# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editorials</td>
<td>201</td>
</tr>
<tr>
<td>The Bigelow Gift</td>
<td>205</td>
</tr>
<tr>
<td>As It Might Have Been</td>
<td>206</td>
</tr>
<tr>
<td>A Communication</td>
<td>208</td>
</tr>
<tr>
<td>De Prepibus</td>
<td>208</td>
</tr>
<tr>
<td>The Shop</td>
<td>209</td>
</tr>
<tr>
<td>Ninety-Two's Banquet</td>
<td>210</td>
</tr>
<tr>
<td>A Possibility</td>
<td>212</td>
</tr>
<tr>
<td>The Minstrel's Curse</td>
<td>213</td>
</tr>
<tr>
<td>The Foot-Ball Problem</td>
<td>214</td>
</tr>
<tr>
<td>The Historical Society</td>
<td>215</td>
</tr>
<tr>
<td>Two Forlorn Inventors</td>
<td>215</td>
</tr>
<tr>
<td>J. De Witt Cruikshanks</td>
<td>216</td>
</tr>
<tr>
<td>Society Notes</td>
<td>216</td>
</tr>
<tr>
<td>Scientific Notes</td>
<td>217</td>
</tr>
<tr>
<td>Personals</td>
<td>218</td>
</tr>
<tr>
<td>Intercollegiate Notes</td>
<td>218</td>
</tr>
<tr>
<td>Technicalities</td>
<td>219</td>
</tr>
</tbody>
</table>

WORCESTER, MASS.

THE WORCESTER POLYTECHNIC INSTITUTE.
W. H. JOURDAN & CO.,
ANTHRACITE AND BITUMINOUS
COAL,
WHOLESALE AND RETAIL.
Fire Sand, Clay and Brick,
Offices: 366 Main St., and at Yard,
Green Street.
WORCESTER, MASS.
W. H. JOURDAN. W. G. STRONG. W. S. JOURDAN.

CHAS. F. HANSON & CO.,
317 Main Street, Worcester, Mass.

CHAS. F. HANSON & CO.,
317 Main Street, Worcester, Mass.

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 Build-
ings a Specialty.

RESIDENCE 63 MAIN ST.,
WORCESTER, MASS.

FRANK H. RICE'S
Photographic Studio,
311 MAIN STREET.
Makes a specialty of Photographic Work of all
kinds and sizes.

Having received the generous patronage of former
students, I respectfully solicit the same in future from
the Institute this sheet represents,

Twenty-five per cent. discount to members
of the Institute.

BARNARD, SUMNER & CO.,
Dry Goods & 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 & Co.
TOM WALTERS, Jr.,
CUSTOM SHIRT MAKER,
HATTER
— AND —
Men’s Outfitter.

Pinafores & Aprons
For the Apprentice Class.

DRESS SUITS for the MACHINE SHOP.

W. F. GILMAN, D.D.S.,
DENTAL OFFICE,
OFFICE HOURS: 9 A. M. to 1 P. M.; 2 to 5 P. M.

EZRA A. DAY.
MECHANICS HALL SHOE STORE,
Fashionable Shoes For Ladies and Gentlemen.
FINE CUSTOM SHOES TO MEASURE.
325 MAIN STREET, WORCESTER, MASS.

HOLLAND & HAVENER,
Successors to HILL & TOLMAN and LINCOLN HOLLAND & Co., Dealers in
Bicycles and Safeties, Athletic, Gymnasium & Gen’l Sporting Goods,
PRIVATE GYMNASIUM — — PROF. L. C. HAVENER, Instructor.
507 MAIN STREET, WORCESTER, MASS.

CHAS. HAMILTON,
BOOK, JOB, CARD, POSTER AND NEWSPAPER PRINTER,
NO. 311 MAIN STREET, — — WORCESTER, MASS.
IMPROVED
WHEELOCK ENGINE.

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

WHEELOCK ENGINE COMPANY,
WORCESTER, MASS.

EDWARD K. HILL, '71, Pres.
EDWARD F. TOLMAN, '71, Treas.

THE DEANE
Steam
Pumps.
Pumping
Machinery,

FOR EVERY DUTY.
The DEANE STEAM PUMP CO.,
New York, Boston, Chicago, Philadelphia, St. Louis.

HOLYOKE, MASS.

Send for Catalogue.

DAVIS & CO.,
286 MAIN STREET, 286
-DEALERS IN-

FINE READY-MADE CLOTHING,

Stylish Garments for Young Men a Specialty.
Those who prefer garments made to measure will find us prepared at all times to show seasonable goods of all grades and prices.

All Work Warranted Satisfactory.
Prices Reasonable.
Novelties in Furnishing Goods.

DAVIS & CO.
Opposite Bay State House.
NOTICE!

We regret to announce again that there are yet quite a number of unpaid subscriptions. The bills were mailed almost a year since, and unless paid by the latter part of next month, the present board will be obliged to stand considerable loss, as we have already paid for and delivered the papers, and our administration closes with the next issue. We have sent bills to delinquents several times during the past year, and are assured that most of them reached their destination, from the fact that but few were returned to us by the post-office officials. However, it is not too late to settle with us, and the Business-Manager will gladly acknowledge all subscriptions sent in during the remainder of his administration. In view of the fact that the paper must cease to exist if it fail to meet its obligations, it seems to us within the bounds of reason to demand again that these bills be paid AT ONCE.

The Prep has landed with both feet and is a credit to his nation. Individually he is nearly as intelligent looking as a professor, wears clean towels, and is fast learning to "work" the excuse-book. Collectively he is fifty-three in number, and enjoys a bigger head and a more artistic appointment in the way of fingers than he will four months hence.

He looks quite like his famous predecessors. Although there are many more of him than usual, he does not appear to be offensively aggressive, and it looks now as if he would not be required to prove an alibi on account of some incipient bonfire, for several weeks to come. Incidentally he has our distinguished consideration free of charge, and may also have our full set of text-books in good condition at about the same figure. This is really a magnificent offer,—a Senior's text-books are like his conscience,—as good as new, never having been used.

We are very glad to see you, Mr. Prep. We might take this opportunity to give you some columns of valuable advice, but we will not burden you. Only if you have, individually or as a class, any qualities whatever in a social way, foster and encourage them with every opportunity, for what you do for yourselves in this line, will practically measure the extent of your social life at the Tech.
Isn't it about time for the students in this school to begin to frown down those of their number who are abusing the bulletin-boards in the corridor of Boynton Hall? We do not ask this question for the sake of covering space in the paper, but because the action of certain students in this respect seems to us extremely silly.

We have been falling into the habit of late (perhaps the W P I is as much to blame for it as anyone), of severely scoring seeming inconsistencies in the management of the school. Isn't it time to turn about and take account of our own stock-in-trade? For a beginner, it would be a good deed done to weed out the "bulletin-board joke" from our overcrowded stock of funny things. Granting that it is excruciatingly funny to write "Rats" all over the notices, it ought to be remembered that visitors to the school and even the Faculty (with no disrespect to their intelligence) may not be able to discover how awfully clever such things are.

Hence we lose the respect of those whose respect we ought to value, and we lose, also, or ought to lose, self-respect. We can remember how awfully good we thought it was the first time we saw "Johnnie get your gun" written after the names of students who were credited with marks in Middler mathematics. Successive applications of this joke to the bulletins have somehow failed to awaken the enthusiasm that the bon mot once commanded.

Even more serious than this is the tearing down and covering up of notices that have the "right of way," before they have outlived their usefulness.

The Middler who recently tore from the board a notice of a class-meeting for '91, soon after it was posted, does not belong in the category with the ordinary bulletin-board joker, and will probably be interviewed alone by some members of that class as soon as a convenient meeting-place can be arranged. The perpetrating of a trick of that sort approaches a degree of meanness that is far from becoming in a Tech student, or, in fact, in anyone whose self-respect teaches him to respect the rights of others.

The editor of this questionable paper received recently a letter imploring the immediate consignment of some gratuitous advice, based on his experience as an editor of a college journal. There is something infinitely sad about the very thought of applying to a Tech student for information, anyway, and the letter can only be explained by the fact that it came from a girls' college in a far distant town.

In spite of the fact that our experience with the feminine order of journalists is extremely limited—having been confined, and that years ago, to sundry interviews with the wielder of the "Morning Daily Spanker,"—we do not hesitate to take up the gauntlet and meet our correspondent half way.

The first essential is nerve. It requires nerve, Miss Editor, to meet criticisms from every quarter, and just smile and explain, when you would gladly give up your hope of future bliss, for the privilege of punching your critic's nose in. It requires nerve, too, to tell your delinquent printer that his grandmother if fast losing the charming qualities that
are supposed to indicate the gentleman, and that he, moreover, is no lady. More than all will you be called upon for an exhibition of grit, when time for copy is up, and your associates have failed you. Then will you have to throw aside your books, that you love "with a filial love," and sit down to the task of writing half a paper in half a day.

The next essential, if you are the editor-in-chief, is amiability. No one likes the editor-in-chief—in fact, he is only elected to serve as a mark for a sound rating as regularly as the paper is issued (always for articles which he did not himself write) and to pay bills contracted by the business-manager. A man who assumes the editorship of a college journal and never loses his temper, will have a big hold on St. Peter when his papers are required.

Finally, a great convenience, though not an essential, is brains. Brains are useful in most journalistic work, but in college are not necessary, provided the Faculty is sufficiently engaging. Through no fault of ours we are not oppressed with unlimited brains, but the substitute above-mentioned is everything that could be desired.

Our advice, then, would be to drown ideals, be as eccentric as possible, and pray for subscribers.

---

The size of the apprentice class, numerically speaking, is something of a tribute to the growing popularity of the Institute. The Senior class numbered twenty-eight in its infancy—four less than the capacity of Mr. Badger's territory at that time. The present aggregation of overalls and jumpers overflowed the greatly enlarged accommodations prepared for it, by thrice that number. This indicates that the school has lost none of its prestige because of its change of policy, from a school in which education was practically free, to one in which education is a luxury.

Even if the school had the means, we doubt if a return to the original plan of free education would be deemed entirely expedient. Assistance in especially needy cases may not be out of place, but a young man who grows up with the idea that everything is to be given him, is preparing himself for something awful when he drops on the world.

Then, too, the fact of general tuition will remove, to a great extent, a feeling of restraint that was natural under the old system. We never knew of a case in which the Faculty had even dreamed of using the fact of free tuition as an argument against the consistency of fault-finding on the part of the student. Nevertheless, the latter, under such a system, cannot help feeling that he is subject to the rather odious saying that "beggars should not be choosers." (It might be remarked, in passing, that the W P I has never been so overcome with the force of this axiom, as to cause general remark on account of its modesty or moderation.) Congratulations of first quality are quite in order, in view of the bright outlook for the future, as indicated by the increased size of the classes within the last three years.

Notwithstanding this unusual increase in our numbers, the Apprentice class is not so large as it ought to be. It is not so large, by at least four men from one
city, according to one of its members, as it would be if our catalogue offered some other inducement to come here besides hard work. There are men, smart men, too, who value a college education for something more than can be found in the text-book or the lecture-room.

There is a greatly increasing number of young men in this country who wish a higher education than is afforded by the public schools. These fellows are watching the colleges and scientific schools, reading catalogues, and interviewing graduates. When this school was free, it was the duty of those who were favored with a berth here, to get their education as soon possible, and at the least expense to those who paid the bills. In future, however, education here, with the exception of a few scholarships, will depend on the student's ability to pass the examinations and pay his own bills.

Hence, it seems plausible, that if we had more of a reputation for sociability to induce men to come here, more of the many channels for a good time, not found in books, but still pleasant and elevating, we would get more of those men—men who would hold places of honor in their classes—who now seek other institutions of learning.

Instead of grumbling about their conditions, the men are this time exchanging opinions on the reason for such kindly consideration. Some are of the opinion that remorse for past strangling has caused a loosening of the halter. Others, less savagely inclined, think the permission to continue in existence is due to a conviction that it would be inconsistent, and manifestly unfair, to experiment upon the men with a new examination system, and then condition them for failing to demonstrate the success of the experiment.

The majority, however, are inclined to look with suspicion on such unwonted generosity, and are of the opinion that three years' experience with the present Senior class has been the cause of some congratulation, in the camp of "our friends, the enemy," that the course is not yet four years long. This theory is backed by such an array of expert testimony as to be almost indisputable, and the Seniors are rejoicing in advance at the prospect of having nothing placed in their way, that could possibly prevent their graduating. Personally, we are well enough satisfied with the fact, without questioning its raison d'etre, and hope the end will come so suddenly as to anticipate any tendency toward a reaction.

Since our last issue, the half-yearly drawings for the term marks have taken place. The Seniors, at least, were unusually fortunate, no one drawing a blank in any of his studies. Such leniency as this certainly deserves notice, especially since the memory of former "roasts" is still a vivid green.

The W P I has not been noted for its unyielding advocacy of strict obedience to every iron-clad, senseless law in regard to decorum about the Institute; neither has it been prone to preach about matters of questionable conduct. But when such undignified, petty, ungentlemenly, foolish exhibitions of
"thoughtlessness" take place, as have occurred in chapel recently, we feel called upon to cry (simply as a suggestion)—Halt. A little bonfire, now and then, and other such merely hilarious events, we deem to be harmless, as the Faculty has evidently also decided. But students should be careful, when indulging in such bursts of enthusiasm, not to let the idea become so strongly attached to their natures as to prompt perpetual and unreasonable lack of dignity. We say these things, not on account of coercion from any source, but because we believe we are right. However strong may be the feeling of dissatisfaction, such ways of expression are not commendable, to say the least.

THE BIGELOW GIFT.

Something Definite about Its Final Acceptance and Disposal.

Although but little material progress has been made concerning the Bigelow gift, since our last issue, a good deal of thinking has been done by those having it in charge, and plans for the establishment of the proposed school, are beginning to take definite shape. After various interchanges of ideas between Mr. Bigelow, Supt. Marble, the Faculty and Trustees of the Institute, the latter appointed a committee of four, consisting of Hon. P. Emory Aldrich, C. H. Morgan, Hon. Geo. F. Hoar and Mayor Harrington, to confer with a similar committee, which the school board was invited to appoint, upon the practicability of the city co-operating with the Institute in the management of such a school. The school board accordingly at its January meeting appointed a committee consisting of Supt. Marble, ex-mayor Jillson, Geo. F. Brooks, J. P. McCafferty and James Forsstedt, engineer and head-draughtsman at Washburn & Moen's. This committee, after careful consideration of the matter, has notified the committee of the Trustees, of its readiness to arrange a course of study in the new English High School, so that pupils may spend part of their day there, and the remainder in manual work at the new shop.

Now, everything is waiting for our Trustees to either accept or decline the gift. It is understood that the members of both committees are firm believers in the feasibility of the plan, and if once the people of Worcester can be aroused to appreciate the value of Mr. Bigelow's gift, if the local newspapers will give their efforts towards advancing the scheme; if our manufacturers will come forward with their support, success is assured. Everyone who has become interested enough to investigate, is convinced that the proposed school comes nearer than anything else has, to the ideas of the founder of the Washburn Shops. He wished that an opportunity might be afforded to a poor boy, one who did not care to enter a profession, to learn a trade by which he could support himself in life, and at the same time get a thorough everyday education. This is just what the Bigelow school will do, if carried out according to the plans of its originator. Perhaps no better idea of its scope can be had, than can be obtained from the following, the views of Supt. Marble, as expressed to a W P I man. They are especially interesting on account of the widely known conservatism of Mr. Marble, upon manual training.

He said in substance:—

"There are many prominent manufacturers and mechanics in our city, and in our country, who believe that the public schools should, in addition to the general mental education which they afford, give a certain amount of manual training as well; that they should teach boys how to handle a saw, fix a curtain and do this and that odd job about the house; and that when he has learned these things, thereby will have learned also, enough of a trade to enable him to earn his living. This it does not seem to me is the part of the public schools. What they undertake to do is to give a boy the general education which is essential alike to all trades, and to no trade at all. It has been my experience, that the man who can tinker this job and do that, knows a little of tools, of casting, of carving, etc., does not amount to much in any one. With such schools as these I am in no sympathy, but the school that Mr. Bigelow offers is most heartily approved by me. As far as plans are perfected, it will be something like this: Beginning with the first year in the new English High School, the students in this course will spend probably three hours a day in recitations, and five hours in the afternoon at the Institute, besides a por-
tion of the summer vacation; at the end of three years if they do not care to go on, they will, at least have acquired a thorough practical knowledge of one trade, besides nearly if not quite as much of a book education as their companions who did not take the manual course; for I believe that this shop-work should be something of a reward for industry, and that those who will take that department will enjoy their work and have an interest in it to such an extent, that they will feel less the irksomeness of their books, and in that way will make up in effort and enthusiasm the lack of time devoted. The course in the High School will consist of the English branches such as are now required for admission to the Institute, including the modern languages, history, English, physics, mathematics, etc.

"Moreover a certain per cent. of those who pursue this course will wish to go on to the Institute, and such will have when they finish, a mechanical training, far more thorough even than that which is now had. There are to be sure, several objections to the scheme which have been made, one of the chief of which, is that the presence of so many younger boys at the Institute, will tend to lower its standard in the eyes of the public, as an higher institution. In answer to this, the question might be asked whether or not the standard of Harvard College would be thereby lowered, were Phillips Exeter to be moved to Cambridge. How soon it will be possible to start up the school, I do not know, but at the best probably not before the entrance of another Apprentice class. As present all depends upon the action of the Trustees."

The plan as thus briefly outlined, seems to be in harmony with the prevailing tendency of the times in regard to this much-talked-of manual training. In Springfield, rapid steps are being taken towards establishing similar schools, and the same Mr. Bigelow who has given Worcester such an excellent opportunity to keep abreast of its neighbors, has also just given that city the buildings of the Bullard Arms Company for school purposes.

One of the finest of this class of schools, has within a short time been established in Cambridge, through the munificence of another public-spirited citizen. Here the course is three years. Part of the day is spent at the English High School, the remainder in the shops. The High School course is exactly the same as for those who take the book course alone, except that one study and but one is omitted. The shop course in wood and iron is very much like our own, especially the former. In addition to the facilities for these, there is a forge-room with fifteen forges where the students receive thorough instruction in blacksmithing, moulding and casting. We can almost feel a personal interest in this school, for the course there in moulding was under the charge last year of our own Mr. Ball, and the patterns used were the set of fourteen of the Washburn Shops, and loaned by Supt. Higgins. The shopwork occupies three hours a day including mechanical drawing. It has been found that about three-fourths of the English High School boys take this course, and that too in sight of classic Harvard; surely a good outlook for such institutions as our own. Boston, too, is fast perfecting a number of similar schools.

In view, then, of these transformations in educational systems, which are rapidly going on about us out in the live world, it is interesting to note in passing, that though Mr. Bigelow's gift to Springfield was made rather later, if anything, than the gift to us, students there have already begun work; and at Cambridge, although ground for the buildings was not broken until the middle of July, the school was in operation in September. Compared with such push as this, the way in which Worcester has taken hold of the matter appears gingerly, to say the least; however, we can afford to wait awhile if we only get what we want finally, but we do hope such a golden opportunity for the youth of Worcester and the future of the Tech may not be lost. If the mechanics of Worcester will but look about them and see how our sister cities are outstripping us, they may, perhaps, rouse themselves, come forward spontaneously with money and experience and give us a trade-school worthy of a city known throughout this country and Europe alike for its educational institutions and its factories.

AS IT MIGHT HAVE BEEN.

What the Newspaper Reporters Said and Might Have Said About the Class Rush.

The funny fiasco between '92 and '93, which was really about one-third as violent as an ordinary foot-ball match, was the subject of several amusing screeds in the Worcester and Boston papers. One or two of these were decidedly fakey articles and were chiefly remarkable as sample products of the reportorial imagination. We give
below an account such as the papers would probably have printed if the reporter's fancy had had time enough to take full flight. The portions enclosed in quotation marks are actual quotations from published accounts; the rest shows what "might have been."  

``Black Eyes at Discount.

"Rival Classes in Battle Array and Professors Powerless."

A terrific encounter took place yesterday afternoon between two rival classes at the Polytechnic Institute. The Middlers, who have been celebrating their halfway-through festival, had placed a huge red streamer bearing the figures '92, on the tower of Boynton Hall. A few envious Juniors attached a pair of overalls to the flag and then hung it at half-mast. The Middlers sent a detachment of men to remedy this insult to their banner and bring it to a place of safety. While this was being done an army of '93 and '91 men locked the '92's up in the lofty tower. "There they were kept prisoners for about a quarter of an hour, when they made their escape by breaking down the heavy door."

Then ensued a frightful struggle. The '93 men were determined to get the flag, and the Middlers decided to stop for nothing in their endeavors to retain it. "A pitched battle ensued." The usually mild and quiet students were wrought up to the madness of infuriated beasts. Blows rained upon the members of each party, and heavy pieces of scantling were used as bludgeons. "One of the '93 men recklessly drew a clasp-knife in the thick of the melee," and slashing furiously at the hands which grasped the precious banner, succeeded in weakening his opponent's hold enough to hack off a large piece of the blood-stained rag. At this juncture the party of Middlers made a break for the stairway and escaped "with the greater part of the flag in their possession." During the fight a Middler secured a large handful of whiskers from the luxuriant beard of a Senior. It is said that the material has been divided up and wisps of it tied up with red ribbons are preserved as mementoes by many Middlers.

"The sport at this point was interrupted for a few hours by recitations." "It was not until 3:30 o'clock that the battle royal began." The hostile classes met in a corridor, and in a moment there ensued "one of the wildest scrimmages that have occurred at the Tech for years. It was a rush and a scramble in which the Marquis of Queensbury rules stood no show. Everybody tried to throw somebody else on the ground and then walk on his prostrate body." Last evening distinct footprints could be discerned on the faces of several Middlers, while numerous '93 men nursed shattered physiognomies.

Pieces of the stolen flag were worn as rosettes by the Juniors and this fact was doubly maddening to the Middlers. "Black eyes and bloody noses were exchanged in compliment, the '92 men bestowing their class colors, black and crimson, upon '93."

Members of both classes were hurled headlong against the walls of the corridor and falling to the ground were carried away to places of quiet and safety by a hastily formed hospital brigade. "One or two of the professors were on the ground and surveyed the battle, but they were as powerless to stop the conflict as they would have been to have diverted an Alpine avalanche from its course."

"A funny incident was the seizing of Prof. E. P. Smith. He heard the tumult in the corridor, and with the rashness of a freshman he rushed in to stop the trouble. He was taken by '92 for one of the opposition, and was hustled about in lively style before the mistake was discovered."

At last the able-bodied participants were
all disposed of, and the conflict ended. The scene of the struggle was a frightful spectacle of carnage. At numerous points on the floor there stood large pools of blood from popped noses, while here and there a solitary eyeball stared in all its ghastliness at the observer.

"Although the battle is over for the time being, it is not known at what moment hostilities may be renewed." "The class of '91 has taken sides with '93 and more fun is expected to follow."

A COMMUNICATION.

EDITOR OF THE WPI:

After reading the excellent article in the last WPI headed, "A Plea for a Literary Society at the Tech," the writer thought many would be interested to know that what perhaps might be called the "pioneer" literary society has come into existence, and is now being carried on with great success.

Early in the fall, several students, pursuing the course in German, believed it would be a help and an inspiration if the study of German literature were taken up, in some way or other, in addition to the regular work. Soon after, the idea materialized in an informal gathering of those interested. Professor Cutler in a few words stated the object of the meeting. The matter was well received and accordingly a bi-weekly meeting was arranged, and this shortly changed to a meeting once a week.

The restrictions as to membership in the club are not great; in fact, anyone interested in the German language and literature who thinks he can be helped by the meetings, is cordially invited to be present. The plan upon which the society is carried on is of the simplest nature. All gather in a group about the leader, and after a pleasant talk upon various subjects, connected with the work in hand, some one of the members reads a paper in connection with the theme of the meeting. This usually takes twenty-five minutes. The remainder of the hour is spent in reading and commenting upon portions of matter in Kluge's Literature, a very interesting and concise history of the literature of the German people.

Already there have been several exceedingly entertaining and instructive papers read before the society, among which are essays on Arminius, Das Rolands Lied, Origin and History of the Franks, by Mr. A. D. Flinn; The "Volker Wanderung," by Mr. C. Baker, Jr.; Charlemagne, by Mr. C. O. Rogers; Urilas' Gothic translation of the Bible, by Mr. N. Paul; and Animal Legends, by Mr. R. M. Starbuck.

Other papers which also promise to be very interesting are being prepared for future meetings.

Of course there are numberless other things which make the meetings helpful to all who attend, and from the success and profit with which this society is carried on, it certainly seems probable that there is ample room in the school for one of more general scope and larger proportions.

DE PREPIBUS.

A New Class of Candidates for the Degree of B.S. (Saw-Bones.)

The whirligig of time still continues to revolve, and slow as this place may seem to some, it has kept plodding right along, until once more our floors are trodden by youthful feet, and again the novelty of clean towels is seen in the shop.

Once more the wood-room resounds to the tap of mallets, and the careering of horses, interrupted now and then by the clang-clang of the big jig-saw and the bang of the tool-room door. Again the chips are flying, but this time they come from more chisels than last year, or ever before in fact. In other words, fifty-one candi-
dates for B. S., are now toiling from 7 A. M. to 5 P. M., against forty-one last year, and this, too, with four more expected. Of this number about 65% are from out of town, while last year the percent was about 50.

This fact proves conclusively that the reputation of the Institute is fast spreading, and that it is rapidly becoming less and less a local institution. The fact that a smaller number of Worcester boys are included in the class, does not by any means show that its popularity at home is on the decrease, but may perhaps be explained, when it is remembered that the tuition charge was not made public until most of last year's class had decided to come to the Institute, and had made their plans accordingly, hence its effects are only just beginning to be noticed. Then, too, the recent troubles at the High School possibly have had something to do with the number who came from there.

With the exception of a delegation of three from Yarmouth, Nova Scotia, all the members of '94 are from the Union. The longest traveller (in respect to distance) is one from Eugene, Oregon; as regards inches, Fitchburg and Worcester are tied for first place.

Besides Yarmouth, Leominster and Fitchburg have three representatives; Spencer, Leicester and Norwich, Conn., two; and one each from Milton, Conway, South Framingham, Lawrence, Greenfield, Holden, Blandford, Barre and Franklin, Mass., Middlebury and Wauregan, Conn., Providence and Newport, R. I., Coeymans, N. Y., Orland, Me., Meadville, Pa., Washington, D. C., and Eugene, Oregon.

In the athletic line, the class includes an ex-captain of the Exeter foot-ball team, Gallagher (L'er G-), who has figured prominently in the city as a sprinter, having at one time with 10 yds. handicap, defeated our own Dadmun in the half-mile, and last but not least, Dwinnellé, the valiant racquet-wielder of '93, who has given chemistry the go-by and now has his attention fixed on mechanics.

In musical matters, Marshall and his Xylophone, have given way to the leader of the Andover Banjo Club, and Sinclair, in behalf of the Faculty, has made room for the famous Tennyson. The ages of the men average rather lower, if anything, than usual, but the most noticeable thing of all about the class, is the altitude to which most of its members attain; their total length must be something enormous. This was the occasion of a remark of an upper class man who deserves a settlement with fate therefor, that "they would do well if they remained as long as they entered."

The class is taking a slightly different course from that of last year in studies. In place of the driest of discourses in English History, which '93 attempted to digest, the English work is in Macaulay's Warren Hastings, under Prof. Cutler, while Mr. Coombs instructs in French. Altogether the future of the class is bright and we can only wish it a bon voyage.

---

**THE SHOP.**

A Number of Important Changes to Enlarge its Capacity.

Inquiry at the shop reveals the fact that business there is not only as active as ever but on the increase; in twist-drill grinders alone, the work being fourteen jobs behind the orders.

Two large elevators of 60-ft. run are just being started, one for the Freemason's Hall in Providence, the other for a firm in Lawrence. Both are passenger elevators, and are designed to run at high speed.

An elegant passenger elevator of 70-foot run is just being completed for a bank building in Providence. This is the fastest and finest elevator ever built at the shops, and reflects great credit on the builders.
The drilling is also being done for another 60-ft. lift in Providence, and a shorter one is now being set up in Saylesville. Two elevators and the big cranes which have, until recently, occupied the floor space in the iron room, are being put in position in Waterbury, Conn. In short, the outlook for the elevator business the coming season is unusually good.

The output and sales of drill-grinders amounts to about thirty a month. Among other orders for these is one for twenty from J. W. Phillips, London, England.

Thirty drawing-stands have just been shipped to a school in Delaware, with twenty more ordered, and a dozen have just gone to Holyoke schools.

The shop itself has undergone considerable of a change since our last issue. In the iron room, the partition separating the main room from the store-room at the north end, has been removed, giving an additional floor space of 1680 feet. This space is now used for about twenty-five machines included in the Bigelow gift. Of course it is understood that this arrangement is only temporary, these machines being merely loaned to the Institute for the present, to be removed when the training-school is established. While here they will not only be of great use to the students practising in iron, but will aid the shops materially in making supply equal the demand.

This new equipment includes among others, five first-class Pratt & Whitney engine lathes, several heavy shaping machines or short planers, a fine Brown & Sharpe Universal Milling machine, several plain milling machines, vertical drilling machines, a Tapping machine, a fine Profiling machine, one 14-ft. planer, and 3 screw machines. The shafting is being rapidly put in position, and by the time this is printed will probably be running. These machines are in excellent condition, early new, and built by the best makers in the country, and are immediately useful for the manufacture of drill grinders, etc.

In the bench-room upstairs, considerable change has been necessitated by the size of the new class. The two small lathes by the tool-room have been moved into the wood-room next to the Daniels planer. A new bench has been put across the centre of the room accommodating eight Apprentices, and benches for three have been built to the side of the tool-room. The big saw is to be moved out, and in its place, two small lathes of the Bigelow gift are to be stationed.

In the wood-room itself, the principal changes are the setting up of more machines from the Bigelow gift. The more important of these are a boring machine, shaping machine, and a machine for cutting gunstocks. There is also a large band-saw, something which has for a long time been needed. Some changes have also been made in the irregular moulder, so that the shop can shape its own panels for elevator cars.

In the attic, more of the Bigelow outfit is stored, including several stands of the Bullard rifle, worth about 25 or 30 dollars apiece.

Summing it all up, it has been many moons since so important changes have taken place in the old shop in such a short time, and the prospects are that a year from now will see many more. In closing, mention should be made of the fact that a very pretty type-writer has been added to the equipment of the office.

---

**NINETY-TWO'S BANQUET.**

'92 Breaks the Record for a Good Time at the Half-way Supper.

On Wednesday evening, Jan. 21, at 8 o'clock, thirty-seven members of the Middle class assembled in the parlor of the Bay State House, to enjoy the "Half-way Supper" and its attendant celebrations.
After a short time spent in friendly greetings and general tuning of wind instruments, the "P. I." yell was given with good effect, and the fellows gathered round the old flag to march down to the dining-room.

Here a brilliant and inspiring scene awaited them.

The preparations which had been made for their reception, were a credit to the proprietors and worthy the class of '92. Upon the wall was gracefully draped the new class-flag, which nearly covered the end of the room.

After being seated, a quartet composed of Messrs. Needham, Ball, Bracken, and Southgate, sang several inspiring songs, and then all were much interested in examining the menu card. This was quite a unique affair and a very pretty souvenir of the occasion, having a good engraving of the Institute buildings upon the back, and a base-ball bat and tennis racquet (significant of championship) amid the scroll work of the front. The treasured mascot was represented within, having upon the streamers the significant motto "In hoc signo vinces," and "Who killed cock robin?"

The names of the class followed those of its officers, and the menu itself was as follows:

- Oysters on shell
- East India pickles
- Soup
- Consonnés
- Celery
- Vienna rolls
- Baked lake trout
- Fish
- Roasts
- Pommes bignon
- Fillet of beef, with champignons
- Mashed potatoes
- French string beans
- Chicken patties, with green peas
- Roman punch
- Larded grouse, with jelly
- Baked sweet potatoes
- Asparagus
- Plum pudding, hard sauce
- Assorted cakes
- Charlotte russe
- Lemon ice-cream
- Fruit
- Edam and domestic cheese. Bent's water crackers.
- Coffee.

Ample justice was now done to the bounteous repast which occupied the attention of the fellows until 10.30, when speaking was in order. Pres. Needham was introduced by Vice-Pres. Burleigh, as toastmaster of the evening, and after a few timely remarks he called upon the following gentlemen to respond to the toasts: "Our Half-way Thro," F. B. Knight; "Our Class," F. W. Collier; "'92's Mascot," H. H. Smith; "Our Base-ball team," H. M. Southgate; "The Tech," J. H. Wallace; "The Faculty," M. J. Lyden; "The Ladies," G. F. Freed.

The speeches were all of more than ordinary merit, and each one contained some particularly happy allusions to interesting incidents connected with '92's career at the Tech.

The production of the gaily decorated mascot from beneath the table was the signal for a tremendous outburst of enthusiasm, and Mr. Lyden's clever handling of "The Faculty" was greeted with continued rounds of applause.

At this point Mr. R. H. Thompson favored the company with several selections upon the piano, which were much enjoyed. General singing of favorite songs followed, and then came the hit of the evening—"The gaiety skirt dance."

'92 is fortunate in possessing a man who knows what features of "refined minstrelsy" are best suited to an occasion of this kind, and at the same time has the best of talent at his command.

This gentleman had secured, at the request of the class and also "at great expense," the justly famous "gaiety skirt-dancers," who went through the intricate mazes of the dance with a grace and agility which charmed an enthusiastic audience.

The ovation which followed compelled the charming creatures to repeat the performance, and with this the festivities of the Banquet-room were ended.

A business meeting followed in which the following officers were elected for the coming half-year:

Pres., J. H. Wallace; Vice-Pres., H.
M. Bracken; Sec., G. F. Freed; Treas., G. H. Day; Capt. of Ball Nine, C. A. Tucker; "Mascot Bearer." A. H. Smith; Athletic Director, A. E. Culley.

With a vote of thanks to Mr. Bartlett for the sweet cider, which was such an enjoyable feature of the entertainment, and another to the committee of arrangements, this meeting was brought to a close and the procession started for the confines of the Tech.

If the number of policemen who were met between the "Bay State" and Lincoln sq., were to be looked upon as at all significant, one might imagine that someone at the North end had been entertaining a regiment of "The Finest" with a banquet, but as they all seemed in a tolerably sober state they were not molested, and '92 was soon rejoicing the hearts of her professors with lusty Tech cheers and the sound of the trumpet.

There may be something more suitable and satisfying wherewith to end a celebration than a bonfire, but any one who had seen the jubilation, as '92's crimson banner floated from the flagstaff of Boynton Hall in the light of the blazing tar-barrels, would have been inclined to doubt it.

As the happy crowd went marching home in the small hours of the morning, it seemed to be the universal opinion that this celebration had been all that could be desired.

A POSSIBILITY.

What Might Come from the Bigelow Gift.

The generosity of Mr. H. H. Bigelow has placed in the hands of the trustees of the Institute a larger amount of material than can readily be utilized. The machinery which the Tech has lately received cannot readily be accommodated by the Washburn Shops. Hence, if it is all to be used, there must be another building added to our group. Of course, no provision has yet been made for the erection or maintenance of such an addition, but we doubt not the time will come when this will be done.

Now would it not be a wise plan, if a new building must be erected, to arrange it so as to accommodate a gymnasium in addition to the mechanical outfit? There is no denying the fact that the Worcester Tech is far behind the times in this particular. Every modern higher educational institution has a well equipped gym, and all those that have not are behind the times. The growing sentiment among educators is in favor of more general physical exercise for the students. By this is not meant training for any special event to the detriment of other physical functions, and by only a few of the strongest men. Every student needs daily exercise, and the opportunity for it should be near at hand.

Not long since, the writer heard a person speaking of the appearance of college students. Said the speaker: "Thirty or forty years ago, college students were as a rule, thin and wan creatures, remarkably deficient in bodily strength. To-day the fact is far different." Almost every institution of our class has a gymnasium, and those that have not are rapidly waking up to their need of one. The Rensselaer Polytechnic has a new building for athletic purposes; Syracuse University is building a gym; the United States government has just appropriated $100,000 for a new one at West Point.

We may be altogether too previous in mentioning the possibility of anything of this kind, but a seasonable suggestion is sometimes valuable. Tech students might be spared the necessity of working off their surplus vitality by frequent performances of the time-honored "George Washington," if they had a chance for legitimate limb exercise. But we should not plead for an acknowledgment that a gymnasium would benefit the Institute. That fact is admitted by everyone. We only call attention to the
chance which is now open, to do this great
good while the working facilities of the
Tech are being increased. Would not the
Institute be more popular if it had a few
such innovations?

---

THE MINSTREL'S CURSE.
(Translated from Uhland by A. L. Rice, '91.)

In olden time was standing a castle, tall and
grand,
Which shone e'en to the ocean blue, far o'er the
smiling land;
And there the blooming gardens formed a fra-
grant garland round;
And rainbow-hued, the fountains played with
cool refreshing sound.
Rich both in land and conquests, sat a proud
monarch there,
Yet pale he sat upon his throne with alway a
gloomy air;
For whatever he thinks is terrible, and each look
is an angry one;
And whatever he writes is written in blood, and
all that he says is scorn.
One day approached this castle, a noble minstrel
pair,
And one of them had golden locks and the other
snowy hair;
The elder one, who bore a harp, sat on a hand-
some steed,
His blooming comrade, at his side, strode lightly
o'er the mead.
The old man spake unto the youth, "Now be thou
ready, son:
Think of our deepest melodies, summon thy ful-
est tone;
And gather all the power of song, the pleasure
and also pain,
Today we must touch the stony heart of him who
here doth reign."
Already stand the minstrels both, in the pillared
hall so grand,
And the King is sitting on his throne and the
queen at his right hand;
The King, majestic, terrible, like the "Northern-
light" blood red,
The Queen as sweet and gentle as the full moon
overhead.
Then the old man swept the harp-strings; he
struck them wond'rous well,

---

So that richer, ever richer, to the ear did the
music swell;
Then streamed the voice of the young man forth,
like a distant angel throng;
His tones rang out divinely clear, in response to
the old man's song.
They sing of love and springtime, of the former
golden days;
And freedom, truth and holiness, and manliness
they praise;
They sing of all the sweetness that thrills the
human breast,
They sing of all the nobleness with which man's
heart is blest.
The crowd of courtiers round about forget each
mocking word,
The haughty warriors of the King bow down be-
fore the Lord;
The Queen, dissolved in tears and joy, from off
her breast doth tear,
And throw down, at the minstrels' feet, the rose
which she doth wear.
"You have led away my people, will you now
corrupt my wife?"
Thus cries the trembling king, his tones and
look with anger rife,
He hurls his sword: the glitt'ring blade pierces
the young man's heart;
Instead of golden song, a stream of spurting
blood doth start.
The list'ning throng are scattered all as by im-
pending harm;
The youth has breathed his life out there, upon
the master's arm;
He wraps the mantle round the corpse and sets
it on the steed,
He binds it firm upright, and from the court, the
horse doth lead.
Yet before the stately archway, pauses the min-
strel grey,
And firmly grasps his harp, the best of all the
harps that play:
Then, on the marble pillar, he shatters it, and
calls,
So that it echoes terribly thro' gardens and cast-
tle walls;
"Woe! to thee, thou proud mansion; may never
more sweet sound,
Either of harp or singing, within thy halls be
found!
No, only groans and sighing, and awful cries of fear; Until in mold and ruins, doth Vengeance make thy bier.

"Woe to ye, fragrant gardens, flooded with clear May-light; To ye I show this youthful face distorted by death's night, That ye by it be blighted, that every spring may cease, That ye may lie in future stony and odorless.

"Woe! to thee, wicked murderer, thou curse of minstrelsy; In vain may all thy striving for bloody glory be; Forgotten be thy title and plunged in endless night, Be it breathed like the gasp in the empty wind, When the soul doth take its flight."

Thus has the old man spoken, and Heaven has heard his call; In ruins lie the ramparts, roofless each spacious hall; Still one high pillar standing, shows former vanished state, This too, already broken, must fall or soon or late.

Instead of fragrant gardens, a wasted, desert land, No tree now casts a shadow, no spring breaks thro' the sand. The monarch's name is lacking from hero's book or verse, 'Tis perished and forgotten; that is the minstrel's curse.

THE FOOT-BALL PROBLEM.

A Suggestion from a Student which Deserves Careful Consideration.

EDITOR OF THE WPI:

It may seem a little previous to begin thus early to talk of foot-ball for next year, but from the showing that was made the past season, something needs to be done to call the attention of those interested in this sport to the matter of next fall's work in this line. Already in many other schools, the captains for the next season have been chosen and are preparing new men for the team, by explaining the various plays, and the positions and duties of the men. As soon as spring opens, the men will be put in practice in tackling, passing, dropping on the ball, and kicking.

It may be too much to expect that in school the size of ours, where so much is required in the line of study, and so many different sports call for attention, that the men who play foot-ball should confine themselves to that; but it does seem evident that some self-denial must be practiced, if this truly noble game is to take the place which it has held here in former years. There are enough good men in the school to make a team that can play college teams, and leave a record of which they will be proud; all that is necessary is training and instruction.

Is it not worth while, fellow Techs, to have a team and a good one? Is it not worth while to take a few hours this spring from base-ball, at which it seems an impossibility for the Techs to play a decent game, and learn how to pass foot-ball, how a rush line is made up, how to make a decent punt and drop-kick, and how to drop on top of a ball instead of ten feet away from it?

Would it not be a good plan to have a captain chosen at once; to let him try and get some new men interested, and explain the duties of the different men for each play that is made? Then when school begins next fall, there will be men enough in school for a team, who know the points of the game so that they can play intelligently. There will be fewer difficulties to contend with than were met during the past season, and perhaps the school will not be humiliated by having its team beaten by preparatory schools, if a reasonable amount of time is spent in practice for next season's work.

One word more; experience has shown that if subscriptions are attended to early in the year, and as many games arranged for as the funds will warrant, an interest is taken by all the men in school in the play-
ing of the team, which is a helpful stimulus to the team men, and brings out others for them to practice against. Let us heed the lesson of experience in this matter and we may again have a team in which every member of the Institute will take a just pride.

_Foot-ball Crank._

**THE HISTORICAL SOCIETY.**

_A Cordial Invitation to Join is Extended to All._

The idea of forming an Historical Club, which was expressed in a communication appearing in our last issue, seems to have found a ready response.

With most of Division A of the Middle class, and several '98 men as charter members, such a club has already been established under the name of "The Historical Society of the W. P. I." The object of the Society is nominally "the pursuit and promotion of historical study," but it is not the intention of the present members to make it a weekly grind on dry facts relating to wars and rumors of wars, or to follow out long lines of royal successors. Still less was it their purpose to form any kind of a debating society, but to supply a need, which seems to have been felt by quite a number of the students,—to obtain a better idea of those great events which have attended the progress of civilization, and to learn something about the lives and works of those great men who have helped to form the best literature of our day.

With this in mind, it is proposed to begin by taking up the History of England as connected with some of Shakespeare's plays; parts of these plays being taken up in connection with the work. As most of those interested are unfamiliar with the earlier history of that country, a hasty review of the events preceding this period will be taken, but only that more beneficial results may follow from having some idea of the influences which helped to bring about the state of Society depicted in "King John" and the "Henries."

As the membership is larger than was expected, it has been decided to have weekly meetings of one hour each, which will be held, for the present, on Fridays, at 4.30 P. M., in Prof. Smith's recitation room.

The time being but one hour, not more than two or three can well be heard from at one meeting, so that no one man will find his turn coming often enough to be burdensome.

The present membership of the Society is composed mostly of men from one division, but a most cordial invitation is extended to all persons connected with the Institute, who are interested in History, to become members.

**TWO FORLORN INVENTORS.**

_Each Thinks That the Other Has Pulled His Leg._

But for a very slight accident, the world would by this time have received the startling announcement that two students at the Tech had made one of the most useful and wonderful inventions of the age.

The model was ready for the Patent Office a month since; the name of the firm which would retain the sole right to manufacture this little piece of mechanism had been decided upon; the best methods for transporting in large quantities had been exhaustively discussed and even some arrangements had been made for the disposal of the anticipated returns from their product. For more than a month the two inventors worked continuously on their scheme, each assuring the other that any money he sank in perfecting the details would be amply repaid as soon as the royalties began to pour in, and it did seem as if their copying-roller, for such indeed was their invention, would hardly fail to meet with success. Just when all the work was completed and nothing was lacking but the patent right, the little thing
before mentioned, came to light to spoil everything. It was the fact that a machine, the counterpart of theirs in every detail, had been patented four years since. So much alike were the two machines that our two friends could hardly believe their eyes. The cut in the Patent Office report would make an excellent photograph of the machine over which they had spent many industrious hours. They are now negotiating with the young molasses candy vender, and will soon supply him with a new confection made from their stock of gelatine, sugar and glycerine mixture.

J. DEWITT CRUIKSHANKS.

The Untimely Death of a Former Member of the Class of Ninety-three.

The mechanics of '93 were shocked a fortnight or so since, by a rumor which was current, of the drowning, off Liverpool, of J. DeWitt Cruikshanks, one of last year's Apprentice class. Since then, more definite information has been obtained to the effect that he was lost overboard in the Mediterranean sea, from a steamer bound for Italy, and about a day's sail out from Gibraltar. Further than this, nothing can be learned until the arrival of the steamer again in this country, probably about the middle of this month.

Mr. Cruikshanks was a singular and indeed a remarkable man in many ways. No one who had once met him would easily forget his peculiarities. Caring little for looks and unmindful of the criticisms of others, he was continually seeking to increase his large store of general information by learning from each and everyone, whatever knowledge of interest they might have. He was very fond of reading, and quite an enthusiast in music, deriving much pleasure from his violin. But his greatest enjoyment was in travelling, and the visiting of foreign countries. When he met his death he was on his way to Naples, intending to pass the winter in Southern Europe, and, though scarcely in his twenties, was making his third trip across the water. During previous summers, he had wandered with his bicycle through the British Isles, France, Germany and Switzerland, besides having worked his way south and west in our own country, as far as Chicago. Though he has not been connected with the school for several months, many of the students remember him, and anything further concerning his untimely death will be read with interest by his former classmates.

SOCIETY NOTES.

Camera Club.

At the late election of the Club the following officers were chosen: Sinclair, president; Davis, vice-president; Bracken, secretary; A. H. Smith, treasurer; Freed, keeper. The president, Tracy, Hunt and Vail, executive committee.

The place of meeting has been changed for the convenience of the members from Boynton Hall to a room of the city Y. M. C. A. building.

The Club feel themselves highly honored in being recognized by the principal clubs of the country, those of Boston and New York asking correspondence and sending tickets for delegates to their exhibits.

Y. M. C. A.

The two delegates sent by the Association to the convention held at Williams College, Williamstown (Feb. 6–8), report a very pleasant and profitable meeting.

A great part of the work concerned college branches of the Association. Among the papers directly relating to colleges, were: "Preparatory Schools; their spiritual needs and possibilities," by F. K. Sanders, of the Intercollegian. Those who were at Haverhill last fall will remember that this subject was touched in the college conference, and no doubt Mr. Sanders' paper is a result of that conference.

Rev. S. H. Lee, of the French Protestant College of Springfield, followed, with "College-Student Work in City Missions," touching much the same line as that touched by the delegates who came last fall. Then
Mr. Colley, State Secretary of Connecticut, took up "Work for young men in New England and its claims upon college men." All these were followed by very interesting discussions. The college feeling was heightened by the surroundings.

The Tech society is perhaps the most prosperous now of any time in its existence; the membership is about ninety, and the interest in the meetings good.

**Tech Elect.**

The Tech Elect has changed its board of officers, the new ones being: Atkins, president; Gibson, vice-president; W. H. Ramsdell, secretary and treasurer.

At the last meeting, Prof. Kimball explained the new apparatus: a standard amper balance from the laboratory of Sir William Thompson, England.

The by-laws, also, were amended, making any member of the School, of whatever class, eligible for membership. This was a good move, since quite a large majority of those particularly interested in electricity were ruled out under the old law.

The Middlers are rather slow about avail ing themselves of the opportunities afforded by the Club. They can't join too soon if they wish to get the most out of the club. New work is taken up constantly, and to those making electricity a special study the Club is invaluable.

---

**SCIENTIFIC NOTES.**

**New Discoveries and Achievements in the Scientific World.**

A great dam is being built in the Madura District, India, by which it is intended to turn one stream into the channel of another, and so secure better water facilities to the country surrounding the latter, where at present water is not abundant. About 3000 men are employed on the work.

Whole suits are now made of asbestos, and mittens, aprons, and masks are worn by iron workers to enable them to work more advantageously, nearer to the hot metal. Firemen's outfits are also manufactured.

Petroleum is now thought to be of animal origin, formed from the decomposition of marine animals.

There are eleven thousand miles of railway in Australia.

An air-ship, thirty feet in length, was recently tried in Chicago. The machine was driven by electricity.

There are now 260 miles of electric railroad operated in this country, which number exceeds that of cable roads by five miles.

A New York man claims to have invented an electrical apparatus by means of which a sentence written on a slate and held before an instrument can be seen and read by a person at any distance connected by wire. Samples of cloth or other merchandise, it is asserted, can also be shown.

Several firms in Pittsburg have been compelled to return to the use of coal, owing to the failing condition of the natural gas supply. In Ohio, the same thing is also experienced.

Ashworth Brothers, of Manchester, England, makers of the Ashworth revolving top flat card, which is being so extensively introduced into cotton mills now, have recently patented a new driving pulley for cylinders.

It is absolutely necessary to have the arch on any card exactly concentric with the surface of the cylinder; and one of the most difficult things with which to contend has been the unequal wear on the brasses or bearings, because they commence to wear first upon the side opposite to the belt contact on the driving pulley, allowing the cylinder to fall out of concentricity with the arch. The new pulley consists of a boss with a long hub and two horns opposite to each other on the same end, their sides being parallel. This is keyed on to the shaft. Over the hub is slipped the pulley, which has a solid centre, except the hole for the shaft and two grooves as radii to the centre. Into these the horns of the boss just fit, care being taken to make an exact fit, thus holding the pulley by the horns fast to the shaft, so that when the power is applied to the pulley by belt, it is communicated to the shaft by the two horns, one pushing down on one side and the other pulling up on the other side.

Thus the power is distributed by the two horns to two different and opposite points on the shaft, hence lessening the strain and wear on the boxes opposite to the belt contact.
PERSONALS.

J. J. Donovan, '82, is in that remarkable State of Washington, and in the city of Fairhaven, which has grown from a population of 500, January, 1890, to nearly 8000, January, '91, and has an assessed valuation of $8,000,000. The Fairhaven Herald, in a lengthy article, speaks of Mr. Donovan as follows: "One of the first and most praise-deserving men in the building up of Fairhaven is that model man, J. J. Donovan, chief engineer of Fairhaven and Southern Railroad."

Amzi T. Rogers, '86, is at 276 Water St., New York City, with John D. Clarke, contractor for heating and ventilation.

De Witt C. Wheeler, '86, is with the United States local inspector of steam vessels, with headquarters at 166 P. O. Building, New York.

Chas. Ferry, '88, has given up teaching at the M. I. T., and now has a very desirable position as superintendent of the Barley Fibre Co., Sangerties, N. Y.

E. J. Lake, '90, Harvard, '92, has begun active training at Cambridge for his class crew.

D. R. Collier, '90, has left the Deane Steam Pump Co., at Holyoke, for a more remunerative position at Maynard, Mass.

Charles F. Treadway and Paul B. Morgan, both of '90, write us that they are still enjoying life and study in Sweden. The novelty of being the only Americans in Scandinavia is fast wearing away, however, and they will be glad enough to return to America and civilization in the summer.

Dr. Fuller would like to know the addresses of the following Alumni, who have not reported for the next catalogue:

Horace Ropes, '78.
Henry D. Smith, '81.
A. S. Peckham, '83.
A. H. Allen, '84.
John C. Setchel, '84.
Chas. S. Cook, '85.

Samuel E. Mann, '72, is making something of a reputation for himself as an author and poet. He has been given distinguished consideration recently in metropolitan journals, and also in the Cyclo-pedia of American Literature, which publishes one of his poems. Mr. Mann is at present in Apopka, Florida, where he is engaged in study and literary work.

INTERCOLLEGIATE NOTES.

What is Going On in the Educational Institutions of the Nation.

Stevens Institute has a college pin.

Smith College girls had a snow-ball rush recently. When it was over, the victors treated the beaten ones to lemonade.

The University of Nebraska has adopted the three-mark system—passed, conditioned and failed.

A Detroit man has given twenty thousand dollars towards building a gymnasium at the University of Michigan.

A fencing club has been formed at Johns Hopkins. The President is a millionaire Spaniard, Mr. Leonzo Eldorado Munoz del Monte-Marco, a very popular young man.

The W. P. I. was represented at the convention of New England college Y. M. C. A.'s at Williams, Feb. 6.

Syracuse University is to have a new college gymnasium. The building will also be used by the Y. M. C. A.

Men training for the Brown nine are required to attend gymnasium regularly or be left off the list. A record of attendance, including absence and tardiness is published in the Brownian every week.

The Red and Blue of the University of Pennsylvania contains in its last number an excellent photo-engraving of the college foot-ball team.

All but two of last year's Yale nine are back at college this year.

Tokio, Japan, contains fifty Yale graduates, who are just forming an alumni association.

Fifty candidates for the Cornell crew are now in training.

Vassar has a new skating rink, the gift of the great Standard-Oil man, Mr. John D. Rockefeller.

The Cornell college library contains 140,000 volumes, including a superb set of works on French history, said to be the finest outside of France.
The University of Pennsylvania has a three-mark system—passed with honor, passed and not passed.

A friend of Amherst has offered $100,000 to the college, provided that others will give $150,000.

President Potter of Princeton is said to have once remarked about going to college, that he thought it was better to have gone and loafed than never to have gone at all. Perhaps it is on the strength of this remark that some of us are here.

The members of the Harvard football team have been presented with elegant silver cups by the Harvard Club of New York.

Johns Hopkins has built a "Home for University Tramps."

It is reported that no graduate of Vassar has ever been divorced from her husband.

Thirteen hundred students of Cambridge University have signed a paper protesting against the admission of women.

Amherst College has recently issued a circular letter with an enclosed blank to every student asking for a full account of all expenditures, including amusements, travelling, etc., for a year.

TECNICALITIES.

It is said the Preps have already "set the ball rolling," in free-drawing.

The State authorities intend posting copies of the riot act in the corridors.

"What are you going to draw?"
"Draw Gladys' attention."

The "Gaiety skirt dance" seems to have survived and increased in favor.

Quercus wants to know the distinction between an absolute zero and a goose-egg.

_Mid. to Senior_: "Got to pass in anything more before you graduate?"
_Senior_: "Got to pass in my thesis."

One of our bright German boys says that the Prof. gives out his lessons as if he were bestowing alms on the poor.

Funny how the boys smiled when Prof. Kinnicutt said: "You see heat given off, I can perfectly easily."

Thursday, Jan. 29, being the day of prayer for schools and colleges, an extra meeting was held by the Y. M. C. A.

"For fumigating, use about a kilo of sulphur for a room of 35 cubic feet." How would '92's 6 ft. 3 in. man like to double up in that room?

1st Lathe:—"What's that sobbing, moaning sound up by the office?"
2d do.:—"Oh, nothing; only the milling-machine is cutting teeth."

The new organ appears to be appreciated by all, and on certain occasions, the windmill attachment has proved not the least of its many attractions.

Said '83 to '92, "I've played a beastly trick on you."
Said '92 to '93, "Now, I'll love you if you'll love me."
So the little braveys smoked the pipe of peace, and vowed to let the sermonage cease.

Editors are supposed to be "ink-slingers," but they don't like to have ink slung at them, especially when accompanied by a stopperless bottle.

_Unus_ Junius:—"What's that work going for?"
_Dius_ Junius:—"Going for Norton."
_U. J._:—"Yes, I notice most of mine goes for nortin'."

The Junior class has unanimously elected the following officers: President, A. C. Comins; Vice-President, C. T. Tatman; Secretary, A. D. Flinn; Treasurer, W. C. Howe; Athletic Director, L. W. Rawson.

The idea of gathering in the chapel to sing college songs for some minutes before the first afternoon recitation seems to have been a happy thought. The goodly number of '92 and '93 men, who pour in to swell the chorus, seem to enjoy themselves immensely.

The same method for the study of history, that was adopted for the Middlers' German recitations, last term, has been continued in connection with "The Thirty Years' War." Last term the topics were upon the fall of the Netherlands, and now they refer to the condition of the German States in general.

These are some of the thesis subjects at Cornell: Right of stoppage in transit; Contracts of infants; The liability of inkeepers; Law of watered stock; Intoxication as a defence. A careful reader is led to believe that the Law School is not situated in a temperance town.
THE WPI.

Queer, isn't it, how when you flub up on a quiz, the professor's hand never fails to gyrate round and round on a goose-egg, but when you rattle off the answers as if you had known them all your days, he gets up and goes to illustrate something at the board, while your ten-strike never gets materialization?

'92 has lately received lectures upon the coefficient of friction and the coefficient of expansion. It is said the coefficient of cremation is to follow as soon as satisfactory results are obtained from the experiments on the class at large in the Physical Lecture Room.

Who says the Tech is small and of limited reputation? E'en Victor Hugo foresaw the "late unpleasantness," when in Les Miserables, he wrote: "The red banner rose through the gloom * * * and the bystanders thought that they beheld the spectre of '93 emerging from the earth, with the flag of terror in his hand."

The Senior class has already begun operations for the purpose of doing up their "commencement" after the most approved style. Mr. F. H. Rice has been chosen class photographer and the class officers have been elected as follows:—President, F. A. Bigelow; vice-president, F. C. Hodgman; secretary, John F. Rogers; treasurer, H. H. Tracy.

Monitor—"Say, X, you were absent from chapel this morning, were n't you?"
Mr. X.—"Absent? Me absent? Didn't you hear me sing?"
Monitor—"Um—well—you didn't sit in your own place did you?"

Mr. X., truthfully—"No, that's it; I was n't in my own seat." Off goes the mark.

The Preps have started out bravely, to say the least. One of them endeavored to perform the amputation act, the other day, on a comrade, not using the regulation guillotine, but contenting himself with an every-day saw. Blood flowed quite freely, but the man's life was happily saved by the intervention of friends. The executioner's name was, as might be supposed, Saw-yer.

Before beginning Laboratory practice, the Middlers had quite a number of lectures upon the experiments to be performed. Prof. Kimball says the success of former classes justifies him in expecting good results from this work, in spite of the remonstrances of professors from the various universities, who think such experiments should not be attempted by Junior classes, but be reserved for those engaged in special lines of work.

FAVORITE DIVERSIONS.
The Senior nurses his moustache,  
The Middler on Dutch lingers;  
The Junior tries to make a mash,  
But the Prep saws off his fingers.

MOTHER GOOSE.
Hey diddle diddle,  
The Prep and the chisel,  
He nearly jumped over the bench;  
But the foreman came round  
And made him all sound  
With a left-hand monkey-wrench.

PINKHAM & WILLIS,  
FURNITURE & CARPETS,  
355 Main, corner Foster Street,  
WORCESTER, - - MASS.
P. L. RIDER,
336 Main Street, opposite Burnside Building.

RUBBER
COATS, Boots and Shoes, HATS, GLOVES, Mechanical Goods, Everything.

MACKINTOSHES.

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.

LOUIS W. SOUTHGATE,
Late Examiner U. S. Patent Office, formerly head Draftsman Pond Machine Tool Co.,
COUNSELOR-AT-LAW AND SOLICITOR OF PATENTS,
W. P. I. Class, '85.
Room 18, Burnside Building,
339 Main St., Worcester, Mass.

J. C. WHITE,
DEALER IN
MATHEMATICAL INSTRUMENTS
And Artist Materials.
Also, Full Line of Paints, Oils, Glass and Varnishes.
12 Pearl Street, Opp. Post Office.

BIGHLOW & LONGLEY,
384 and 388 Main, cor. Elm St.

CUSTOM AND READY-MADE CLOTHING
OF HIGH QUALITY AND PERFECT STYLE.

These are the days when one must make a change in his clothing, laying off the heavy garments of Winter, and putting in their place the lighter weight and lighter colored garments suitable for the milder season now upon us. Right here, where you have found the BEST GOODS year in and year out, you will find now a magnificent line of

SPRING OVERCOATS,
That we really believe to be unequalled in Worcester. They come in Scotch Cheviots, Meltons, Wide Wale, Light and Medium Colored Worsted, and Kerseys, all are thoroughly Made and are NOBBY, ATTRACTIVE, and STYLISH, they are beauties and may be had FROM $5.00 TO $25.00.

We have to-day the NOBBIEST SUITS for Young Men to be found anywhere. The goods are made to our Special Order and cannot be improved upon.

IN OUR CUSTOM DEPARTMENT
Young Men can find elegant cloths of all kinds to select from, and SKILLED ARTISTS to fit in the most stylish manner. All work in this department guaranteed. PRICES ALWAYS LOW.

BIGHLOW & LONGLEY,
Corner Main and Elm Streets.
EDWARD B. CLAPP,
Fashionable Hat,
Fine Furnishing
AND
Athletic House.
Representing the Leading Houses of this country in Sporting and Athletic Goods. Novelties of the foreign and domestic markets.
WEDDING AND PARTY OUTFITS A SPECIALTY,
365 Main Street, Worcester.

TIFFANY & CO.,
JEWELERS AND SILVERSMITHS,
UNION SQUARE, - NEW YORK.
PARIS
Ave de l'Opera 36 bis.
LONDON
5 Argyll Place, W.
Received Eighteen Awards at the Paris Exposition, 1889, for their Artistic Designs and Superior Workmanship.
Exclusive Designs furnished on application for Class Cups, Class Rings, Alumni Badges and other College Emblems and Trophies; also Invitations for Class Dinners, Commencement Exercises, &c., &c.

PHOTOGRAPHIC SUPPLIES,
Cameras, Lenses, Plates, Lanterns, &c.
Chlo. Gold, Tungstate Soda,
Carb. Potass., Sulphate Soda,
Hydrochinoni, Carb. Soda,
Pyrogallic Acid,
Oxalate Potass., Sulphocyanide Ammonia, &c.,
all Chemically Pure for Photographic Use.
Hire your Hacks,
Board your Horses,
Get your Livery Teams,
AT—
HARRINGTON & BROS.,
31, 33 & 35 Central Street,
WORCESTER, MASS.

REBBOLI,
Confectioner and Caterer,
6 AND 8 PLEASANT STREET, WORCESTER, MASS.
BAY STATE HOUSE.

Under the new management this Hotel has been thoroughly reorganized and will be conducted on a
First-Class Basis
In every particular. We solicit a trial of our hospitality.

DOUGLASS & BROWN,
Proprietors.

A. E. DAVIS,
PHOTOGRAPHER.

The Latest and Most Novel Things in
Photographic Work.

Special Inducements to Graduating Classes.

CORNER OF MAIN AND PARK STREETS.

Estate of
J. L. BURBANK,
Successor to
M. B. Green & Co.,
APOTHECARY
And Dealer in Drugs, Patent Medicines, Perfumery, Etc.
The Only Place in Town for Whipped Cream Soda.
376 Main Street, Corner of Elm, Worcester, Mass.
H. L. FISK, Manager.

Physicians' Prescriptions a Specialty.

JOHN A. SNOW,
Is 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.

ASSISTED BY HENRY EIDT.

WASHBURN MACHINE SHOP, 13
WOCESTER, 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 & POOL ROOM,
57 Pearl Street, Worcester, Mass. Hours for Ladies: 9 A. M. to 4 P. M.
FINE CLOTHIERS AND CUSTOM TAILORS,
409 MAIN STREET.
A special feature of our stock at this time is
a very nobby line of
OVERCOATS & SUITS
FOR YOUNG MEN. AT PRICES RANGING FROM
$8.00 to $25.00.

R. H. KENYON, President.
C. B. COOK, Treas. and Manager.

C. B. COOK LAUNDRY CO.
(Formerly Worcester Collar Laundry.)
Shirts, Collars and Cuffs
Laundered in Superior Style.
Special attention given to
GENT’S UNDERWEAR,
AND
FINE LAUNDRY
OF ALL KINDS.
Hand Work a Specialty.
BARTON PLACE, WORCESTER, MASS.
Goods Called for and Delivered without Extra Charge.