4-27-1893

The WPI Volume 9 Issue 2, April 27 1893

Students of Worcester Technical Institute

Follow this and additional works at: http://digitalcommons.wpi.edu/wpi

Recommended Citation
http://digitalcommons.wpi.edu/wpi/65

This Book is brought to you for free and open access by the WPI Student Publications at DigitalCommons@WPI. It has been accepted for inclusion in The WPI All Issues by an authorized administrator of DigitalCommons@WPI.
## CONTENTS

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editorials</td>
<td>13</td>
</tr>
<tr>
<td>Next Meeting of W. M. E. Society</td>
<td>14</td>
</tr>
<tr>
<td>From an Alumnus</td>
<td>14</td>
</tr>
<tr>
<td>W. P. I. Tennis Club</td>
<td>15</td>
</tr>
<tr>
<td>Bridge Contracts</td>
<td>15</td>
</tr>
<tr>
<td>The Tech Burlesque</td>
<td>15</td>
</tr>
<tr>
<td>Meeting of the Corporation</td>
<td>17</td>
</tr>
<tr>
<td>Foot-Ball</td>
<td>17</td>
</tr>
<tr>
<td>World's Fair Trip</td>
<td>17</td>
</tr>
<tr>
<td>Phi Gamma Delta Banquet</td>
<td>18</td>
</tr>
<tr>
<td>Base-Ball Schedule</td>
<td>18</td>
</tr>
<tr>
<td>Plans for N. E. L. A. A. Meet</td>
<td>18</td>
</tr>
<tr>
<td>Hand-Book for Graduate Students</td>
<td>18</td>
</tr>
<tr>
<td>Glee and Banjo Club Concert</td>
<td>18</td>
</tr>
<tr>
<td>Excursion by the Juniors</td>
<td>19</td>
</tr>
<tr>
<td>Victory No. 1</td>
<td>19</td>
</tr>
<tr>
<td>Class Games</td>
<td>20</td>
</tr>
<tr>
<td>B. U.—Tech Muddle</td>
<td>21</td>
</tr>
<tr>
<td>The Chess Tournament</td>
<td>21</td>
</tr>
<tr>
<td>Relay Ride</td>
<td>21</td>
</tr>
<tr>
<td>Alvord—Newton</td>
<td>22</td>
</tr>
<tr>
<td>Corrections in the Catalogue</td>
<td>22</td>
</tr>
<tr>
<td>Freshmen the Class Champions</td>
<td>22</td>
</tr>
<tr>
<td>College Notes</td>
<td>22</td>
</tr>
<tr>
<td>Shop Notes</td>
<td>23</td>
</tr>
<tr>
<td>Technicalities</td>
<td>23</td>
</tr>
<tr>
<td>The Intercollegiate Team</td>
<td>24</td>
</tr>
</tbody>
</table>

WORCESTER, MASS.

The Worcester Polytechnic Institute.
W. H. JOURDAN,
ANTHRACITE AND BITUMINOUS
COAL,
WHOLESALE AND RETAIL.
Fire Sand, Clay and Brick.
Offices: 366 Main St., and at Yard,
Green Street.
WORCESTER, MASS.

PHOTOGRAPH SUPPLIES
OF ALL KINDS IN STOCK.
Blake, Cramer, Carbutt, Harvard, Phenix, Standard
and Stanley Dry Plates.
BLAIR AND EASTMAN ROLL FILMS, ALBUMEN, ARISTO,
BRONZE, IOTA, OMEGA, SOLIO AND
PLATINOTYPE PAPERS.
Received Fresh, Every Week.
HAWKEYE, PREMIER KODAK
CAMERAS.
12" Platinoype and Card Mounts, Chemicals, Developers, Toning
Solutions, etc.
THE WORCESTER SUPPLY COMPANY,
366 MAIN STREET, WORCESTER, MASS.
Third Door North of Pearl St.

THE HERCULES
TURBINE WATER WHEEL.
Best
Part-Gate
Efficiency of
Any Water
Wheel ever
made.
Manufactured by
HOLYOKE MACHINE CO.,
WORCESTER, MASS.

S. I. HOWARD,
CARPENTER AND BUILDER,
Estimates furnished on all kinds of work. Store Fronts
in Heavy Brick, Stone, or Iron Buildings a
Specialty.
RESIDENCE 63 MAIN ST.,
WORCESTER, MASS.

J. A. YOUNG,
CATERER.
Catering of all Kinds.
Institute Work a Specialty. Estimates Given.
7 HIGHLAND STREET.
W. A. ENGLAND, THE JEWELLER

We make a SPECIALTY of REPAIRING FINE WATCHES, CLOCKS, and JEWELLERY. ALL WORK WARRANTED.

SIGN OF THE SIDEWALK CLOCK.

394 Main Street, Worcester.

THE NEW ENGLAND GROCERY AND TEA HOUSE,
234 to 238 MAIN STREET,
Make a Specialty of IMPORTED and DOMESTIC GROCERIES.
Great Variety of Fruits and Candies. H. A. BROWN, Manager.

LUD C. HAVENER,
BICYCLES,
ATHLETIC GOODS,
CLOTHING, SHOES FOR SPRINTING, ETC., ETC.
Outfitters to W. P. I. CLUBS.
507 MAIN STREET.

IMPROVED WHEELOCK ENGINE.
50 to 3000 Horse Power. Built in all Forms,
CONDENSING, COMPOUND, TRIPLE EXPANSION.

WHEELOCK ENGINE COMPANY,
WORCESTER, MASS.

CHAS. HAMILTON,
BOOK, JOB, CARD, POSTER, AND NEWSPAPER PRINTER,
NO. 311 MAIN STREET, WORCESTER, MASS.
THE DEANE
Steam Pumping
Pumps. Machinery.

The DEANE STEAM PUMP CO.,
NEW YORK, BOSTON, CHICAGO, PHILADELPHIA, ST. LOUIS.

Send for Catalogue.

Davis & Company,
FINE CLOTHIERS,
MERCHANT TAILORS.

Young Men will be Interested in the Line of

READY-MADE * CLOTHING

We are prepared to Show for the Coming Season.

Novelties in SUITS, OVERCOATS and TROUSERS. Ask for the
Tech Discount.

Our Line of Woolens for Custom Work is Most Complete.
Our Work the Best. Our Prices Reasonable.

286 Main Street, Opp. Bay State House.
Special attention is called to the notice in another column of the next meeting of the Washburn Mechanical Engineering Society. Both of the papers to be read promise to be particularly interesting and instructive and no doubt will lead to a lively discussion. The value of these meetings both to alumni and students cannot be overestimated and it is earnestly requested that all who possibly can will be present. Members of the society are invited to bring friends as guests to the meeting.

Unless memory fails us there was appointed some time last winter three men from each class to constitute a committee which was to consider the matter of an organization of the students of the Institute. The idea of the undergraduates, or representatives from them, having some voice in college government seems to be growing and meeting with considerable favor in many colleges. We can not say that that idea would or would not be practical at this institution, but it does seem as if an organization of some kind or a representative committee which could consider questions of common interest and act for the Institute would be of great advantage. What is the harm, anyway, in having a meeting of the committee already appointed and talking the subject over?

There was another committee chosen at about the same time which has not yet made report, and that is the committee to decide about the subject of Institute pin. They were chosen for a purpose and it seems no more than right that they should either serve that purpose or refuse to, and not sit back and let the matter rest where it was in the first place. If a decision was made to change the pin to three-fourths of its present size why not go ahead and make that decision amount to something. If any change is to be made so that Ninety-three will have the benefit of it some one will have to begin to move before long.

Arrangements have at last been made for a concert by the Banjo and Mandolin clubs. Members of both clubs have put in considerable faithful work during the winter, and now feel confident of giving good satisfaction. Great enterprise has been shown in arranging for a joint concert with the M. I. T. Glee club and it is hoped that if the Techs wish to have a musical club remain in existence at the Institute they will see to it that Association Hall is filled on the evening of Tuesday, May 2nd.

The meeting called by Manager Rawson of those who intend to enter any event in the sports this spring was very well attended
and considerable enthusiasm on the subject was shown. With plenty of first class material, a capable manager, the Oval to train on, the fact that sports are to be held in this city, and lots of interest, we ought to surprise everybody on the 24th of May.

The burlesque is also getting along finely. The rehearsals are very well attended and very satisfactory in every way. The tickets were put on sale a week ago and have been selling so well that the prospects are good for a full house on both evenings.

A short editorial on the manner in which we were treated by M. I. T. on the football question might not be amiss, but as our opinion would be decidedly prejudiced we will refrain from venting our feelings in this way.

NEXT MEETING OF W. M. E. S.

Some Interesting Papers to be presented.

The next meeting of the Washburn Mechanical Engineering Society will be held in the Salisbury Laboratories, on Monday evening, May 8th, at 8 o'clock.

Mr. A. M. Powell, '79, will present a paper on "Economics of Shop Management."

Mr. George E. Camp, '88, will present a paper on "The Manufacture of Armor Plate."

Geo. I. Alden, Sec'y.

FROM AN ALUMNUS.

Once more, after several weeks of waiting and expecting, we find in our morning mail the annual catalogue of the Worcester Polytechnic Institute. To an alumnus, this little (it may even now be called large) pamphlet comes every spring as a sort of thermometer or steam gauge from and by which he may ascertain the degree of his interest in his Alma Mater, and which, in turn, may be termed the report of the faculty to him, relating the degree of prosperity of the Institute, the amount of work accomplished, and the census of the graduates. No publication from the "Tech" is awaited and received with so great interest and this interest is increasing every year. It is unusually large this year on account of the change from the three to the four years' course.

There has been much discussion in the past, before the change was made, for and against the four years' course. Whether or not the many and varied arguments have been well taken is a matter relegated to history and which may be taken up and settled (?) by antiquarians and political science enthusiasts in the future; the fact remains that the trustees have adopted this course and it is now in vogue. Now that a course of study has been adopted it may readily be seen whether or not the school has made a step ahead.

What the world to-day demands is young men of moderate ability who are armed and equipped with the weapons and tools of their respective professions and know how to use them at once. Now, can this be accomplished by the training of the old "three years' course," by the new "four years' course," or by any number of years of school training? There is no doubt that the ideal may never be reached in any school training, but it must be evident that with the work properly laid out the student can attain a standing far nearer the ideal with the four than with the three years' course.

A year of time spent at the Institute after the third counts for much more than one of the first three. A building without a roof is of little use, and a building without a substantial foundation is badly crippled. The new course accomplishes two things: first, it enables the student to perfect his "foundations" and do thoroughly his work as he goes along, a point which must be conceded as deficient in the old course; second, it will make it possible for him to crown his student life with a year devoted largely to his chosen specialty which he will esteem as of priceless value to him in after life.

In comparing the outline for the work of the new and the old courses it is seen that approximately no less labor is required each term than formerly. This is a point upon which the faculty has acted wisely. No one of the alumni honestly thinks that the old course of study was too hard for a well-prepared student in good health. It is also seen that more time is spent in covering approximately the same ground; that is, the student while accomplishing as much work as before will be enabled to master each subject more completely.

In addition to this first point, which must be considered as of very great importance as it deals with the foundation of the student's life work, we find a second and no less valuable change. This is in the work of the last or senior year—that is, the last year for the great majority of students, which can be given up wholly to study, for however eagerly he may be to learn, his daily bread has to be earned; further, he will
go immediately to an employer who will, almost invariably, expect as much of him as of a man who has had ten years' experience, simply because he is a Tech graduate, of whom he has an exaggerated idea. The new course is well planned to prepare students to meet the expectations of these men, and in fact it is so planned that the student will not only know his letters but can put them together and form words.

While in years gone by the senior has had to spend many hours each week on geology, drawing and the so-called "English," the work is now so arranged as to allow him to complete these studies during the junior or first half of the senior year; thus leaving the second half and a larger part of the first half of the last year to be employed in study upon the chosen specialty. This is not speaking disparagingly of the studies nor calling them of minor importance, but it is evident that the last year of the student's life can be better spent upon his special work than upon his primary courses. It is a question if even in the new schedule this point could not be carried a little farther with good results.

After carefully considering the outline of study in the ninety-three catalogue and comparing with that of one year ago, none familiar with the work of the students and graduates can help approving and commending the new departure. Great credit is due to those who for years have labored for this change and every alumnus of the Institute must feel that the trustees and faculty have acted wisely in adopting this method of turning out more valuable men.

HARRISON P. EDDY,
Class of Ninety-One.

W. P. I. TENNIS CLUB.

The Executive committee wish to give a general notice through the columns of the W P I.

The stone roller, furnished by Mr. J. D. Curtis, Superintendent of the Quinsigamond Wire Works, is now ready for use and is unsurpassed by any in the city.

The committee, well knowing the urgency of early work on the courts, and to quiet all complaints as to the late beginning of play, have placed the entire job in the hands of the most experienced track and court maker in Worcester. He says he cannot do a good thing by the club, without entire disappearance of frost, which is still at work on the campus, and at least three days of good sunshine.

The committee defers to his judgment and trusts to be able to furnish the club with the best dirt courts in the city, sometime in the first week of May at the latest.

Rules are to be strictly enforced and everything possible done to accommodate the members of the club.

Per order

THE EX. COMMITTEE.

BRIDGE CONTRACTS.


Sir:

The recent discussion in Engineering News on the evils of the present system of bridge lettings is a step in the right direction, and indicates that at least a few are anxious for reform. Thus far, attention has been confined to the consideration of highway bridges, for the reason, no doubt, of the much larger opportunities for "working" the commissioners or councilmen than are obtained with most railway companies. But that the same spirit pervades both branches of the business, to a certain extent, will be apparent from the following bit of the writer's personal experience:

Not very long ago, while in the employ of one of the most thoroughly advertised and presumably one of the most reputable bridge and general contracting companies in the country, it became my duty to make designs and estimates for a certain important bridge for one of the great Western lines of railway.

The bridge, which was of the cantilever type, was to be designed under Cooper's specifications, "Extra Heavy, A."

The bridge company was very anxious to secure the contract, but was afraid that certain other companies would, by their superior advantages, be able to underbid it. At this juncture, one of the engineers (?) of the company proposed that I should cut the specifications 15%, on the supposition that the railway would employ no inspector on the work, and there would be consequently very little probability of being found out. It was only on proving it to be a very bad stroke of policy, not from any moral considerations, that he was finally dissuaded from the plan. The railway company in question curiously and fortunately enough, had a report made, about this time, on some Howe truss bridges, which the bridge company had built the previous year on one of its branch lines. As a result of the report, a bridge company was informed that it would not be allowed to bid on any more work for that railroad company.

The fact that the bridge company in this case was prevented from carrying out its underhand schemes does not vitiate the argument; but so
long as contracting concerns are run for money consideration and not for benevolent purposes, just so long will there be underhanded work when opportunity offers.

What then, is the cure for the evil? Evidently the destruction of the opportunity, by providing that all work which affects the public be subjected to the scrutiny of government experts. These experts to be appointed through rigid examination in their specialties, to be required to give a bond for the faithful performance of their duties and to hold office for life, or during good behavior.

A board of these experts, which should be entirely divorced from political manipulation, should be required to investigate all accidents connected with public works, and to fix, if possible, the responsibility for the same.

Yours very truly,

J. Fred Temple.

Topeka, Kan., March 23, 1893.

THE TECH BURLESQUE.

Plans for the burlesque, which is to be presented by students of the Institute at the theatre, May 12th and 13th, are nearly completed. The date was originally set for the latter part of April but it was afterwards thought expedient to engage the theatre for two evenings in May.

The success of the Minstrel Show given in Horticultural Hall last year, and the support it received from the students and their many friends seemed to assure crowded houses this year.

"Jack and the Bean-Stalk Up to Date," is the title of the musical burlesque which will be presented. Ernest W. Marshall is the author and originator of the idea. He has composed much of the music and conceived the ideas of the plot. The original dialogue has been changed somewhat in detail, but the main points are as he devised them.

The plot is taken from the familiar nursery rhyme. Scene first of act first shows the humble cot of Jack's widowed mother, and opens with a chorus of neighbors, representing New England farmers, who are interrupted by the entrance of the widow and Michael Flaherty, a friend. The neighbors disperse and the widow consults with her friend as to the chances of procuring work for her son, a graduate of the W. P. I. who finds difficulty in obtaining employment.

Jack enters and after singing a song imparts the news that he has found employment, although his salary will temporarily be withheld. The widow decides to dispose of her cow in the meantime and Jack departs for this purpose.

He returns soon and shows to his mother the magic bean for which he has sold the cow.

The second scene shows the cottage door-yard and displays the bean-stalk with the admiring neighbors clustered around. Jack enters and announces his intention of ascending the bean-stalk, which he accomplishes by the use of an elevator from the Washburn Shops.

Second act, scene first shows Jack in Fairy-land where he visits the castle of the wicked giant and is entertained by the Tech Banjo Club.

The second scene portrays the giant's castle where Jack, accompanied by Flaherty, has many adventures. The giant enters and is amused by his Chinese servant and the ballet, the giant finally discovers Jack and his companion, who have been hiding, but they are protected by the Fairy Queen.

The third act represents the door-yard of the widow's cottage. Jack makes use of his treasures won from the giant. In this act songs and specialties are introduced.

The Cast:—Charles Needham will take the part of Jack.

Jack's widowed mother will be represented by Charles Baker, Jr.

Harry L. Phillips plays the Irish comedy rôle of Flaherty.

George O. Sanford appears as the Fairy Queen.

Henrique B. Da Cruz plays the patent medicine fakir.

C. W. D. Dyer appears as Black Beauty, the pedlar's servant.

Joseph H. Wallace is the Giant, and Louis K. Brennan plays the Chinese servant, Wah Shing.

The chorus:—


In act second the Baby Song from Wang will be rendered by Stanley H. Rood, A. C. Higgins, C. H. Dwin nell, and Elliott W. Peck.

In act third Eugene B. Whipple, Harry S. Davis, George M. Eaton, and Fred L. Stone will swing colored lanterns.

The committee having the arrangements in charge consists of Stanley H. Rood, Frank F. Phinney, and William H. Parker. Nathan Heard, is business manager and Charles I. Rice is drilling the chorus.

T. Heywood Blood is to act as stage manager, and Henry W. Doe is arranging the ballet.

The seats are being sold by means of checks or at the theatre box-office. The exchange of checks for seats takes place at Leland’s music store on Saturday, May 6th at 2 o’clock P. M. Only persons holding checks will be allowed in line.

The remaining seats will go on sale at the theatre on the following Monday.

MEETING OF THE CORPORATION.

The quarterly meeting of the Trustees was held April 15th in Antiquarian Hall. Judge P. Emory Aldrich presided and Rev. Daniel Merriman, D.D., acted as secretary. It was voted to hold the annual Commencement exercises in Association Hall, June 22nd, at 8 P. M. The following instructors were appointed for the ensuing year: Joseph Beals, mathematics; Alton L. Smith, mechanical drawing; Joseph O. Phelon, electrical engineering; Arthur L. Rice, mechanical engineering; Zelotes W. Coombs, modern languages; G. B. Viles, German; Robert C. Sweetser, inorganic chemistry. Nathan Heard, member of the Senior class and formerly editor-in-chief of the W. P. I., was appointed assistant in civil engineering. The question of additional instructors and assistants was referred to committees of the Trustees. Prof. Robert E. Thompson of the University of Pennsylvania has been secured to deliver the address to the graduating class at Commencement.

FOOT-BALL.

In our last issue was an account of what had been done towards forming a foot-ball league. The following letter will explain where matters now stand:

BOSTON, MASS., April 13, 1893.
To the Manager of the Worcester Polytechnic Foot-Ball Team:

Dear Sir:—We received a letter from Brown saying they were not in favor of going into a league with Worcester Tech, and I also inform you of the opinion of Mass. Ins. Tech Foot-ball Ass’n which held a meeting this afternoon—that is that “Tech” would like to form a league with larger colleges than Worcester Tech if possible.

The meeting next Saturday will therefore be indefinitely postponed.

I am very sorry that nothing more can be done at present.

Yours very respectfully,
FRED. P. SIMONDS,
Secretary.

Brown seems still to be very sore over her defeat by the W. P. I. last fall, and takes this way, probably from lack of any other, of striking back. Brown’s decision must have caused considerable change of feeling at M. I. T. or else the officers of the M. I. T. Foot-Ball Association are not representative members of the association, for each one of them, President, Secretary, Manager, Assistant Manager, ex-Captain, and Captain, expressed his opinion as decidedly in favor of a league of which W. P. I. should be a member.

We receive the slap in the face as gracefully as possible and will present the other cheek next fall if games can be arranged with the two institutions. There is considerable satisfaction any way, in remembering the result of the only athletic contest, of late years, between M. I. T. and W. P. I., the team race last February.

The “meeting next Saturday” in the letter, refers to a meeting of delegates which was agreed upon to draw up a constitution and arrange details.

WORLD’S FAIR TRIP.

While other colleges and technical schools are making arrangements for excursions to the World’s Fair, it is gratifying to learn that this Institute will also be represented at Chicago. Two members of the Senior class have for some time been contemplating a plan so that a limited number of students, eight or ten, can visit the Exposition in a pleasant and comparatively inexpensive manner. Their purpose is to charter a small steam yacht at Boston, if possible, and make the entire trip by water; if this plan is found to be impracticable, they will try to secure a vessel on the lakes. In the latter case, it would probably be necessary to send one or two men ahead to make arrangements and the others would follow later. When the party arrives at Chicago, they will make the boat their headquarters, and will doubtless enjoy themselves more thoroughly and at less expense than if they attempt to stay at a hotel. As yet nothing definite has been done, but it is to
be hoped that so excellent a plan will not be al-
lowed to fall through for lack of support. A
large number of Techs will undoubtedly attend
the Fair, and by going in this manner, will not
only assist a scheme which will be to the credit
of the Institute but will add materially to their
own enjoyment.

PHI GAMMA DELTA BANQUET.

The second annual banquet of Pi Iota chapter
of the Phi Gamma Delta was held at the
Chapter House, No. 7 Highland Street, on
Tuesday, April 11th, with nearly all of the mem-
bers present. At 8.30 o’clock all sat down to
an inviting repast served by their steward, J.
A. Young. Below is a list of the good things.
Blue Point Oysters, Deep shell,
Green Turtle Soup,
Boiled Salmon, Egg Sauce,
Parisienne Potatoes,
Radishes, Olives, Celery,
Filet de Bœuf aux Champignons,
New Asparagus on Toast, Baked Sweet Potatoes,
Broiled Spring Chicken on Toast, with Saratoga
Chips and Water Cresses,
Sweet Breads in Cases,
Lobster Croquettes and Chicken Salad,
Strawberries, with Ice cream,
Individual Fruit Ices, Assorted Fancy Cakes,
Salted Almonds,
Fruites Glaces, Bananas, Oranges, Grapes,
Cigarettes, Coffee, Cigars.

After coffee H. M. Southgate as toastmaster
called upon the following gentlemen to respond
to toasts: Ware, Cleveland, Parks, Conklin,
Burt, Willson, and Thrasher. There were
brothers present from K. N. and T. A. The
different toasts were responded to with eloquence
and wit, and in the early hours of the morning,
after a very enjoyable time, the company sought
their respective homes.

BASE-BALL SCHEDULE.

A number of changes have been made. Tufts
will play here May 13th, Boston University May
27th and Trinity May 24th A. M. (Intercollegi-
ate Day). All these are strong teams and
should draw a large crowd.

Worcester Academy cannot play June 17th,
and so that date is open.

PLANS FOR THE N. E. I. A. A. MEET.

The W. A. C. are making arrangements for
the Intercollegiate meet to be held on May 24th.
A temporary grand-stand will be erected at the
head of the home stretch which with the regular
one is expected to seat the crowd comfortably.
Admission to the grounds will be twenty-five
cents, to the temporary grand-stand twenty-
five and to the regular one fifty. Arrangements
will be made so that representatives of the differ-
ent colleges may sit together.

Dartmouth has made arrangements at the
Bay State House to put up forty men.

HAND-BOOK FOR GRADUATE STU-
DENTS.

The Graduate Club of Harvard, in co-opera-
tion with the Graduate Clubs of Cornell and
Johns Hopkins, will issue, about July 1st, 1893,
a hand-book for the use of students who are pur-
suing or who contemplate taking up graduate
studies.

This hand-book will consist of two parts. The
first will be devoted to a short historical sketch of
the different universities offering graduate
courses of an advanced character, and tables of
statistics relating to them. The second will
consist of a list of lecture and research courses
of advanced character, to be given in 1893-94,
open to graduate students. These courses are
to be arranged primarily according to the de-
partments of study into which they fall, and
secondarily according to the universities offering
them. Alphabetically arranged, and in connec-
tion with these will be given the names and
scholastic record of the instructors giving them.
This hand-book will be mailed at a price
slightly greater than cost, about twenty-five
cents, to those sending their names now to
Committee on Graduate Hand-Book,
A. W. WYSSSE,
Secretary.

Holli Hall, Cambridge, Mass., April 15, 1893.

GLEE AND BANJO CLUB CONCERT.

Although the Banjo club has been formed for
over a year and they have appeared in public
several times, no concert has ever been given by
them. Last November some plans were made
for a joint concert in this city by the Masachu-
setts Institute of Technology Glee club and the
Worcester Tech Banjo club but for several rea-
sons they were not carried out. During the last
winter a Mandolin and Guitar club has been
formed with the following members: Wheeler,
'94; Putnam, '96, and Tilden, '95, mandolins.
Lamson, '96, and Gage, '93, guitars. The
Banjo club consists of Boyden, '94, Harris, '94,
Leland, '95, Chambers, '95, Gifford, '96; and
Collins, '96, banjos; Gage, '93, Magaw, '94,
O'Connor, '95, and Lamson, '96, guitars.

Arrangements have been made for these two
clubs and the M. I. T. Glee club to give a con-
cert at Association Hall on the evening of May 2nd. The M. I. T. Glee club consists of sixteen members and has won for itself a very enviable reputation. Mr. Fisher, leader of the Arlington Banjo club, is instructing the Tech banjo club and they have improved very much under his instruction. The details of the entertainment are in charge of C. G. Harris, '94, Manager of the Banjo club. The ushers will be Tech men. Admission twenty-five cents, with reserved seat thirty-five cents. Checks are now for sale by members of the clubs, which may be exchanged for seat checks at the Y. M. C. A. on or after Saturday, April 29th.

**PROGRAMME.**

**PART I.**

1. a. Patrol
   b. Now to the Dance
   **GLEE CLUB.**
   Clarke.

2. Kullud Koon's Kake Walk
   **BANJO CLUB.**
   Emerson.

3. O'Grady's Goat
   **MR. JONES AND GLEE CLUB.**
   Priani.

4. Spanish Galopade
   **MANDOLIN CLUB.**
   Emerson.

5. Future Mrs. Hawkins
   **MR. YOUNG AND GLEE CLUB.**
   Chevalier.

6. Lightning Express Galop
   **BANJO CLUB.**
   Crouch.

**PART II.**

1. M. I. T. Waltz
   **MR. BLISS AND GLEE CLUB.**
   Clark.

2. March " Roumania"
   **MANDOLIN CLUB.**
   Air Romero.

3. Mammy's Lil' Boy
   **MR. SCHMITZ AND GLEE CLUB.**
   Edwards.

4. Greenway Guard Patrol
   **BANJO CLUB.**
   Cristman.

5. On Venice Waters
   **GLEE CLUB.**
   Roeder.

6. Selected
   **MANDOLIN CLUB.**

---

**EXCURSION BY THE JUNIORS.**

Saturday, April 22nd, a party of twelve from division B of the Junior class with instructor A. L. Rice visited some of the principal stationary engines in Worcester.

First they visited the electric light station where there are three double condensing Corliss engines. The largest has a 22-foot fly-wheel, 4 feet wide, and a capacity of 700 H. P.; the other two have a 20-foot fly-wheel each and capacities of 400 and 500 H. P. The plant is piped so as to use low or high pressure, and all the plant may be run from one engine. There are eight Stewart boilers and they use a Victor feed-water heater and a Deane pump. After spending three quarters of an hour examining these engines the students took the South Worcester cars for the Wheelock Engine Works. Here the party were very pleasantly entertained and each member was given cuts of the improved Wheelock engine and Hill valve gear. A large high pressure compound engine was in process of construction for the West Boylston Manufacturing Company of Oakdale. The cylinders are to be 16 and 20 inches by 48 inches. Among the many interesting sights was the wheel lathe for turning 3 and 4 foot wheels and the boring machine for boring sections of the 20-foot fly-wheels. A working model of the Hill valve gear was shown and explained to the party.

The next stop was made at the Adriatic Mills, or Worcester Woolen Co.; where they have a Wheelock engine of 125 H. P., double condensing, with the cylinders in series and not strapped together, but the bed plates are overlapping and cemented into the same base.

The party then visited the F. E. Reed engine on Gold street. This engine was built by Brown of Fitchburg. Here they also have an Armington and Simms straight line engine for running a dynamo capable of lighting the works by incandescent lights.

At 3:30 the party left for the Union Water Meter Works on Hermon street, where they were very kindly received by Mr. W. H. Moulton, W. P. I. '84. Mr. Moulton attached his Crosby indicator to the 50 H. P. engine and took some cards and allowed several of the party to take souvenir cards. The engine was running only on half load, making 125 revolutions, at a pressure of 95 pounds.

---

**VICTORY NO. 1.**

At last we have a base-ball team of which we may be proud. This fact was proved on Saturday, April 15th, at Amherst, when the Amherst Aggies were defeated by a score of 7 to 3. It was a fine game on both sides; a game with a large amount of fielding, a game which, if the Techs had been "rattled" in even one inning, would have been lost. The fact that the Techs had only three errors out of 47 chances ought to prove that the team can play ball. The weather was rainy until 3 o'clock, when the game commenced, but for the rest of the afternoon there was no rain and the sun shone at intervals. The following score will show the work done by the players:

---
### AMHERST VS. AGGIES

<table>
<thead>
<tr>
<th>A.B.</th>
<th>R.</th>
<th>T.B.</th>
<th>S.H.</th>
<th>P.O.</th>
<th>A.</th>
<th>E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bagg, 1b.</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>W. J. Curley, c.</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Clark, 2b.</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>G. Curley, l.f.</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Howard, c.f.</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Day, 3b.</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Sullivan, r.f.</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>F. H. Reed, s.s.</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>H. B. Reed, p.</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>31</td>
<td>3</td>
<td>6</td>
<td>8</td>
<td>1</td>
<td>24</td>
</tr>
</tbody>
</table>

**Innings**

1 2 3 4 5 6 7 8 9
1 0 1 0 0 4 0 1 0 1

**Aggies**

0 1 0 1 0 0 1 0 0 3


Besides the names mentioned in the score, Warren, '95, was taken as substitute short stop, and Stone, '95, substitute pitcher.

Abbott pitched a good game considering that the ball was rather wet. The hits were kept well scattered. Knowles had the best record of the day, putting out three men himself and assisting to put out seven others while his only error was a low throw to Zaeder, which the latter would have got on any other ground.

### '95 DEFEATS '96.

Monday, April 17th, the Freshmen crossed bats with the Sophomores in the first of the class games for the Tech championship. It was evident from the first that the Freshies had Ninety-five where they wanted them. Considering the amount of practice the two teams have had the playing on both sides was good.

During the fourth inning the playing was made very difficult by the darkness, so the game was called, with Ninety-six at bat, none out and a man on first base. The score, by consent of both teams, reverted to the end of the third inning which left it 13 to 1 in favor of the Freshmen. The battery for the latter team, Waite and Cullen, though very light, did some fine work, and the opponents were puzzled about finding the ball.

<table>
<thead>
<tr>
<th>A.B.</th>
<th>R.</th>
<th>P.O.</th>
<th>A.</th>
<th>E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warren, ss.</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Wails, lf., cf.</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Martin, cf., 3b.</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Stone, p.</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Chandler, 3b., rf.</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ford, 2b.</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Brigham, 1b.</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Ware, rf., lf.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Leland, c.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
</tbody>
</table>

Viles and Gordon umpired the game in a very satisfactory manner.

### '93 vs. '94.

The game between the Seniors and Juniors was called April 18th at 4.55. The day was cold and windy, undoubtedly causing many of the errors, although both teams showed only too plainly, lack of practice. The Juniors were weakened by the absence of Gallagher and Chase, so that Gordon left centre field to Brooks and took Chase's place at shortstop; Harris went behind the bat while Proctor and Rollins were put at first base and right field. The Seniors started the game with four runs in the first inning. When Nelson, '92, started to pitch for '93 he was protested by Gordon, but was allowed to play, as he is to take a degree with '93. He was not in condition, however, and was batted freely when he got the ball over the base. The Juniors took the lead by making five runs in the first and ten runs in the second inning. The game was never in doubt from this point, although in the fourth inning the Seniors piled up six runs by bunching their hits and by a few timely errors. Clark, who replaced Nelson in the third inning, was an improvement and pitched a fairly steady game. At this point Perkins left the field and Hopkins took his place on second while Rawson went to
right field; Butterfield was put on third. Goodrich put up a fair game on first base and made a three-base hit. For Ninety-four Dwin nell led the batting with a double and a three-base hit. Harris put up a good game behind the bat, but showed poor judgment at times in throwing to bases. Abbott pitched in his usual good form, but did not exert himself, preferring to save his arm for a more important game. Gordon, although not in his usual position, did good work at short stop, making a fine catch of a high liner in the darkness. The score is as follows:

19 13 6 12* 8 12  
*Proctor out for not returning to base after foul.

**THE CHESS TOURNAMENT.**

Play in the chess tournament has been progressing slowly, owing to the length of the games and the lack of time on the part of the participants. Derby, at present, has a good lead, but it is still possible for anyone to overtake him. Killam, '95, is expected to push Derby hard for first place, although there are others in the list who have done good playing.

The Boston Post and New York Recorder are the instigators of a relay ride from Boston to Chicago. The bicycle clubs between these two cities are to furnish the riders. The start will be made at Boston at 5 o'clock r.m., April 30th. The Bay State Club of this city will supply ten men who will ride in the following order:

H. L. Whitney and John Grey from South Framingham to Northboro.
R. M. Speirs and Theo. Parker, Northboro to Shrewsbury.
W. W. Windle and Bert Livermore, Shrewsbury to Webster Square.
Hollis Adams and W. Miles, Webster Square to Leicester.
Harry Davis and Bert Bullard, Leicester to Spencer.

Members of the Springfield Bicycle Club will ride from this point to Springfield.

ALVORD—NEWTON.

The marriage of Clinton Alvord, '86, of Philadelphia to Miss Mary Sanford Newton was celebrated at the bride's home, 10 State Street, on April 20th, Rev. Dr. Ebenezer Cutler officiating. Miss Mary E. Holden of Madison, N. J., a cousin of the bride, was maid of honor. Clarence W. Alvord and Frank H. Staples were ushers. Mr. and Mrs. Alvord will reside in Philadelphia.

CORRECTIONS IN THE CATALOGUE.

'77. Addison B. Clemence is located at present with Washburn and Moen at the works on Grove St. instead of Waukegan, Ill.
'90. Joseph H. Devlin is an engineer of design at the Edgemoor Bridge Works instead of draughtsman.

FRESHMEN THE CLASS CHAMPIONS.

The classes of Ninety-four and Ninety-six played Monday afternoon for the base-ball championship of the Tech and a very interesting game was the result. The two teams were very evenly matched and the score was tied 2—2 until the last half of the fifth inning when Abbott, in sliding to second base sprained his ankle. This weakened Ninety-four a great deal and probably on this account they lost the game. The playing was very good and even brilliant at times on both sides.

Both classes did lots of cheering and bright (?) remarks were continually passing between the two crowds, one on each side of the field. Ninety-six was armed with a bugle, horns and a mascot in the shape of a large wooden tomahawk bearing the figures of '96. All these articles were a source of annoyance to Ninety-four and when a good chance presented itself steps were taken to get possession of them. A general rush was the result. Ninety-six kept well bunched around her treasures and managed to retain the mascot although it was in pieces before the scrap was ended. Several members of both classes are lacking a hat, glasses or necktie. Such a little mêlée, however, will not injure the good feelings between the classes as it was in a good natured spirit, although some of the men rather lost their tempers at the time.

The players and result of the game follows.

<table>
<thead>
<tr>
<th>Philpot, c.</th>
<th>Gallagher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waite, p.</td>
<td>Abbott and Gordon</td>
</tr>
<tr>
<td>Zaedder, 1b.</td>
<td>Proctor</td>
</tr>
<tr>
<td>Collen, 2b.</td>
<td>Dwinneil</td>
</tr>
<tr>
<td>Fisher, 3b.</td>
<td>Harris</td>
</tr>
<tr>
<td>Knowles, s.s.</td>
<td>Gordon and Chase</td>
</tr>
<tr>
<td>Harris, c.f.</td>
<td>Brooks</td>
</tr>
<tr>
<td>Mayo, r.f.</td>
<td>Cobb</td>
</tr>
<tr>
<td>Gehn, Lf.</td>
<td>Whipple</td>
</tr>
</tbody>
</table>

123456

'94, 101002-4
'96, 01132-7

Part of the seventh inning was played but the game was called by umpire Viles during the first half. The game has been protested by Capt. Gordon as it was called without his consent, and when Ninety-four had made two runs, had two men on bases and only one out.

COLLEGE NOTES.

M. I. T. has enrolled this year 1,060 students, 41 of which are women.

Tufts and Dartmouth both have a foot-ball squad at practice this spring.

Williams College is to celebrate her one hundredth anniversary next October.

Smith College is forming an athletic association. Possibly they will wish to enter the N. E. I. A. A.

The senior class at Cornell is to build a $1500 swimming tank at the University as a class memorial.

There is to be a paper published by the students of Smith College. Previously all such work has been forbidden by the President, and this paper can contain no advertisements.

A yacht club has been formed at Yale with a membership of one hundred and a fleet of twenty-five vessels. A challenge cup has been presented to the club by two of the Alumni.

A resolution against compulsory chapel exercises was brought before the Amherst chapel senate recently and favored unanimously by the students but vetoed by President Gates. The students, however, will probably not let the matter drop, as they are very much opposed to the present arrangement.

An important change has been made in the curriculum at Tufts, so that after next September a student with strong mental capacity and ability for work will be allowed to complete the work required for the degree A. B. in three
expressed new elevators. Both the two new ones are to be connected to the pumping plant of the firm. These elevators include both passenger and freight. An electric pump and pressure tanks are to be connected so as to raise the lifts. The two new ones are to run about seventy-five feet at a speed of three hundred and fifty feet per minute. Special attention is being paid to this piece of work as, on account of the length of the run and the very fast speed to be attained, it is an unusually important plant.

SHOP NOTES.

Mr. M. P. Higgins has been quite sick during the last few weeks.

A freight elevator is being set up for the Wheelwright Paper Co. of Hardwick, Mass.

In the new shop some field magnets have been wound and a large coil of wire insulated for the electrical department.

In Hodge's Block, on Weybosset street, Providence, the work of putting in a passenger elevator is nearly completed.

A lift for raising ashes to a place where they can be readily reached by draymen is being put into the Boston Public Library.

The Twist Drill Grinder department is at present equipped so that it can turn out three machines a day. A few orders have been received lately.

During Ninety-four's practice two weeks ago each student took an indicator card on the shop engine which was worked up during the next recitation in Steam.

An elevator for the factory of the Coates Clipper Co., of Worcester, is nearly put in. In drilling for this plunger, quite a distance of rock had to be drilled through.

Mr. Walker, the inventor of the twist-drill grinder manufactured at the shop, has recently had patented a cutter and tool grinder. It is adapted to a wider range of work than any other machine, and is practically universal. Mr. Walker will be remembered by many of the students as having had charge of the manufacture of the drill grinder at the shop several years ago. He had a great deal to do also in getting up the present style of Washburn lathe. At present he is in the employ of the Norton Emery Works at Barber's, where the cutter and tool grinder is being manufactured.

Workmen in the elevator department are at work for the firm of Meekins, Packard & Co. of Springfield, Mass., putting in a plant of two new elevators. Both the two new ones and two older ones are to be connected to the pumping plant of the firm. These elevators include both passenger and freight. An electric pump and pressure tanks are to be connected so as to raise the lifts. The two new ones are to run about seventy-five feet at a speed of three hundred and fifty feet per minute. Special attention is being paid to this piece of work as, on account of the length of the run and the very fast speed to be attained, it is an unusually important plant.

TECHNICALITIES.

After hearing a recitation in German recently, Prof. C— expressed a belief that many of the marks would be out of sight.

H. W. Cardwell, '95, is again pursuing his studies, after an absence of five weeks, during which he has been suffering with rheumatism.

Derby and Vail have lately been kind enough to keep away from the shop engine and let the workmen and students have some hot water.

"On Thursday, March 30th, we were favored with a visit from Prof. John Alden, of the Worcester Polytechnic Institute."—The Tech.

We understand that an unbelieving Senior and ex-Editor was inclined to take no faith in the W PI calendar and so came back to school a day too soon.

We wish to congratulate C. P. Ware on his elevation to the duties of superintendent of the construction of an elevator plant of one plunger, not very far away.

The tackling-bag has arrived and is in use by the foot-ball squad. There is some good material for a foot-ball team in Ninety-six, and this spring practice is just what will develop it.

Flinn, '93, and Dyer, '93, spent a week during the Easter recess carrying on a series of tests for their thesis, of a trapezoidal weir at the Holyoke Water Power Company's testing flume.

The Amherst College Glee and Banjo Club will give a concert in Mechanics Hall on May 24th, under the auspices of the Lakeside boat club. The Glee club consists of sixteen men and the Banjo club of nine.

The reason of Whipple's sickness has been ascertained with tolerable certainty. Just before being taken sick he was given a job of frosting in the shop, and it is thought that the consequent chilly atmosphere reacted upon his lungs, which were affected for about two weeks.

C. W. D. Dyer '93, has been forbidden by his physician to take any further part in athletics. This is unfortunate for Ninety-three and for the Institute, as he was practically sure of a
place in the W. P. I. field sports, and had a
good chance for a place in the Intercollegiates.

Tuesday evening, May 2nd, a social will be
held at the chapel of Plymouth Church, by the
Y. P. S. C. E. It is to be a May-day event
and the winding of the May-pole will be one of
the attractions. Supper tickets are 25 cents.
Admission free.

The business manager of the W. P. I. has had
considerable difficulty in collecting for an ad-
vertisement from a barber at the corner of Main
and Mechanic Streets. The refusal to pay was
"pure cussedness" and it is suggested that Tech
students transfer their patronage to some deserv-
ing barber.

The pole vault which was not finished at the
last tournament at the Y. M. C. A. Gymnasium,
and which decided who should have first prize
in the series of tournaments, has been won by
Derby, '93, who now leads with a score of
twenty-three points. Gallagher, '94, who was
tied with Derby for first place before this event
was finished, receives second prize.

The following letter, written by a Senior, re-
cently fell into hands for which it was not in-
tended. It may be of interest and also of use
as a warning, so it is published:


My Dear Miss ——— —

The Tech Juniors ('94, the same as
Middlers) are to give our class a Promenade
and Reception on the evening of the 28th at
Colonial Hall. If you have no other engage-
mament and would like to go I would like the
pleasure of going with you. You get what
flowers you need and order a carriage and I
will settle the bills. If you decide to go I will
call around between half-past seven and nine.
Please let me know as soon as possible whether
you will go or not. Hoping you will, I am
Very truly yours ——— —

She didn't go.

THE INTERCOLLEGIATE TEAM.

On Friday, April 21st, a meeting of about
thirty of the candidates for the intercollegiate
team was held in room 13. Mr. Rawson ad-
dressed the men, stating that the Worcester
Athletic Club grounds had been secured in pre-
currence to the Agricultural Park, as the men would
be able to work to better advantage at the Oval,
and would also receive the assistance of the
W. A. C. trainer. The candidates were asked
to hand in their names and the events in which
they intend to compete, with their best records,
so that the manager might have some idea of
each man's ability. It was intended at first to
engage a 'bus to take the men to the grounds
each night, but the project had to be abandoned
on account of the expense. Training at the
Oval has already begun, and the men are ex-
pected to take the electric car leaving Foster
street at 4.45.
The Richmond Straight Cut No. 1

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, Manufs.,
RICHMOND, VIRGINIA.

The Richmond Straight Cut No. 1

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, Manufs.,
RICHMOND, VIRGINIA.

H. F. A. LANGE

(Floral Decorator,)

294 Main St., Worcester, Mass.,
Keeps constantly in Stock

FANCY ROSES AND FINEST ASSORTMENT
OF CUT FLOWERS,
Which he will arrange in Designs of any kind.
Decorating Parlors and Halls a Specialty.

OUTING SHIRTS
AND CAPS.
FINE QUALITY.
LOW PRICES.

New York Hat House,
14 FRONT STREET.

LOUIS W. SOUTHGATE,

Late Examiner U. S. Patent Office, formerly head Draftsman Pond Machine Tool Co.,

COUNSELLOR-AT-LAW AND SOLICITOR
OF
PATENTS,
W. P. I. Class, '85.

Burnside Building,
339 Main St., Worcester, Mass.

C. C. LOWELL,

(Successor to J. C. White.)
HEADQUARTERS FOR
Mathematical & Instruments
And ARTIST MATERIALS.
ALSO, FULL LINE OF
PAINTS, OILS, GLASS, and VARNISHES.
12 PEARL ST., opp. Post-Office.

KEEP YOUR EYE
ON
THIS SPACE
FOR
COBURN'S * BOATS
* AT THE LAKE *

L. W. PENNINGTON,
Designer, Manufacturing Jeweler, and
DIAMOND SETTER.
Badges and Emblems Made to Order.
Gilding, Acid Coloring and Oxidizing, Repairing, Etc.
Old Gold and Silver Purchased.

81 MECHANIC ST., WORCESTER, MASS.

WM. S. SMITH & CO.,
DEALERS IN
Hardware and
Building Materials,
Carpenters' and Machinists' Tools,
ALSO DRAWING INSTRUMENTS,
171 Main St., Worcester, Mass.

ICE CREAM
AND
EGG SODA.
Best in the City.
WHITTIER'S POPULAR DRUG STORE,
49 MAIN STREET.
Long Distance Telephone.
FRED. W. WELLINGTON & CO.,
Wholesale and Retail Dealers In

COAL.

GENERAL OFFICE,
416 MAIN ST., WORCESTER, MASS.
Branch Office, 600 MAIN STREET.
COAL PockeTs,
NORWICH, - CONN.
RETAIL YARD,

1839. Established. 1839.

LARGEST STOCK AND LOWEST PRICES
AT
S. R. LELAND & SON'S,
446 Main St., Worcester.

Agents for the Celebrated A. C. Fairbanks, L. R. Gage
com, Lumcomb & Stewart Banjos, Washburn, Vega,
Bruno & Stratton Guitars, Washburn, Vega, Stratton,
&c., &c., Mandolins.
All goods are fully warranted and exchanged if not
satisfactory.

---HIRE YOUR---

HACKS AND TEAMS
AT
HARRINGTON & BRO.'S,
35 CENTRAL STREET.

MEN! wear the

STRONG & CARROLL SHOES.

Our $5.00 Russett Storm Bluchers, are just the thing for Winter.
Stylish Patent Leather Shoes for $5.00.
Our $3.00 Line of Goodyear Welts can not be duplicated for the money; we have them in all the
latest styles. Foot-Ball Shoes and all kinds of Winter foot-wear for Men.
Best assortment of Blacking Brushes in the city.

436 MAIN STREET, Opposite Front.
W. N. BROOKS, Manager.

ALL GRADES OF MEN'S SHOES.

UMBRELLAS
MADE, REPAIRED AND COVERED
BY
GEO. E. KIRBY,
397 MAIN STREET,
WORCESTER, MASS.

Over Moulton's Jewelry Store.

L. M. ALEXANDER,
Formerly with HILL & TOLMAN,
DEALER IN
Bicycles, & Safeties.
Repairs of all kinds a specialty.
Machines Remodeled with Pneumatic
or Cushion Tires.
Brazing, Enameling & Nickelling Done
in the best manner at short Notice.
Agency for the Hickory.

191 Front Street, ground floor, Worcester, Mass.
LEWIS & EMERSON,
Successors to C. B. EATON & CO.,
Wholesale and Retail STATIONERS, BLANK BOOK AND PAPER Dealers—All kinds of PRINTING, BLANK BOOKS, made to order, also complete line of TEACHERS' and SCHOOL SUPPLIES.
No. 505 MAIN STREET, WORCESTER, MASS. TELEPHONE 278-4.
DRAWING PAPER IN SHEETS AND ROLLS.

BAY STATE HOUSE.

Ranking with best of First-Class Hotels of New England, reorganized and will be conducted on a

First-Class Basis

In every particular. Passenger Elevator, Well-Furnished Rooms and all heated by Steam.

FRANK P. DOUGLASS,
Proprietor.

Barnard, Sumner & Putnam Co.,

DRY GOODS AND CARPETS.

The largest house devoted to legitimate Dry Goods in New England. It grows with the growth of Worcester County, because it is the acknowledged Shopping Home of the Ladies, and because all things are here that ought to be here, and at the Fairest Prices.

Barnard, Sumner & Putnam Co.

JOHN A. SNOW,
Prepared to do all kinds of

BOOT AND SHOE REPAIRING,

326 MAIN STREET,
Opposite Mechanics Hall, up one flight of Stairs, Room 2.

LADIES' and GENTS' SEWED WORK a Specialty.
Back and Front Stays and Toe Tips.
"DISCOUNT TO TEACHERS"

WASHBURN MACHINE SHOP,
WORCESTER, MASS. M. P. HIGGINS, Superintendent.

Ladies and Gentlemen Looking for Fun and a Good Healthful Exercise,
CAN FIND IT AT

J. P. WHITE'S
TEN PIN, BILLIARD AND POOL ROOM.
37 Pearl Street, Worcester, Mass. Hours for Ladies: 9 A. M. to 4 P. M.
WEBB'S BOATS AND CANOES.
NEW MODEL WHERRIES.
ST. LAWRENCE SKIFFS.
BOATS AND CANOES BUILT TO ORDER.

FOR SALE AND TO LET.—Boat Livery of sixty Boats and Canoes to select from. Prices and service guaranteed satisfactory. Reduction to Tech students except Sundays and holidays.


VISIT THE
LEMON & WHITTEMORE CYCLE CO.,
545 MAIN STREET
For
High Grade Cycles and Supplies.

VICTOR, MODEL D, $150.
LIBERTY, ROCHESTER,
FOWLER,
WARWICK,
LOVELL DIAMOND,
ENVOY.

Full Line of Medium-Priced Machines for Boys and Girls. Fine Repairing a Specialty.

HIGH GRADE PHOTOS
ONLY.

Crayon Portraits and Pastel Portraits at
Groups and Large Work a Specialty.

25 PER CENT. DISCOUNT TO TECH STUDENTS.

326 MAIN STREET, Opp. Mechanics Hall.