Porthos, Athos, Aramis, or d'Artagnan. A medley of students comes next. They are disguised as crocodiles, monkeys, horses—as every animal imaginable or unimaginable. Now the great cars, or chariots—the chars—begin to appear. Each char is organized by a wash-house. It usually takes the form of a pyramid, gayly decorated, with rows of seats all the way up. At the top is seated the "queen" of the car, and near her is the king. On their heads are magnificent, bejeweled crowns of gold,—the gold being pasteboard, the jewels glass. The occupants of the char throw confetti and serpentins galore to the mass of onlookers on each side, which are often mixed with kisses by the pretty laundresses, all of which, confetti, serpentins, kisses, are returned with interest by—frivolous youths resembling ourselves.

After a considerable number of these chars have passed, another great shout is given by the crowd on the Boulevard. "Voilà la reine des reines!" they cry,—“Here comes the

queen of queens!" A char, far more gorgeous than any of the preceding ones, appears, bearing the queen of queens, who has been elected to her suzerainty for a single day. The mass of people applaud wildly, and the reine des reines bows to the right and left in acknowledgment. The char passes on, and is succeeded by many others of minor grandeur. These finally give place to advertisements of all sorts: carts covered with placards; a movable platform, on which is Mephistopheles cooking potatoes in a patent saucepan; a gigantic baby, ten feet high, walking along while it absorbs milk from a particular kind of feeding bottle. The cortège is closed by another detachment of Republican Guards, and the procession passes out of sight.

We descend to the street, and each purchases a large bag of confetti from the proprietor of a handcart, that is loaded down with them, after which indispensable transaction we soon lose ourselves in the crowd, while chasing charming little Parisiennes in order to stuff confetti down their white necks, and perhaps steal a kiss from their laughing lips.

BERTRAM W. B. GREENE.

Mechanical Engineering Society.

THE committee appointed to investigate the question of forming a Mechanical Engineering Society at the meeting of the Junior Course II. men on April 9th, presented its report on Thursday the 6th inst., to a meeting of members of Courses II., X., and XIII., from the three upper classes.

Some forty men were present, a number which betokens much live interest in the matter, as absolutely no attempt has been made to boom the scheme or to arouse any temporary enthusiasm.

The committee has had the earnest cooperation of Professor Lanza, and reports a generally favorable attitude of all the pro-

fessors in the department, provided that the students take a proper interest, and appreciate the duty incumbent upon them to support the organization.

A constitution was adopted and officers elected, after which Mr. Hawkins, of '97, gave a careful description of the arch testing apparatus which he and Mr. Eaton are using in their thesis work. Mr. H. A. Clark then gave a detailed account of the test which he made, in conjunction with Mr. Feely, of a power plant at Adams, Mass. Mr. Cowles, president of the Civil Engineering Society, offered some valuable suggestions for the work of the new society.

After the beginning of the next term membership will be limited to students in the three courses mentioned, who have had two years work at the Institute, or its equivalent. The officers are G. A. Hutchinson, '98, President; G. O. Haskell, '98, Vice President; S. S. Philbrick, '98, Secretary-Treasurer; A. A. Packard, '98, and G. B. Street, '99, Executive Committee.

COMMUNICATIONS.

The Editors do not hold themselves responsible for opinions expressed by correspondents.

TO THE EDITORS OF THE TECH:—

I WISH to call attention to what seems to some of us an unfair imposition. The Junior architects are one and all much incensed over an additional problem in design which has just been imposed to be due May 24th. The class need all their time to finish the problem now in hand, that of an Ecole des Beaux Arts; and feel that any delay on the same has been the fault of the instructors who have neglected the class in their work on the competition drawings for New York.

IV., '98.

Throwing the discus has become extremely popular now, and there are as many as a dozen men out daily practicing it. H. W. Jones recently made 102 feet in practice.



Nineteen hundred outclassed Belmont Academy in the seven-inning game played last Saturday. But few hits were made off Woodward and Cotting, while Belmont's pitchers were easy marks for '00. The score was 13 to 1, in favor of '00.

Ninety-nine played four innings with the Boston College Freshmen on Franklin Field last Friday. Errors by '99's second and third basemen in the first inning gave Boston ten runs, and a lead that placed them out of danger. The game stood, at the end of the fourth inning, 11 to 9, in favor of Boston College.

Ninety-nine put up a wretched game on Saturday, with Arlington High. At the close of the seventh inning the game looked like a shut-out for '99, Arlington having made eighteen runs. Ninety-nine got three runs in the eighth, however, and, through a sudden demoralization of their opponents in the ninth, nine more. Arlington won, with a score of 19 to 12.

Nineteen Hundred defeated Groton School on Wednesday by a score of 15 to 10. Whitehouse pitched the first three innings, but received little support from the rest of the team. Cotting, who took his place, made an excellent showing, holding Groton down to a few unimportant hits. Chaffee has been placed permanently in center field, and Crowell now fills right field; Glover, who formerly played in this position, having given up baseball for the season. It is to be regretted that the team has lost so strong a batter and so steady a fielder as Glover has shown himself throughout the season.



In a recent issue of the *Engineering and Mining Journal* is an article stating the apparent comparative abilities of English and American Engineers, more particularly of Mining Engineers. By the comparison it is obvious that the American engineer has the prestige; and, although no sweeping characterization is made, yet it is forcibly stated that it is time to make a radical change in the method of training in England, for under the present system the Englishman must stand aside for engineers of other countries. In conclusion, the article states that it is no longer "American brag" to say that American engineers, especially in mining, metallurgy, railroad and mechanical work, are more successful than those of any other country, command larger salaries, and are more in demand. The alumni of the Institute should certainly take a share of satisfaction in the above, as standing among the foremost of American Engineers.

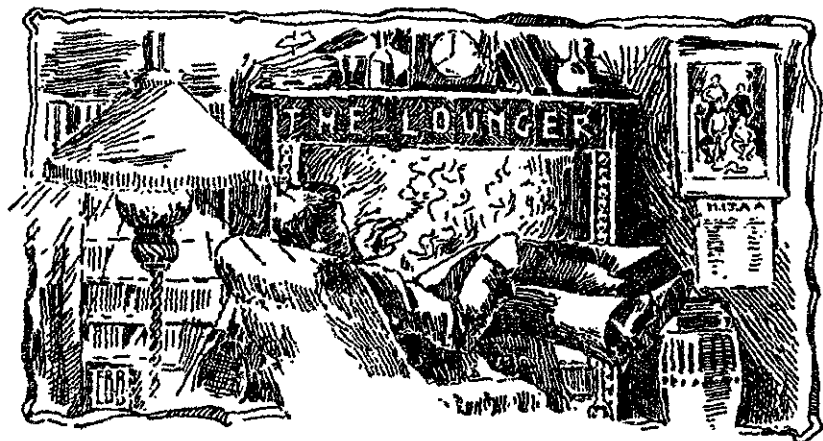
'86. E. C. Lufkin, Course II., is General Manager of the Snow Steam Pump Works of Buffalo, N. Y.

'86. A. S. Garfield, Course II., is representing the General Electric Co. at Paris in charge of the consideration of electric roads in Italy.

'87. George L. Norris, Course III., has lately accepted a position with the McNeil Pipe and Foundry Co., of Burlington, N. J.

'90. James A. Carney, Course V., has changed his address to the following: Care of C. B. and Q. Ry. Co., Beardstown, Ill.

'95. Charles M. Adams, Course VI., is in the employment of the Metropolitan Water Board.



WHEN the Lounger is at a loss for a suitable victim for his shafts of genial satire, which occurs at rare intervals, he betakes him to the Exchange Table and seldom fails to find tempting opportunities. In a recent number of the journal emanating from the Amherst Agricultural College the following appeared anent the Intercollegiate Drill: "Lieutenant Wright has offered the sum of ten dollars for the Aggie student who wins first prize, and five dollars to the winner of the second, and if we get both the prizes the Lieutenant will give fifteen dollars." Now this is of considerable interest. In the first place it strikes the Lounger as rank professionalism. Inter-college military competitions should be regulated as strictly as athletic competitions; and how can the standards of amateurism be upheld if cash prizes incite the contestants? And such munificent prizes must have a peculiarly great effect. The honor of his college and the personal glory of a victory in Mechanics Hall over Brown and Technology are weighty incitements to earnest work; but with five dollars to be gained, how the labors of the bucolic collegians will redouble! How eagerly will they all hasten to the local Armory, like the first settler of Cincinnati, leaving their ploughs and spades sticking in the furrows! How deftly will they manipulate their erstwhile rifles with a skill born of long practice in handling the pitchfork and the churn-handle. And note particularly the mathematical aptitude of the editor who wrote the article from which the Lounger has quoted. Lieutenant Wright will give ten to any man who can win first place, and five to one who secures second place. If the agriculturalists get both places he will give fifteen dollars. Mark the accuracy, the marvellous accuracy, with which the writer almost instantaneously and at one leap concludes that the sum of five and ten is equal to fifteen. This would do credit to the genial Webster himself.

There was an underclassman who had to write a

theme in English literature. Others have done the same. And it happened that he was lazy and did not want the trouble of composing one. This also has been known to be the case before. But the youth in question was of an ingenious turn of mind, and having found his subject in an encyclopedia he copied out the requisite amount verbatim, and handed it in. When the corrected themes were returned he took his with the calm confidence of duty faithfully done. When he looked into the folded paper, however, he was horrified by a profusion of crimson ink and the comment at the top read, "Your ideas are good, but your expression is crude and sophomorical. Rewrite." Thereupon the young man smole a sweet sad smile and went home to write his own theme.

"Avast! Belay there! Shiver my timbers!" remarked a prominent Institute man as he walked into THE TECH office the other day. The Lounger divined at once that the Yacht Club must have been holding one of its dinners, and he asked the battered sea-dog to sit down and tell him all about it. He said the feast had been very pleasant and all that, but there seemed a lingering shade of disappointment in his tone. When pressed hard for the truth he finally acknowledged that the dinner had been different in a way from the classic revels of the past. "It was—well—it was quieter and more orderly, you know." "More of the '98 Freshman Dinner order?" suggested the Lounger. "Yes, that is it exactly. Oh, it's a good thing, you know. If the fellows get over their distaste for fresh water they may be more inclined to salt. Still I can't help thinking of the old times when we——. By-the-by, did you know the New York Yacht Club was going to cruise with us this summer?"

Time's Changes.

Long we sat on deck together,
While the summer moon hung low;
Water lapping, all else napping
Soundly down below.

Scarcely need to say I wooed her,
Paid her every tender vow;
My caresses smoothed those tresses,
Clustering black about her brow.

Last night once again I met her;
Queer some people look in town!
Hardly knew her (hair renewer?);
Now those locks are chestnut brown!

CORYDON.

Established 1828.

CHAUNCY-HALL SCHOOL

HAS LONG MADE A

SPECIALTY OF PREPARATION FOR
TECHNOLOGY.

REFERENCE is made to the President and Secretary of the Institute in regard to the thoroughness with which Chauncy-Hall pupils are fitted, not only for entering the Institute, but also for pursuing successfully their subsequent work. Preparation also for business and for college.

Regular Grammar and High-School
Courses, fitting for Business
and for College.

458 Boylston Street, - - Boston, Mass.

(OPPOSITE THE INSTITUTE)

TAYLOR, De MERITTE & HAGAR,
PRINCIPALS.

LEYLAND LINE

BOSTON AND LIVERPOOL

THE LOWEST RATES CROSSING THE ATLANTIC.

These Steamers are appointed to sail from BOSTON EVERY WEDNESDAY, from Pier 6, Boston and Albany Docks, East Boston, and from LIVERPOOL EVERY SATURDAY.

These new and immense steamships are the largest vessels sailing from Boston, and have a limited number of staterooms for first-cabin passengers at very moderate rates. No steerage carried. The staterooms are large and roomy, and are located on the top, or Bridge Deck, thus insuring the best of ventilation. For passage, cabin plans, etc., apply to

F. O. HOUGHTON & CO.

General Passenger Agents,
115 State Street, corner Broad Street, BOSTON.

The Adams Cable Codex, a Cipher Code; the most complete publication of its kind issued for Circulation among Travelers.

BROWN & SHARPE MANFG. CO., PROVIDENCE, R. I.

No. 3.—25 inches x 7½ inches x 18½ inches.

UNIVERSAL MILLING MACHINE.

With Hand or power Transverse and Vertical Feeds.

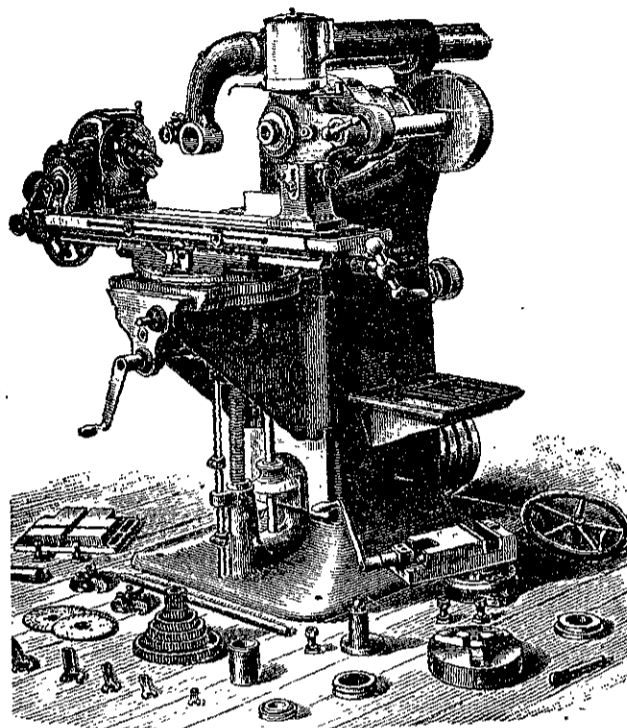
Patented Feb. 5, 1884; Feb. 14, 1893; May 23, 1893.

THE Table has an automatic longitudinal feed of 25 inches, a transverse movement of 7½ inches, and can be lowered 18½ inches from center of spindle.

The centers swing 12 inches in diameter and take 21 inches in length.

Net weight, 2,500 pounds.

Catalogue and Circulars describing the full line of Milling Machines for tool room and manufacturing purposes, mailed upon application.



Chicago Office and Store:
23 South Canal Street.

New York Office:
136 Liberty Street, Room F07.

If You Draw,

PURCHASE YOUR . . .

Drafting Instruments,
Drawing and Blue Process Papers,
Scales, Triangles, Curves,
T Squares, Colors, etc.,

FROM THE MANUFACTURERS.

Wadsworth, Howland & Co.,

INCORPORATED,

Branch Store: Grundmann Studios,
adjoining Architectural Building.

Main Office: 82 & 84 Washington St., Boston.

Factories: Malden, Mass.

SPECIAL RATES TO STUDENTS.

**ALBERT BENARI,
Tobacconist,**

33 TREMONT STREET, - - - BOSTON, MASS.

Agent for the Bohemian Mixture.

FINE LINE OF FRENCH BRIAR PIPES ALWAYS
ON HAND.

New Tech Pin.

HENRY GUILD & SON

Have the best Tech Pin yet for 75 cents; also a combination of gold and silver for \$1.00, and Solid Gold at \$3.00. For sale at the Institute and

433 Washington St., Boston.

WRIGHT & DITSON...

Athletic Outfitters to the leading Colleges, Schools, and Athletic Clubs of New England.

BASEBALL

Supplies of Every Description for
Athletic Sports.

Tennis, Golf, Cricket, Track, and Field
Supplies. Gymnasium Equipments.

Discus Throwing. — Full line of Supplies for
this popular sport.

Estimates and Samples for Team Uniforms, etc.,
furnished on short notice. Secure our rates
before purchasing. Special attention to mail
orders. Catalogue free.

WRIGHT & DITSON,

344 Washington Street, Boston, Mass.



MANDOLIN, Banjo and Guitar Lessons.

Instruments, Best Strings, Latest Music, etc.

G. L. LANSING, No. 171 Tremont St.

Ask for Mr. Lansing.

CAREY, TEACHER OF DANCING,

212 BOYLSTON STREET, HOLLANDER BUILDING.

Most convenient location in the city. Classes
for Beginners and Advanced Pupils.

PRIVATE LESSONS.



MESSINGER & JONES,

Makers of

Men's Clothes,

388 Washington St., Boston.

**RIDING, KNICKER AND GOLF WORK
A Specialty.**

STUDENTS

Are cordially invited to inspect our work, which is a model of neatness, and artistically done. None but competent men employed.

Your patronage is respectfully solicited.

ERNEST M. ALEXANDER,
Copley Square Hotel.

Hair Dressing Parlor,

Cor. Exeter Street and Huntington Ave.

THE BRUNSWICK

BOSTON.

Boylston and Clarendon Streets,

(Adjoining Copley Square)

Near the Museum of Fine Arts,
New Public Library, New Old
South Church, and opposite
Trinity (Phillips Brooks')
Church, and Institute
of Technology.

**KEPT ON BOTH AMERICAN AND
EUROPEAN PLANS.**

BARNES & DUNKLEE, Proprietors

H. H. BARNES, Manager.



Scientific Books } DAMRELL & UPHAM,
The Old Corner Bookstore,
283 Washington St., Boston.

CLASS-DAY INVITATIONS,

BLANK BOOKS, FOUNTAIN PENS,
CAN BE FOUND AT THE CO-OPERATIVE STORE,
H. H. CARTER & CO., 5 Somerset St., near Beacon.

Bookbinding

IN EVERY STYLE.

ALEX. MOORE, 3 School Street, BOSTON.



Week beginning May 17, 1897.

Hollis Street Theatre.—Monday, May 17, Kellar, the great magician, is to be the attraction at the Hollis Street Theatre, and the opening night has been set apart for a testimonial to Mr. Charles J. Rich by the many friends who wish to express their appreciation of his labors in behalf of the Boston public.

The Tremont Theatre.—Mr. E. S. Willard will play a week's engagement at the Tremont Theatre, beginning May 17, when he will present "The Rogue's Comedy," "The Middleman," and "The Professor's Love Story." The performance

of these three plays, given during this visit of Mr. Willard, will be their farewell performances in Boston, not being included in his repertoire next year.

Castle Square Theatre.—The comedy company at Castle Square Theatre is meeting with unbounded success; the play is good and the company promises to become very popular with the dramatic patrons in the city. "The Banker's Daughter," by Bronson Howard, is billed for the week of May 17.

The Boston Theatre.—Miss Fanny Davenport is coming to the Boston Theatre May 17. The engagement is limited to eight performances of Sardou's plays.

The Boston Museum.—The audiences at the Boston Museum the past week fairly shrieked with laughter at the motion pictures shown in "The Good Mr. Best." It is not often that one finds an absolute novelty in a farce, but these pictures and their application to the plot are simply great.

The Zoo.—The return of Chiquita, everybody's favorite; the most diminutive atom in the world—singer, dancer, and comedian.

HOW TO MAKE MONEY.

Students and others who wish to improve their time profitably while in school, or during the summer months, should take an agency for EVERYBODY'S DICTIONARY, vest pocket size. This little dictionary contains over 33,000 words, and is the most useful book published. One man has sold more than 1,500 copies. It makes a splendid "side line" in connection with other business. Write for catalogue and terms, to

The Practical Text-Book Co.,
CLEVELAND, OHIO.

50 cents
Stationery,
Monograms,
Dies, etc.

Have you heard about our
"Assorted Styles Box"

of fine stationery? 36 sheets (no two alike), and 36 envelopes to match—New and dainty styles and lovely tints. Includes samples of Monograms, Dies, etc. Best way in the world to select what you want for correct papers. *Post-*

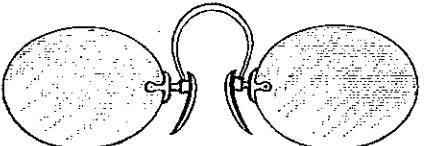
paid for 50 cents. Money cheerfully refunded if you say so. Customers are delighted. You will be. Try us. It shall cost you nothing.

SAMUEL WARD COMPANY,
49 Franklin Street, Boston.

OUR SPECIALTIES

Boston Linen
Boston Bond
Bunker Hill

Rimless Glasses.

25 per cent  Discount.

CO-OPERATIVE LIST.

Oculists' Orders Filled.

FACTORY ON PREMISES.

MAIL ORDERS A SPECIALTY.

CATALOGUES MAILED ON APPLICATION.

C. E. DAVIS,

Manufacturing and Prescription Optician,

2 PARK SQUARE - - - BOSTON.

I FLIGHT. ELEVATOR.

Trinity Court Café and Dining Rooms

European and American Plan. Table d'Hote Lunch, thirty-five and fifty cents, from 12 to 2.30. Breakfast, from 7 to 9, fifty cents. Dinner, from 6 to 8, sixty cents. Unexcelled cuisine. Choicest Wines, Liquors, and Cigars. Banquet Halls that will accommodate from three hundred to five hundred people, amply provided with reception, ante, and coat rooms. Orders for Refreshments or Banquets of any size promptly attended to. Decorations and service in the latest up-to-date style.

HALF PORTIONS SERVED,
ALSO SMOKING IN GENTLEMEN'S CAFÉ.

H. E. Sharpe, Proprietor.

HIBBARD & MASON

(INCORPORATED)

Tailors,

MUSIC HALL PLACE,

Telephone 579.

Off WINTER STREET.

BOSTON.

DRESS SUITS, SILK LINED, TO ORDER, \$45.

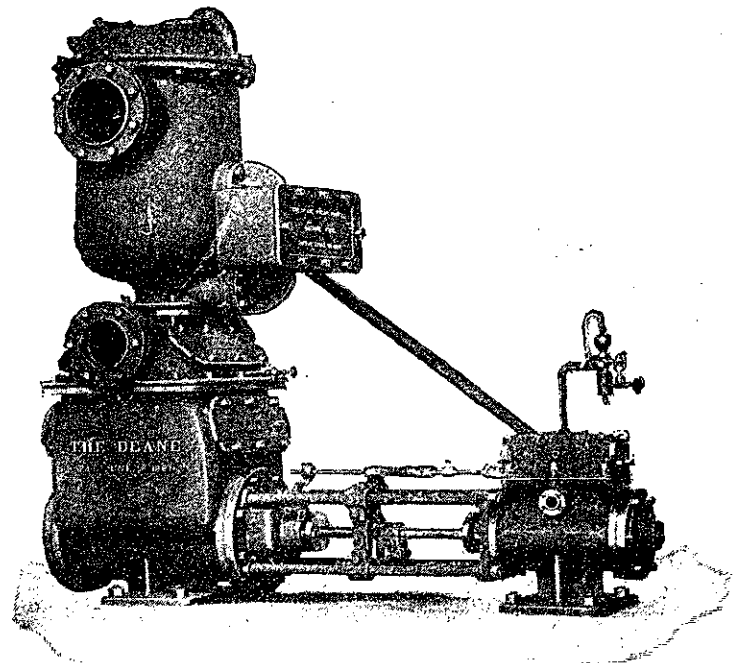
Dress Suits to Let.

THE DEANE STEAM PUMP CO.,

HOLYOKE, MASS.

Boston Office 54 Oliver Street.

PUMPING MACHINERY OF EVERY DESCRIPTION



DEANE INDEPENDENT

CONDENSING APPARATUS.



The Richmond Straight Cut No. 1 Cigarettes.

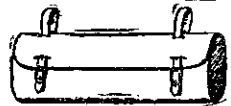
Cigarette Smokers who are willing to pay a little more than the price charged for the ordinary trade cigarettes, will find this brand superior to all others.

These **Cigarettes** are made from the brightest, most delicately flavored, and highest cost **Gold Leaf** grown in Virginia. This is the **Old and Original Brand of Straight Cut** Cigarettes, and was brought out by us in the year 1875.

Beware of imitations, and observe that the firm name as below is on every package.

ALLEN & GINTER
THE AMERICAN TOBACCO CO., SUCCESSOR,
 Manufacturer, **RICHMOND, VIRGINIA.**

FOR THE
 BICYCLE.



**DON'T RIDE WITHOUT
 A REPAIR KIT.**

FOR
 YOU.



POND'S EXTRACT is unequalled for quickly healing all kinds of **WOUNDS, BRUISES, LAMENESS** or **RHEUMATISM.**

Rub thoroughly with POND'S EXTRACT after every ride to keep the muscles supple, pliant, strong. Try POND'S EXTRACT OINTMENT for PILES.

AVOID SUBSTITUTES - Weak, Watery, Worthless.

POND'S EXTRACT CO., 76 Fifth Ave., New York.

50 YEARS'
 EXPERIENCE.



TRADE MARKS,
 DESIGNS,
 COPYRIGHTS, &c.

Anyone sending a sketch and description may quickly ascertain, free, whether an invention is probably patentable. Communications strictly confidential. Oldest agency for securing patents in America. We have a Washington office. Patents taken through Munn & Co. receive special notice in the

SCIENTIFIC AMERICAN,
 beautifully illustrated, largest circulation of any scientific journal, weekly, terms \$3.00 a year; \$1.50 six months. Specimen copies and **HAND BOOK ON PATENTS** sent free. Address

MUNN & CO.,
 361 Broadway, New York.

WE wish to call your attention to our new store, which we have opened at **329 COLUMBUS AVENUE**, where we shall carry a full line of **MEN'S FURNISHING GOODS**, comprising all the latest styles in . . .

*Neckwear, Collars and Cuffs, Hosiery, Gloves,
 White and Fancy Bosom Shirts, Underwear.*

NEW AND NOBBY GOODS AT LOWEST PRICES.

329 COLUMBUS AVENUE,
 (Just below Conklin's Pharmacy.)

A. COHEN.

AGENCY FOR CAMBRIDGE LAUNDRY.

Established 1843.

Incorporated 1895.

"STUDENTS," ATTENTION!

LARGEST STOCK AND LOWEST PRICES
 . . . ON . . .

MATHEMATICAL INSTRUMENTS

AND DRAWING MATERIALS OF ALL KINDS, at

FROST & ADAMS COMPANY'S.

IMPORTERS AND WHOLESALE DEALERS,

37 CORNHILL, - - - BOSTON.

"SPECIAL RATES TO COLLEGES."

NEW ILLUSTRATED CATALOGUE FREE.

ESTABLISHED 1889.

A. H. MATZ & CO.,

Merchant Tailors,

431 Columbus Ave., Next to Plaza Hotel.

We show a fine line of the best New York and London Specialties, in Suitings, Overcoatings, Bicycle Costumes, etc.

**Special Discount
to Students,**

many of whom we count among our customers. All work done on the premises.

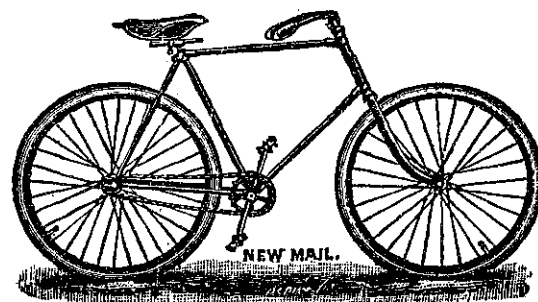
Cleansing, Pressing, and Repairing
Neatly Done.

OPEN EVENINGS.

NEW MAIL

HIGHEST GRADE LIGHT ROADSTER.

\$85.



MEN'S AND LADIES' pattern . . . \$85

Also **TEMPLAR** medium grade Men's Wheel . \$50

ATALANTA, Ladies' Pattern . . . \$50

Boys' and Girls' Wheels . . . \$15 up

Now closing out a few Shopworn and Secondhand Wheels, taken in trade, at very low prices. Bargains. \$25, \$30, etc.

Catalogue and Secondhand list.

.. WILLIAM READ & SONS ..

107 WASHINGTON STREET, BOSTON.

Elmer Chickering,

The Leading Photographer.

SPECIAL RATES TO STUDENTS.

THERE is not a photographer in New England who has been more successful than Elmer Chickering, of No. 21 West Street, and people who desire to have first-class photographs taken, of themselves, or of their friends, should go to this gallery. His success in the business is wonderful. His pictures are admitted to be exact reproductions of the subject, and are remarkable for their clearness and fidelity in detail. Among his patrons are the leading citizens of the United States, including presidents, governors, mayors, and others prominent in official lines, the highest military officers, the most prominent opera singers, the leading actors and actresses. Far and near his pictures are known. In Europe as well as America they are highly admired. Mr. Chickering is a host in himself, but with good judgment he has surrounded himself with a corps of operators and assistants in his operating rooms who have no superiors, while in his office is to be found young lady attendants who thoroughly understand how to please patrons, and by their uniform courtesy add much to the popularity of "Chickering's Studio."

NECKWEAR

UMBRELLAS

THE L. E. FLETCHER CO.

College Hatters and Outfitters.

Latest Styles and Popular Prices. Custom Shirts a Specialty.

M. I. T. CO-OPERATIVE SOCIETY.

No. 158 Boylston Street, Boston.

GLOVES

CANES