



The

OPTIC.



Vol. VII.

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No. 1.

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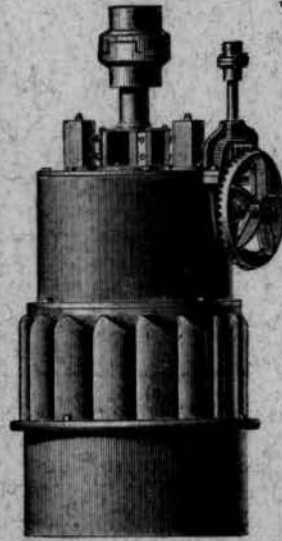
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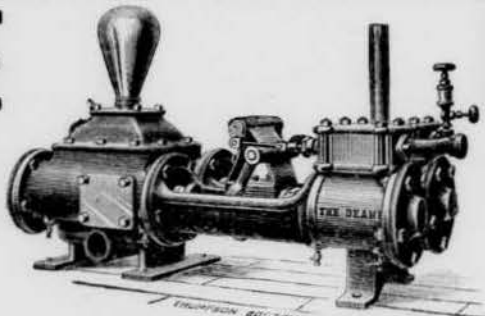
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THE W P I

Vol. VII.

WORCESTER, APRIL 15, 1891.

No. 1.

THE W P I.

Published on the 15th of each Month, during the School Year, and devoted to the interests of the Worcester Polytechnic Institute.

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FOR the seventh time since its foundation does a new class assume the leadership of the W P I. To successfully carry out the aims and management of a paper like this, and in this institute, requires a certain amount of ability and experience. This at the outset places the present board at a disadvantage. But, however much we may lack in these essentials, our greatest effort will be to furnish the students with news that directly concerns them. For this very purpose of presenting our readers with items of interest we cordially request all graduates, non-graduates and the Faculty, to frequently use these columns and to give us the benefit of their thoughts. We do not imagine that technicalities, athletic reports or

society notes will interest all alike, but they may please a few and that is all we can expect.

It is somewhat unfortunate that a change in the make-up of the editorial board of the W P I should necessitate a change in the policy of the paper with regard to one of the most important questions the school has to discuss.

However, such is undeniably the case. The last two papers have contained many statements of opinion, from correspondents as well as from editors, on the subject of foot-ball and base-ball. In last month's editorial columns the policy recommended to the school was, briefly stated, to let base-ball entirely alone this spring, and to give our whole attention to practicing foot-ball, in preparation for the fall foot-ball season.

Now, the present board does not advocate the carrying out of this plan, for two reasons: first, because we do not think it best; and second, because we know it is impossible. Among a certain number of the students there seems to be an idea that the Institute can get up a foot-ball eleven which will be able to compete with first-class college teams, as did the famous Tech eleven of ages ago. This idea is evidently based on rather frail foundation. The first thing necessary to success in any sport is popular interest. We will rely upon the judgment of every student of last year,

to decide by the evidence of attendance at games, in which sport the school showed greater interest. When fellows have to go through the shop and implore men who never toed a foot-ball, to come out and to give the eleven a chance to practice, we regard the spirit of the school in respect to foot-ball as falling something short of enthusiasm. But when the base-ball field is almost constantly occupied by members of the various class-nines, and when crowds of students wait after the afternoon recitations and even come up from the boarding-house district on Saturday afternoons, to witness the class games, we would refer to the base-ball feeling as moderately warm.

It would be pleasing to all students, the Alumni, and possibly even to the Faculty, if the school could have a fine foot-ball eleven. The principles of geometry are as true to-day as when they were first discovered, but unfortunately, we are not sure that a school which one year has a first-class athletic or foot-ball team, will have the same good fortune three or four years afterward. We believe that the school interest in base-ball is vastly greater than its interest in foot-ball, and though it cannot be absolutely proved that the school can get up a relatively better base-ball nine than foot-ball eleven, a person undertaking to argue the reverse would have to face some facts rather hard to be reasoned out of the way.

Moreover, base-ball is a spring game, and foot-ball a fall game. It would be as difficult to give up base-ball this spring as it would to prevent arbutus from blooming or poets from soaring. Still,

we do not wish our readers to understand that we have no sympathy for foot-ball. On the contrary, we are as anxious as last month's board to see the school well represented in the fall sport. We therefore recommend that the foot-ball players keep up their practice this spring as much as possible. At other places the elevens are made to train right through the spring. Of course, some of the foot-ball players are also base-ball cranks, and the two sports might conflict somewhat. But whatever chance there may be for learning the game of foot-ball, we advise the students to take. Practice once a week will be better than none at all. Our article on foot-ball in this number shows that the school has a large amount of excellent material for that game; and if the proper push is given the sport, we are sure that the failures of last year will not be repeated.

We would direct the attention of all students to the article concerning the chances of the different class nines during the coming base-ball year. Our knowledge of '94 in this respect is very hazy, as it necessarily must be, since no practice-games have as yet been played by any of the classes. However, there is no reason why all students should not be interested in this subject and should not give a hearty support to this popular game. From now on, Dewey's field should be the scene of the liveliest activity.

There is no need to sigh over past memories, of the days of John Souther, Willard Fuller and others: men can play base-ball as well now as they could

ten years ago. A manager for the school nine has already been elected. Let him go to work conscientiously and pick out his men. Favoritism should be cast aside. Even if it should happen that a class was not fit to be represented in the nine, let that not deter the captain from performing his duty. We have had to blush for the incapacity of our former teams, and, may we hope, for the last time. The school comprises men, who, if rightly trained, would form a club equal to any we ever had. Now is the time; move on in the right direction and success is assured.

The trees are budding again. Everyone wears a cheerful smile whenever he thinks of the short time between now and the end of the school year. Spring has started everything into motion. Athletes are especially busy in making preparations for the coming sports. There is scarcely a college paper but that is overflowing with news concerning the progress of athletics. The long winter has sharpened the appetite in that direction. Schools which formerly never had a field-meet, are putting forth their entire strength to make this year a memorable one in the athletic histories of those schools. The most important of these institutions is Boston University. The men there finally became tired of the jeers of Harvard, and of the pitying smiles of the Boston Tech, and decided to make a bold step. They appointed a committee to wait upon the Faculty and to ask that a field-day be granted them. After it had been plainly stated to the Faculty that it was either athletics or no students, the

school guardians reconsidered their opinions and the result is that the University boys intend to celebrate their field-day in a manner to be proud of. The great games of foot-ball between Harvard, Yale and Princeton have given an impetus to that sport throughout the country, and indirectly have stimulated athletics in general. So that, judging by the signs of the season, out-of-door games of every description should flourish this spring as they never flourished before.

It has not generally been considered wise, heretofore, for the editor of this paper to attempt book reviews, since as has been fitly stated "the field of that work is being amply covered by the daily newspapers." But a man is nothing in this world if not eccentric, and so throwing aside all laws of custom and usage we begin.

The catalogue has arrived. Yes, in spite of the many jokes and sarcastic allusions flung at it, the catalogue has survived the ordeal and lies before us. For the third time, within our personal knowledge we learn that, "the atmosphere of Worcester is one of industry, enterprise and culture." Passing over fifty pages we come to the chapter on Commencement Exercises; to the theses given out to the various men, etc. Now would it not be a good idea to vary the monotony of the book a little and give the names of the men who had honors on the preceding Commencement Day and the titles of the subjects delivered by the orators? But we would implore the Faculty not to strain themselves internally by rushing off to the publishers

with orders to this effect; we'll wait until next time. The last thirty-five pages is taken up in giving some excellent information about the Alumni and the positions they at present hold.

However, what pleases us most is to notice that the course in astronomy has been set aside as inexpedient, that is to say, the stars have disappeared. Now no matter whatever our sentiments may be, it is well to know a good thing whenever we see it and beyond a doubt when our catalogue, with its good paper, clear, legible print and concise information be compared to the catalogues of other colleges its great superiority is at once to be noticed. The catalogue, moreover, is a book in which we should all be interested and for that reason, we wish it an increasing circulation.

A few days ago, a certain professor took occasion to censure a class for its lack of attention. In closing his remarks upon the subject he alleged as the reason for the unseemly behavior of the division that the students cared nothing for his instruction; that they fancied as much and better could be got from a text-book and in less time, and that they were resolved to annoy him as much as possible and create disorder. In short it was a case of what is commonly called "pure cussedness." Finally he turned on his heel and set the class to doing penance at working on problems. Perhaps the scolding was well merited. It came certainly, and, as the rain, fell alike on the just and on the unjust. Perhaps too it served its purpose. Few reprimands of such a

nature fail to be more or less salutary. These points are immaterial.

Why we mention this incident is that attention may be called more forcibly to the fact that in this case as in all others there are two sides. The division in question had been in the room upwards of two hours and with no recess at the end of the first. Was it not just the least bit natural that attention should flag? Two hours sitting quietly is wearisome enough if the chair have a comfortable back and foot-rest, but if the back be but high enough for an aggravation, and if it is of such a shape that in order to utilize it, the occupant is compelled to cringe his body to a semi-circle, then the operation becomes positively painful. In addition to these discomforts, let there be no cushion, or support for the feet other than the floor; let the atmosphere be close and hot, and is it queer that the nerves strive to divert the attention of the mind from the subject under discussion and draw it to relieve the demands of aching muscles? But go a little farther, and granting that the body suffers no discomfort, where is the student that for two hours can follow uninterruptedly, and reasoning as he goes, the demonstrations, more or less complex, of a scientific lecture? And perchance one may be found with such power of concentration, how many times could he perform the feat and not have its effects show in his general health? A concert or play of two hours length without an intermission would not be tolerated, and that too where the mind is feasting instead of working, and the physical discomforts are reduced to a minimum.

Looking at it from such a standpoint, is there not a little excuse for the inattentive student? Perhaps after all he does not hate his work or the professor, or doubt the latter's ability and his own need of help. Suppose another time he is given five minutes to walk about, stretch, rest his eyes and brain, and then if attention is not forthcoming, let him have his just deserts. This article is not written as a criticism on this particular case, but in general on all similar occurrences. This practice of unintentionally keeping students overtime, and then complaining because they fret and chafe is too common, and in behalf of the average student, we most earnestly protest.

About one of the worst things practised in this Institute is the disgraceful habit, a few men have, of disfiguring the papers in the reading-room. It is no very wonderful thing to pick up a journal and find clippings cut out of it even before one-tenth of the students have had a chance to read the paper. The *Spy* has suffered greatly in this respect. Indeed, one morning it was not in the building three hours before the clipping-fiend had got in his work. This thing should be stopped. Last year it was the same way with the property of the Tech Camera Club, and the practice does not seem to have abated by any means. The man who will deliberately mutilate any reading-matter furnished the students, deserves no sympathy, and should be taught that the papers were placed there for the benefit of all and are not to be defaced by those who are wilfully blind to the rights of others.

We are glad to notice that one man, at least, thinks enough of having a school flag, to enter a protest against our indifference regarding this idea. There can be no more inspiring sight than to see the flag of the nation streaming from a school tower. It shows that although the students may be deeply engaged in their studies, that they have time to acknowledge their inherent patriotism. All of us should have a feeling in common to place the starry flag where it may be seen from all over the city.

Resurrect that paper and send it along again accompanied by a responsible guardian.

In this issue will be found an article based upon the results of the experiences of Prof. Woodward, Principal of the St. Louis Manual Training Schools. The article may not, at first sight, appeal especially to us, but when it is recollected that the paper really opens the old discussion upon Trade and Profession, its significance is more readily apparent.

For years, it may be said for centuries, has there been a continual clash between Trade and Profession. Neither side will yield to the other; neither side will admit that the other even stands on a par with it. And this is because the lax, imperfect laws of practical science are as repugnant to the theorist as are the latter's rigid and sometimes impossible theories, repellent to the ordinary mechanic.

Many mighty efforts have been made by eminent men to reconcile these great divisions. Finally, recognizing the fact that practice and pure theory could never be amalgamated, bright minds

sought a remedy. The results of their labors have generated the modern Polytechnical Institute. To this day the practical workman sneers at the idea of the man, who has spent his whole lifetime in school, teaching him his duties, and regards the conservative ideas of this graduate with contempt.

Nevertheless, the mechanic will soon discover, as the student has already done, that practice becomes economy only when wedded to theory. Therefore, any paper treating of these branches should be doubly interesting to us, for the reason that we stand midway between the two parties, and are the pioneers of a third body, founded upon broader ideas.

As stated, the entire subject is built upon a series of papers read by Prof. Woodward in this city. This gentleman is a man who is thoroughly acquainted with every detail belonging to manual training, and is therefore competent enough to be accepted as an authority in this particular line of work.

When Prof. Woodward was in this city, quite an animated debate was carried on between him and the Superintendent of Schools in relation to the merits of manual training and trade schools. Professor Woodward maintained the opinion cited in the above-mentioned article, while Superintendent Marble held that to give a boy but a taste of this trade and of that branch of work, would not establish the youth upon a firm basis, in fact would make him a Jack-of-all-trades, and for that reason the system was false, since the boy obtained no real benefit. Whatever opinion is right, it shows that the wedge

is not only forged, but driven, that will completely break down all preconceived ideas upon school and work, and the effects of this will be not only to give birth to a wiser race, but also to set a true value upon the dignity of labor.

SHALL IT BE MANUAL TRAINING?

An Interesting Discussion in Favor of Manual Training Schools as Opposed to Trade Schools.

Much has already been said in these columns, as well as in those of the various local papers, in regard to the proposed use of the Bigelow gift, but considering the fact that in the latter papers very little is ever suggested, outside of a trade school, it seems that the opportunity offered for a manual training school should at least receive its share of attention. And it must become evident to any one who has followed out the comparison of these two institutions, made by Prof. C. M. Woodward, principal of the St. Louis Manual Training School, that the advantages of this latter institution are greatly in excess of those of the trade school. A matter of so great an importance to the Trustees of the Institute must be of sufficient interest to all of us to claim a place in these columns, and we also feel that we could not do better than to quote directly from Prof. Woodward.

After sketching the work of the first-year students in mathematics, language, science, and shopwork, Prof. Woodward says:—

“Before speaking of shopwork during the second year, it may be well to contrast the above with a trade school.

“In the first place no trade school manager would be content with two hours of work per day. The allowance is usually five or more hours, with a corresponding reduction in the time given to study and recitation. It may be said that by beginning earlier in the morning and extending the afternoon session, the pupil could have four hours for academic work and five for the shop. Such a scheme could be tried, but, it would be cruel and delusive; cruel, because it would deprive a boy of his birth-

right, viz.: opportunity for play and recreation; delusive, because a boy would be so tired he could do no studying at home, and his progress in his studies would be small. To sacrifice the greater part of academic work to trade work would be as unjustifiable as the traditional programme.

“Secondly.—No trade school would give to its pupils the breadth of training I have described in wood; they would be put at a trade and kept there; they would become familiar with a certain routine of work and get scarcely half a trade, for no wood-working trade is now taught fully as it formerly was.

“Thirdly.—Instead of ‘hand tools’ with opportunities for personal skill and judgment in attaining accuracy and system, the pupil would be put at elaborated special machine tools and required to do a kind of repetition work involving no great intelligence and very little mental growth. Instead of try-squares, gauges, chisels, planes, gouges, and detailed drawings, he would be set to tending planing machines, slotting machines, matching machines, jigsaws, etc., where the quality of the work produced, depended not upon the person operating them, but upon the ingenuity and skill of the makers of the machines.

“Fourthly.—In no trade school does any teacher give one-fourth of his time to the work of systematic instruction, and the rest of his time to supplementing his general instruction by individual assistance and direction. In fact, instead of a step forward every day, with new ideas and new opportunity for personal effort, new exercises would be few and far between.

“Finally, it would soon appear that the progress of the pupil was in no sense the chief object of the school. Instead of arranging the shop for the benefit of the boys, the boys would be made to contribute to the benefit of the shop.

“It is evident that while a manual training school would attract boys widely, with small regard to their probable future choice of occupation, a trade school would have little general value, and would attract only those who had already decided upon following a particular line of work for life.”

The course in manual training as carried on in St. Louis occupies three years; the first year is devoted to wood-work, the

second to moulding, pattern making and iron and steel forging, and during the third year the metals are worked cold. It is not claimed that the boy masters any one of the various trades he works at during his course, but it is true, nevertheless, that he does get an understanding of the principles involved in each, together with all the educational value which surrounds them.

To those who have not read it, the description of the programme as carried out in the St. Louis school would be most interesting reading, but our space will not allow us to reproduce it, and we can only say it shows how much more good can be done by devoting Mr. Bigelow's gift to the formation of a manual training school than by the starting of a mere trade school, with or without any connection to the Institute.

THE INSTITUTE



PIN.

The Alumni of the Institute will be glad to learn that the present students have pushed the matter of a school and class pin to a finish, and that orders are now actually being taken for the same.

Early last fall a committee of two was appointed by each class to come together and to form a school committee on the subject of a pin. On account of a little timidity the committee was rather slow in getting into gear, and then made the mistake of not formally organizing, so that the work hitched considerably. Mr. Burleigh, however, was appointed to secure designs for the pin, and obtained three patterns from Tiffany & Co. of New York. One of these was quite favorably received, but did not seem to gain unanimous approval. The machinery of the committee now got stuck for a while.

Finally, the members of the Senior class woke up to the fact that if they were going to

have a class-pin and to be "in it" with the rest of the school, the idea must be hustled right along. Accordingly, a meeting of the school-pin committee was called and matters were rushed by Messrs. Bigelow and Rice, of '91. A sample pin and numerous other designs were proposed, and the committee voted almost unanimously to propose the made-up design to the school. This was done, and the motion to accept that pattern was overwhelmingly defeated. It was now proposed to have designs submitted by members of the institute, and the Senior class generously offered five dollars to the man who should present the style to be accepted by the students. The prospect of a gift of the price of a pin stimulated the patriotism and artistic genius of scores of men, and within a few days the school-pin committee had received seventy-four different designs. The adornment of the patterns varied from a cooing dove to a civil engineer's transit. Three styles were selected from this vast array, and were presented to the school for action.

The committee unanimously recommended the design drawn by Sumner A. Kinsley, of the class of '91, and this one was accepted by an almost unanimous vote of the school. Mr. A. L. Rice, '91, who acted as chairman for the meetings of the school, Mr. F. A. Bigelow, president of the Senior class, and Mr. W. F. Burleigh, '92, now hurried matters along. Five sample pins were secured from various firms in different cities, and were presented to the school for action, on Monday of this week. A vote was taken by ballot, and the pin sent in by Mr. Thomas D. Gard, of Worcester, was chosen by a large majority. The price is five dollars. The material is 14-karat gold, decorated with black enamel. The pin bears the letters "W. P. I.," the school motto, "Lehr und kunst," and the year of the class of which the owner is a member. An effort was made to have the design copyrighted,

but it was found impracticable, owing to the high cost of obtaining the privilege.

Members of the Senior class will receive their pins first, and the other classes will follow in rotation. The members of the school are to be congratulated that they have such a simple, artistic, and creditable badge of membership.

BASE-BALL.

Prospects of a Lively Season and Closely Matched Nines.

It looks very much as though the spring of 1891 would see more excitement over the game of base-ball than has been shown for many years at the Tech. Three classes, '92, '93, and '94, are claiming the victory in advance. The Seniors are saying very little about base-ball, but will put a nine in the field. A betting man would have hard work in picking out a winner. Last spring '92 captured three straight victories, while '93 drew three successive blanks, and '91 managed to rescue one game from the soup which the other classes served. Very few Prep classes have ever won a game, so that fate would seem to dictate defeat for '94.

From the records given above, a person who had not seen the games of last year would judge that there could be very little doubt of the result of the class championship series. It certainly appears as though '92 had a mortgage on the badges which the Athletic Association has, as usual, offered. However, students who watched last year's games say that '93 with the reinforcement she has received this year will stand about an even chance with the Middlers. The latter agree that the '93 nine were their closest competitors last spring, albeit the then Preps never won a game. As the W P I said at the time, "those who failed to see the '92-'93 game missed the finest game of the series."

As is customary with Prep classes, '94 is doing considerable talking about what she proposes to do in base-ball, and has really shown an unusual amount of energy in preparing for the sport. It cannot be denied that the Preps have considerable base-ball ability in their class and will make their older comrades hustle. Let us now look at the composition of the various teams,

Let us first consider the Senior class. Here we find, strange to say, that '91, so prominent always in track events, and so valiant in tennis, etc., is behind the average in base-ball, as also in foot-ball.

Nevertheless while they are not the favorites for the championship, still they may surprise the lower class men and pull out near the top of the list. They are to be excused and sympathized with in base-ball, however, having been so thinned since their entrance to the Institute, that of their original ball team not over three remain. But don't for a moment consider '91 devoid of ball players. Count on Phelps to gather together a team as good as possible with the material; and watch "Teddy" himself, as he occupies the box, sweating, but fooling opposing batsmen.

Whittaker is sure to catch him, and may be depended on. Booth is the man for 1st base; Kimball, 2nd; Davis, short-stop; Taylor, 3rd; while the outfield is likely to contain such men as Barton, Dadmun, Kinsley, Rice, and other ball tossers and pseudo ball tossers, from which a good steady team ought to be gathered.

Having thus found a team for the Seniors, let us look one up for '92, the present school champions. Although tradition tells us that '92's past laurels have been due to the existence of a certain bottle, whose powers of "hoodooing" opposing teams are dilated upon, it must still be granted that real live players do exist among the Middle class, and that *energy*, and not *luck*, won last year's series. While Captain Tucker has not chosen his team for this season, a prophecy as to at least a part of the team is seemingly safe. '92's policy has been, and now is, to wait until all available men have been tried in many positions, before choosing her representatives, and the result seems to have justified the carrying out of this principle.

However, here is a guess, and let it stand simply as such. Nelson, and Andrews, who have both done well in the past, are the likely twirlers; the former throws quite a speedy ball, while the latter has great success with a slow twisting out drop. "Bobby" Parks is the most promising man at the receiving end and may be relied upon, with Freed as the available catcher. First base is a toss up between Needham and Wallace,

and whichever shows up best this year gets it. Needham played 1st, last season on the class team, while Wallace occupied the same position on the school nine.

There is no doubt that "Tuck" himself will play 2nd, where he has always played, or that Cully will still gather in grounders at short field. Cully is considered the best man in school at this position. Third base is an undecided position, but has been played by Needham, Andrews and Southgate in good style. Whoever is chosen should fill the place permanently and not have a different man there each game, as in last season.

Left field has a dandy defender in Southgate, who will probably continue to gather in home runs, and line drives as before, while the remaining outfield will have as candidates a flock of Middlers, including Freed, Bracken, Ball, E. L. Smith, Andrews, Nelson, and "the whole class." Here seems to be an aggregation of pennant winners, but no boasts are heard, except a slight word of courage occasionally, as "give us time, we will have a team when the season opens, and all will be members of the Middle class."

The class of '93 has raised an unusually large base-ball fund, and will clothe the Junior nine in gray suits, with black stockings and trimmings. The members of the nine have already been measured for their suits. Manager R. H. Hammond has nearly decided upon the make-up of the nine, which will probably be substantially as follows: Rawson, c.; Stone, p.; M. F. Goodrich, 1 b.; Tatman, 2 b.; Stoddard, s.s.; Lincoln, 3 b.; Bullard, l. f.; Hammond, c. f.; Clark, r. f. There are several other candidates for positions on the nine. Dyer has caught for the Williston Academy team, and will try for catcher's position with '93. Butterfield is said to have formerly been a twirler of the sphere and will be given a chance. Clapp, from the Highland Military Academy, is no stranger to the diamond, and is a possibility with the class nine.

The Preps have shown much energy in raising subscriptions for base-ball, and have succeeded in getting enough to put the players in suits. These will consist of a black shirt and gray pants. The manager of the nine is H. D. Temple. He has picked out the following to fill positions on the team: Gallagher and McTaggart, catchers;

Harris and Allen, pitchers; Abbott, 1 b.; D. F. Dillon, 2 b.; Dwinnell, 3 b.; Allen, s. s.; Rollins, c. f.; Gordon, r. f.; Whipple, l. f. The class interest in base-ball is such as to warrant lots of practice and, with such material, good playing.

Now, boys, go out and yell for your nine, bring up your lady friends, and let us have a great revival of former excitement over the national game.

PROTEST FROM A CIVIL.

Some Very Pertinent Remarks Regarding the Study of Mechanical Drawing in this Institute.

For some time there has been much dissatisfaction among the civils about the work in mechanical drawing, which exercise, by the way, has frequently been subjected to the most adverse criticism by almost all who ever had it in this Institute. The civil is generally a very patient character who although he may have just cause for complaint never rebels very much against unkind fortune until the limit of enduring silence has passed. Then the reaction occurs and when that approaches, it is time for an investigation, as in the present instance.

It has been an open secret that a discrimination is made here between the lucky mechanic and those students who have taken up other branches of study. But this has been practiced we hope more to carry out the "general aim" upon which the school was founded rather than to favor the mechanical engineer to the disadvantage of the civil or chemist. Still it should be considered that although John Boynton's letter of gift may have implied that manual labor, as illustrated in the shop, combined with school instruction, was to have a pre-eminence over the manual labor exemplified in the duties of a surveyor, that this school has outgrown that gift and those narrow ideas.

We are far from being the same as those who went here in '71. Different conditions surround us. Three buildings are scarcely large enough for our present numbers and last June we graduated 140% more men than the number graduated in '71. Therefore it might seem that not even a murmur, however magnified, might impute our Faculty with motives of partiality. It is to be hoped that the growing spirit of the time will penetrate the heads or hearts of

"the powers that be" and that at some period those cynical words may be silenced, that, "although by law all men are born free and equal, they do not remain so when they enter Boynton Hall."

But this discussion has carried us far from the main point.

A short time ago it was announced that the civil engineer was to drop his work in machine drawing and turn his attention to gearing. There was of course no objection to that if practical advantage could be obtained from it.

The first lessons brought with them a confused recollection of "pitched circles," "pitched pennies" and "Burgundy pitch," of "logarithmic spirals," "epicycloids," and "addendums." When the instructor started up a very pretty machine and ground out the above named horrors, with a most entrancing nonchalance, he was asked if we would ever have to make gears practically. "No," was the answer, "not as a general thing, but then it will learn you to draw with a pen." Later it was found that out of ten gear cutters in this city nine make their gears entirely by patterns, concerning which the draughtsman has no more to do, than a cow has about cutting her upper teeth.

Now the writer of this is, as may be guessed, not a member of the Faculty, is not even an assistant and for that reason ventures to offer some common sense advice regarding this matter.

Even if the highly valuable art of making gears, on paper, does teach us how to use our pens and waste more or less ink, would it not be well to instruct the civils, like the mechanics and chemists, in the inferior trade of learning to draw a piece of machinery so that it will not resemble something that dropped on the paper and stuck there? With the former art we learn good theory; with the latter trade we earn good cash. In support of the latter assertion it is only necessary to turn to the catalogue where it will be found that considerably the greater number of the Alumni are either draughtsmen or engaged in occupations requiring a first-rate knowledge of that study.

Since I have led you so far, I will not drop this matter until we have waded through the entire subject.

It does seem too bad that excellent as is the instruction given in shop practice, that mechanical drawing is made subsidiary to all our studies except free drawing. In even the High School, models are given the students to study and to reproduce, but here a blue print is handed over to a man and he is expected to take as much real interest in his work and to derive as much real advantage from it as though a piece of mechanism were set before him, instead of the second-hand work of another.

In a word, there is too much copying and too little thinking and sad as it is to believe so, this state of affairs is fostered by the Faculty of a school attended by practical, inventive(?) students.

CIVIL.

FOOT-BALL.

A Chance for a Team Next Season to be Worthy of the Institute.

While the teams representing the various classes are being organized, and practiced in base-ball, the foot-ball cranks are wondering if the W. P. I. will ever again awake to the present, and support a good eleven of goal kickers, and touchdown makers.

We are, we believe, in better shape, both as regards base-ball and foot-ball, than for some time, surely than at any time in the last few seasons, although we are deprived of Lake, Patterson and some of the other old timers.

Next fall there is likely to be a good deal of enthusiasm in this part of the country in foot-ball, and this enthusiasm can hardly fail to reach "the Tech" with so many cranks here at school. Then again the Academy is now bragging over our defeat last fall when there was no "Tech" team against them but simply a picked up eleven who had hardly seen a foot-ball and many of whom knew scarcely any thing about the game.

But, let by-gones be by-gones, and look ahead and get ready. What material have we to encounter such teams as are being raised throughout the States? It seems that with the addition of the '94 contingent a respectable team might be gathered and under the leadership of Bullard, '93, who has seen many a game and played on Exeter's eleven for some years, much might be done to retrieve past fallen laurels.

The coming Seniors, '92, can furnish us with some splendid players. Tucker is well known as a fine full-back and goal kicker. Morse and Southgate are both excellent half-backs and need no praise, while Bartlett (solid as a rock), Parks, Alderman and A. H. Smith can be utilized in the rush line, where they have all played. Nelson has played a good deal and would make a fine quarter. '93, has among her classmen such foot-ball enthusiasts as Clapp, Bullard, Stoddard, Lincoln, and Child, all of whom are at home in the rush line, Andrews, a coming quarter-back, and Cleveland, who made somewhat of a reputation last season as a half-back, he being a fine runner and dodger.

Now the '94 crowd. Of these the following have made enviable reputations: Victor Cushman, played half and full back for St. Mark's Academy last season and was one of their best men. His brother, W. P. I. '88, was one of the good old timers, and we hear "Vic" is better still. Geo. Rollins played for some time in the rush line on the M. I. T. team and will be a good one. M. C. Allen, was last season captain of the Milton Academy eleven and knows all the fine points, from a Yale V to a Lake buck. C. A. Burt played regularly on the Providence High School eleven, H. D. Temple on the Worcester High School team, and R. Emerson was captain of the Exeter eleven which is recommendation enough to suit the most exacting. These men, together with others still undeveloped, ought to form the nucleus of an excellent team. Don't let the memory of foot-ball get drowned this muddy weather boys, while we have such men to maintain our old fame.

A WORD FOR SOCIETIES.

Many Reasons Given Why We Should Support and Encourage Their Institution.

One of the most gratifying sights for a true lover of the school and of the welfare of the students is to notice the number of societies that have sprung up here within the last few months. Even in winter, when everyone is supposed to be in more or less of a torpid state, preparations were being actively pushed forward to make a system of societies, literary and otherwise, a success in this school. And now, instead of

merely having but a few meetings of the Tech Elect and of the Y. M. C. A. to record, it is necessary to lengthen out the space so as to include the Historical Club, the Sanitary Engineering Society, and a few half-hearted meetings of the Athletic Association, which latter body is indeed worthy of more earnest patronage than that accorded it. Nothing is said of the Musical Association started by the Apprentice Class, but it is fervently desired that, that and all kindred organizations shall not lack for energetic support.

There can be nothing more lasting in its benefits and remembrances than the inspiration given by social feelings. When a body of young men get together and pass an hour or so in congenial conversation or engage in debates upon matters connected with school work or else relating to subjects removed from the text-book, those men will in time acquire a knowledge of general matters and a certain skill or tact in speaking that can never be given by individual study.

It may be difficult, for the first few weeks, to see this, but it requires only a very short while to prove that such is the case. Again, some of the most lasting ties formed in College began in a social or literary club, and these ties have withstood the wear of years and the hard reality of practical life. Deep friendships, noble characters, have been molded in such clubs, and although the schoolmate who sat opposite may have been forgotten, the one who contested our arguments or supported our opinions always has a place in our thoughts.

It is well to notice that the Professors are taking an interest in this most desired work, and the four strongest societies yet founded owe their vigor to the exertions of a few of the Faculty. Not nearly enough has been stated, that could be given as reasons for the maintenance of already existing associations, and as sufficient grounds for the establishment of others of like kind. Two societies, the Thompson Club, and the Q. T. V., failed, not because there were not enough students here, but because there was a dearth of interest. But it should not be possible that, with nearly two hundred students here constantly, objects, worthy as these, should be slighted. The school is said to be rather dull. Perhaps the trouble is not wholly with the school, but with the

students. It lies entirely with us to decide whether it is an impossibility or not, to stir up a little of that very desirable feeling, school fellowship.

MIDDLEBURY.

A PREP'S FIRST IMPRESSIONS OF THE TECH.

The obstacle barring our admission successfully passed, we considered it a trifling matter to maintain our positions. But our heavy work just preceding the examinations we found, in a week's time, only a preliminary which served as a grade from our former task to our present labor.

To arise and eat one's breakfast and reach school before seven means a six o'clock jumping out of bed at the latest; and who will say that getting up at that time in February is not a hardship? Then though the work in the shop is not tiresome or laborious, there are very many hours for each day, and the work is confining also. We are therefore of the mind to join the Knights of Labor and demand less hours.

However, we are enabled to endure these privations when we turn to the other side. That the opportunities and advantages afforded by the Institute are extraordinary is very apparent. So much time is devoted to the shop practice that we make considerable progress and, at the same time acquiring some instruction in our studies, extra benefit is derived. A turn at drawing and an hour of recitation is a relief, and by noon we change to our work with more readiness because of these two hours release from the workshop.

At noon, going over the Salisbury building, we were surprised by the extent of ground covered by the different departments of the school. The laboratories are of very modern style and fitted up so well that they exceeded our expectations. The amount of apparatus and equipments was a sight to see, and we came away much gratified, and with our opinion of the scope of the school and of the superior attainments of the upper classes very much bettered.

We are particularly impressed with the life and the spirit in the school. In the morning each man enters the chapel quickly and as quickly departs as though pushed for time. There is in the very air a business-

like feeling which is an incentive to every one.

One thing, the entire absence of girls, is very noticeable. Without them what can we do? It is certain that they have a refining influence, and co-education is for the best in all schools. But in a technical school it is out of the question to have such association, and we have to be contented with the hardy festive maids whom the bold and venturesome Junior brings up to review the scenes of his last year's work.

From the first few weeks attendance, we discovered the lot of the Tech young man not an enviable one. The objection is the great amount of time required by the Institute; that is, the time for recreation and exercise is so limited that it is a question whether or no we are blest in being a member of the Institute. Altogether it is just what we need, and will fit us excellently for our future work.

All that we would wish is that it was our Commencement instead of our beginning.

PLEA FOR A SCHOOL FLAG.

Why should we not have a school flag? Can anyone answer this question? Is it due to negligence or to indifference? Why should not we as well as the public schools fly the stars and stripes? Even the country High schools and Grammar schools are more patriotic than we are.

Undoubtedly some of us remember signing a subscription list at the sports last spring, for the purchase of a new flag, since as was remarked the old one had become more ancient than beautiful. I have heard that a sufficient sum was pledged but I have never heard of one cent being collected. It is my opinion that our national flag, floating in the breeze, would make a pleasing contrast to the gray walls of Boynton Hall. Would it not be a good idea for each class to hold a meeting and appoint one of their number to raise funds in that class towards the purchase of a flag? M.

PHOTOGRAPHY OF COLORS.

A Process Which May Interest Our Camera Club.

At the meeting of the Paris Academy of Science on February 2d of this year, Prof. Lippmann exhibited several photographs of

the solar spectrum in which the colors were fixed in their exact tones. The colors are said to be permanent and may be exposed to light and air for an indefinite time without change. Prof. Lippmann's article on the subject has been printed in *La Revue Scientifique*, and it appears that in obtaining colors in photography capable of being indefinitely exposed to light, he followed the general method, which permits the use of various sensitive salts, the developers and fixing agents current in photography.

The sensitive coat, he says, must be continuous, the bromide or iodide of silver must be in a state of very fine division in a transparent medium as gelatine or collodion.

The colors are produced by placing the sensitive, transparent film against a reflecting surface. For this purpose it is placed during the exposure in a hollow frame containing mercury, which forms a plane mirror in contact with the sensitive coating.

He says the theory of the formation of colors in this way can be easily explained.

The incident rays forming the image in the camera, interfere with the rays reflected by the mercury and this produces a series of interference fringes on the interior of the sensitive coat. When the operation terminates, the sensitive coat is subdivided into several hundreds of thin plates of precisely the necessary thickness to reproduce by reflection the incident color.

If he is able to reproduce compound hues such as are found in nature by the above method, the solution of photography of colors has been at last successfully accomplished.

ANSWER TO "BASE-BALL CRANK."

Opinions of an Alumnus Concerning Foot-ball.

TO THE EDITOR OF THE W P I:—

There are one or two subjects in regard to life and things at the Tech about which I would like to ventilate my feelings, if you will kindly allow me some of your valuable space.

I notice in the March number of the W P I, which has just come to hand, that the "Base-ball Crank" has given vent to the usual spring howl in regard to athletics in general and foot-ball in particular. In

one paragraph he states that the chances of the W. P. I. competing with other colleges in the line of team-work is something not to be expected, and if realized, must be by a strange decree of fate. Now I would like to say right here that there is no fate connected with the game of foot-ball, but earnest, energetic, well-directed, hard work. If the "crank" had been at the Tech in '87, '88 and '89, he would have seen what training could do for teams from a numerically small college, in helping them to hold up their end successfully in struggles with other New England colleges. This was only accomplished by team-work. He would also have seen what an interest the students of the Tech took in their team, both financially and in encouraging the men by their presence at the games.

Now as one who has been at the Tech and has her interests at heart, I hope sincerely, that the students will put a good team into the field next fall, and help the Tech regain some of her old-time renown at this healthful game.

The only way in which this can be done successfully is to appoint a live captain early in the season, and have him put all candidates through as thorough a course of training as is possible under the existing circumstances.

Now Mr. Editor, I hope you will not take offense at what I am about to say, but do you think it quite the thing to refer continually to an institution like the W. P. I. as a "school?" It sounds babyish, to say the least, to call a college where mechanical, electrical and civil engineers are turned out, by the same appellation that is used to describe places of learning where we all commenced to imbibe knowledge, in our tender years. I trust that the editors of this paper will establish this much-needed reform and hereafter refer to the aforementioned "school" as the Institute.

GILBERT, '89.

ANOTHER SENSATION SPOILED.

A True and Accurate Account of a Hitherto Unexplainable Occurrence.

Once more has the Tech figured in the public print. Scarcely had the attempt of the little boys to make themselves big men, died away, when the rumor comes that a

crowd of Techs have made themselves "obnoxious." It is learned from the papers, no one else seems to know anything about the affair, that the "behavior" took place at a church festival. Worst of all, the name of a very popular man is mixed up in this matter. The mysterious "they" hint that this man is or was, in some way, connected with the Institute. In fact it is said that he is not a mere student. However, for lack of definite information regarding this character, nothing further can be stated.

In an interview with several parties who had seen the article in the papers, and who had *heard* of the occurrence much indignation was expressed by them, against the reporter who had indited such a false and extravagant tale. These parties declare that when a newspaper gets hold of even the flimsiest particle of college news, which is capable of being twisted in any manner, that with this as a basis, the most highly imaginative narrative can be worked and that this flight of fancy is given to the public as another instance of college "wildness."

The incident has not been wholly forgotten and in order to thoroughly extinguish all such smouldering embers by water from the well of inquiry, a special reporter was put upon the case, with the result that the real account of the episode is now given for the first time.

Just as the day's work was done and when a few of the "young gentlemen in the wood-room" had succeeded in recovering portions of the fingers, which in a fit of absent mindedness had been dropped into the buzz-planer, a number of upper-class men hove in sight and after much persuasion induced the "Preps" to promise that a visit to the festival would be made that evening.

The same night these men were comfortably seated in the church when the curtain went up and a bevy of young ladies, unluckily thirteen of them (there were fourteen Techs), made their bow to the spectators. These thirteen were very pretty young ladies and being clothed in white dresses and parasols, made quite a sensation. Now our boys were not sitting in the shade, hence it was that the fair misses caught a glimpse of the luxuriant "mush"

of a Middler. In an instant the blushing youths were saluted by a shower of kisses, thrown with great precision from the stage. For the reason that Techs, as a general thing are not made of cast iron, the greeting was reciprocated. This is all.

One of the city reporters, smitten by the green-eyed etc., hurries off to his office and the next morning we are startled by a perusal of the "obnoxious behavior of a party of Techs."

X.

A NEW BOOK.

Extracts of Interest to Techs.

Several years ago a little book was published by the Riverside Press, entitled "Captains of Industry," and edited by the well known biographical writer, James Parton. It had for its frontispiece a picture of Ichabod Washburn, and within, a chapter devoted to the founder of the Institute shop, and the great wire mills of this city.

Within a few weeks a second volume has appeared containing another list of men who have made a success of their life work. It includes those in all walks of life from ministers to house-painters, and store-keepers to inventors, and among them a number of machinists and mechanics. Inasmuch as most of these latter are men of whom we hear little or nothing, and who really did much to bring machinery to its present state of perfection, a few incidents culled here and there from their lives as given by Parton, may not be uninteresting to students, especially of the mechanical department.

Of all the names in the index that of James Nasmyth is one of the few that we recognize. His name is more familiar to us probably because his death occurred within a few years and sketches of his life appeared in the newspapers at the time. He is chiefly known as the inventor of the steam-hammer, though legion would scarcely represent the total number of labor-saving devices which are the products of his brain. We will remain but a moment with him and his achievements, and then pass on to others less famous. Our school is distinctive from other similar ones in this country, in that it lays greater stress upon the practical side of mechanics, than does its rivals. The policy of the Institute has long been that the actual use and manipulation of tools and machinery is necessary to the education of

a complete mechanic. Hence the opinion of so eminent an engineer as James Nasmyth, is particularly interesting to us since it upholds this theory. He says "The eyes and the fingers—the bare fingers—are the two principal inlets to sound practical instruction. No book knowledge can avail for that purpose. The nature and properties of the materials must come in through the finger ends."

Parton adds, "he declares with great emphasis that this is the only kind of education that will fit a boy to take a leading part in a mechanical business."

A funny illustration of his ingenuity, and we leave him. One Sunday he invited his sweetheart to a certain public garden where every one was required to appear in full dress. This at the time meant that gentlemen should wear striped long stockings. On going to his room to make himself ready he found, alas, that his only pair was damaged. His quick wit however came to the rescue, and seizing a brush, he deftly painted his bare legs in alternate black and white stripes. No one noticed the difference, except that a friend complimented him on the fit of his stockings, and he returned in triumph to his lodgings.

Sir Joseph Whitworth is a name recognized by few, although many have heard of the Whitworth rifle. Sir Joseph was born in Cheshire, England, about 1820. He was early attracted to mechanics, and at the age of twenty-one obtained employment in a London machine shop. His first achievement was the invention of a machine which would produce a perfectly plane surface. "Whitworth invented a machine for planing and scraping a metallic surface, by which he succeeded in producing the first perfect plane ever made in metal. By his machine, iron plates can be made of a surface so perfectly even, that if one be placed upon the other, the weight of the upper plate will expel the air between the surfaces, very slowly, and the upper plate will seem to float over the lower one without touching it. When at length the film of air is expelled, the plates will adhere, so that when the upper one is lifted, it will carry the lower one with it. By the old way the cost was about a dollar and a half a foot, by the new about two cents. Whitworth invented a measuring machine which is capable of measuring to a millionth

part of an inch. A similar instrument is in the Constant Temperature Room of the Salisbury Laboratories. The automatic street sweepers which an early pedestrian will see about our highways, were of his invention. He it was that introduced to the machinists of the world the system of uniformity of screw-threads and of parts of machinery. How many of us who have gone to the post in the middle of the Iron-room, to look up the size of a thread, have wondered who originated the table? The Crimean war turned Whitworth's attention towards gun-making, and his wonderful genius soon produced a rifle which would drive a projectile, revolving at the rate of sixty thousand turns a minute.

There is a little book in print entitled "Around the World in the yacht Sunbeam," by Mrs. Thomas Brassey. So much for Mrs. Brassey, but to how many does the name *Thomas Brassey* mean anything? Perhaps some of our Civil friends may know of him; at any rate here is the summary that Parton gives of his work:

"He and his partners had in their employment, at one time, eighty thousand men, whose wages amounted to sixty or seventy thousand dollars a day. He thought nothing of giving an order for three thousand wagons or ten thousand wheelbarrows. In the course of an active life of nearly forty years, he constructed in whole or in part, a hundred and fifty railroads,—in England, France, Germany, Spain, Italy, South America, Australia, Canada—which cost, in all about four hundred millions of dollars. He had, at one time as many as ten thousand men employed in Spain alone, besides thousands more in other remote countries."

The book also contains sketches of Thomas Telford, the perfecter of the macadamized road; Ezra Cornell, founder of the University at Ithaca; and William Murdock, inventor of machinery for the manufacture of illuminating gas. The latter was so absorbed in his inventions, that he worked for twenty years contentedly on five dollars a week, and then suddenly demanding more, was re-engaged at five thousand dollars per year.

Another chapter of this interesting little volume is given to the lives of Erckmann and Chatrian, authors of the all too familiar *Conscrit* with its Joseph and Pinacle.

PERSONALS.

Just as the paper was going to press, we received the highly gratifying news that Mr. H. L. Dadmun, '91, has been selected as one of the seven men who are to represent the M. A. C. at the championship meeting of the Amateur Athletic Association of Great Britain to be held in Manchester about June 27. When it is considered that among these seven athletes are the world beaters, T. P. Conneff, A. F. Copeland, A. B. George, C. L. Nicoll, and Luther H. Carey, it brings to us most vividly the extent of the honor conferred upon Mr. Dadmun. The W P I extends its heartiest congratulations to our *premier* athlete and its former editor, and is assured that "Dad" will maintain the glory of the "cherry diamond" with as much success in John Bull's island as he has in "Yankeedom."

Philip W. Southgate, '89, has been promoted to the position of third assistant examiner in the patent office, Washington. Mr. Southgate successfully passed the competitive examinations, held last fall.

We have heard that James H. Churchill, '84, formerly with G. W. Gregory, Solicitor of Patents, Boston, has just engaged in business in that city.

Ellis W. Lazell, '90, who assisted Dr. Kinnicutt last term, has accepted a position as chemist, and is now working for the Pennsylvania Lead Co. of Mansfield Valley, Pa.

Frank Leland, '89, formerly with an Electric Company in Jersey City, has a more satisfactory position with the Pond Machine Tool Co., of Plainfield, N. J.

John E. Gallagher, '83, is another W. P. I. alumnus who has gone to Waukegan to look after the interests of the Washburn & Moen Manufacturing Co.'s new plant.

The following names arrived too late to be inserted in the catalogue:—A. W. Gilbert, '89, with Thomson-Houston Electric Co., 509 Arch st., Philadelphia, Pa.; H. C. Hastings, '82, Superintendent of the N. W. Talcott Axle Works, Brightwood, Mass.; residence, 351 Worthington st., Springfield, Mass.; Amzi T. Rogers, '86, with S. G. Richards, Heating and Ventilating Engineer, Brooklyn, N. Y.; George W. Perry, '90, with Washburn & Moen, Waukegan, Ill.

G. M. Warren, '88, is with Dunlap & Barnett, Civil Engineers, in Staunton, Va. We are indebted to Mr. Warren for a blueprint of a southern town, its streets being named after members of the class of '88. We notice among these names: Allerton, Brace, Chadwick, and Hubert streets, also Herschel and Temple avenues.

SOCIETY NOTES.

The Historical Society.

At the last meeting, papers were given describing the Battle of Hastings and the times of William the Conquerer.

After these essays had been discussed, Prof. Smith addressed the society upon the subject of the "Bayeux Tapestry." Well executed pictures of portions of the famous tapestry were exhibited, and much information was gained by this means.

The Historical Club is now upon a firm basis and many show their appreciation of Prof. Smith's endeavors by being present at the meetings. This is one of the best clubs ever started in the Institute, since it is entirely outside the line of school work and gives the student a distinct and sharp outline of the world's history. The time of meeting has been changed from Friday to Thursday at 4.30 P. M. for the benefit of those desiring to join the Sanitary Engineering Club.

The idea of a club for those interested in Sanitary work seems to have met with universal approval and the opportunities presented through the kindness and co-operation of the professors are exceptionally fine. A very comprehensive program of work to be taken up has been arranged by the officers and a series of papers will be read by the members of the club. The special attractions in the near future are, a paper on Bacteria, by Prof. Jordan of Clark University and another upon the "Webster Process of Electrolysis," by Dr. Kinnicutt.

The regular meetings of the Y. M. C. A. have continued to be well attended and the interest which has previously been so evident does not seem to decrease as the year advances.

The old Chapel Organ has been removed to Prof. Eaton's recitation room, thus mak-

ing it practicable to have singing at the meetings.

The recent meetings of the Tech Elect have been interesting and well attended, although the Middlers have been inclined to be backward in availing themselves of the opportunities which are here offered in the line of electrical research. Beside discussion on general topics the club have recently listened to a talk on electrical incubation by Professor Kimball, and also to a description of a Thomson and Houston dynamo by Mr. W. H. Ramsdell.

A debate has been arranged for the near future, in which the comparative merits of continuous and alternating currents are to be discussed.

There seems to be some very good material in the Apprentice class wherewith to form an orchestra, and with an enterprise, which seems to be a distinguishing characteristic of this class, steps have been taken for the formation of a musical club. Some time has already been spent in rehearsal, and it is to be hoped that our pushing "Preps" will not allow a good thing so bravely begun, to meet a like fate with that of so many similar enterprises at the Tech.

The Club fever still continues to rage with undiminished vigor, and this time it is the bicycle men who have it. A plan is now on foot to bring the owners of wheels together, form an organization, and see if much pleasure and profit may not be derived therefrom. A few days ago no less than ten 'cycles were noticed holding up the several buildings of the Institute, and it is thought that a membership of fifteen or twenty at least may be counted upon for a beginning. The advantages to both men and school are obvious. Nearly all the owners of machines are members of the League of American Wheelmen, and the society would undoubtedly be a league club, thus bringing such a representative of the school into touch with all similar organizations in the country. Messrs. F. M. Ramsdell, '93, and F. O. Plummer, '94, are at the head of the scheme, and should be successful in their efforts.

COLLEGE NOTES.

"Bob" Cooke is coaching the Yale crew.

Clarkson receives fifty dollars a week for coaching the Harvard nine.

The University of Michigan ball nine makes an extensive Eastern tour this spring.

Phillips Andover students have raised \$700 for the support of their ball team during the summer season.

The tuition fees at Cornell, have been reduced to \$100 per year.

There are fifty Yale graduates in Tokio, Japan, who have just formed an Alumni Association.

Trinity students have raised \$2,000 for a grand-stand to be erected on their athletic field.

Sixty-five per cent. of the men composing Harvard's Athletic teams have attained distinguished grades of scholarship.

At Johns Hopkins, undergraduates are now examined in gymnastics before degrees are conferred.

No student who uses tobacco in any form, is admitted to the University of the Pacific at San Jose, Cal.

Princeton College has received a gift of pottery and porcelain, to the number of thirty thousand pieces, which illustrates the progress of art from the earliest Egyptian period.

It is proposed that the new Chicago University eventually include departments of science, liberal arts, literature, practical arts, theology, law, medicine, engineering, pedagogy, fine arts, and music, as well as post-graduate and preparatory schools.

The President of Boston University says that if the Harvard plan for a three years' course is adopted by other Colleges, the result will be disastrous to American Education; if it is not, Harvard's "A. B." will be the least valuable and least significant in New England.

The prospect for this year's crew at Yale has not been most pleasing for the wearers of the blue. Only two of last year's crew will be able to row this summer, but the new candidates have been hard at work all the year, rowing in the harbor through the fall and since March 24. Steady training in the tank was carried on through the winter, and a desperate effort will be made to win another victory over Harvard.

The N. Y. Alumni Association of Phillips Academy, Andover, held its annual banquet at Hotel Brunswick, Fifth Ave., March 31. The "Sister Academy" was represented among the speakers by the President of the "Phillips Exeter Alumni Association," and the occasion was made memorable by the loyal speeches of many distinguished

"Phillips boys." The school was reported as having sent over 100 students to college and scientific schools this last year.

ITEMS OF INTEREST.

At a late sitting of the Paris Academy of Sciences, M. Mascart reported that at the summit of the Eiffel Tower the registered velocity of the wind, during a recent gale, was at one time 630 miles an hour, a velocity sufficient to have blown down every chimney in Paris.

From November 25, to January 22, a period of 59 days, the mean temperature in England was 2° below the freezing point, or 10° lower than the average. This leads Prof. T. B. Bonney to conclude that a lowering of the mean by only 18° would again cover the British Isles and the northern United States with a sheet of ice, thus restoring the glacial period.

Instantaneous photographs have lately been taken, which show that a jet of oxygen on passing through water is at once split up into bubbles.

The locomotives on the Boynton Unicycle R. R. are designed to run at the rate of 100 miles per hour, with a full train.

Copper Sulphate is being used with much success by vine growers, in preventing mildew.

The largest copper mines in the world are the Anaconda Mines in Montana.

A Pittsburg firm advertises pure aluminium at \$1.00 per pound, reduced from \$2.00.

TECHNICALITIES.

Will '91 wear the cap and gown?

Chorus of mechanics to civils:—

"Oh! where did you get that tan?"

We can call ourselves full-fledged Collegians when we get those pins.

Professor Kimball the other day explained his failure to show a certain experiment, in a Junior lecture, to the fact, that the apparatus required was quite expensive, and he could not afford to furnish it to every class. Later on he remarked that the tube in question, cost about fifty cents, or less than ten mills per head. One man suggests that in view of this, it might be policy to raise the tuition to two hundred

dollars, and then perhaps a few such unusual outlays might be included.

Perplexed Student: "Professor, how would you get the denominator of this equation?"

Professor, doubtfully: "Well, confidentially, I'll tell you, if you promise to tell no one else."

Professor Kimball is about to repair to South Hadley to deliver his annual course of Physics lectures to the young ladies of Mount Holyoke Seminary and College.

Among the Alumni present at the 12th annual meeting of the Amherst Alumni Association, were the following: G. Henry Whitcomb, Prof. A. S. Kimball and Prof. Alton L. Smith.—*Worcester Evening Gazette* March 25, 1891.

Can this be our Alton?

At a meeting of the Senior Class the following elections were made: George W. Booth, Valedictorian; Sumner A. Kinsley, Class Orator; Harry L. Dadmun, Tree Orator; Arthur L. Rice, Class Poet.

We are indebted to Dr. Kinnicutt for a printed copy of his address, on Sewage and Sewage Disposal, delivered before the meeting of the Massachusetts Association of Boards of Health in this city last October. This address was printed in the journal of the Association last January, and is an instructive outline of the various methods used for the purification and clarification of sewage.

The new Catalogue, revised version, contains the following remarkable statement: "The students come to their work with the perceptive *facilities* * * * under constant training." The only explanation we can give for the presence of the italicized word, is that faculties and facilities are synonymous. The idea of classifying our esteemed Faculty along with the blacksmith shop and boiler room as part of the facilities of the Institute, strikes us as somewhat novel.

What is it? Who is it? are the anxious questions of the puzzled Middlers whenever a voice, pitched in the key of a diseased jig-saw, or in the lugubrious monotone of Poe's Raven, dolefully sings:—T—me to cl—se the dr—w—ng ex—r—se.

An audacious contributor, who refuses to give his name, asserts that the class of '92 is the longest in the history of the school, extending from Day to Knight.

Nice plan, wasn't it, to have the vacation one week sooner so as to take in Good Friday and give the Civils the pleasure of listening to the yells, in the Grove Street Grounds on Fast Day?

Juniors, look out for yourselves! at last accounts the seats at the Park were being painted.

Should Sir Isaac have said he couldn't find *that is*, or rather he didn't try?

Boss (after 45 minutes interval)—"Well young man, where have you been keeping yourself all this time?"

Mechanic—"Oh, I jes' been waiting my turn with the oil can."

Advertisement, W P I, Sept., 1891:—"For sale cheap to Junior Class, sixty volumes Old German Stories, complete with copious notes, only authorized inter-linear edition in America. Great aid to the German student. Apply to Treasurer, '93.

We understand that Prof. Eaton has taken an unusual amount of pride this year in his Trigonometry Class, and the results of the final examination in that subject go to prove that he had good reason therefor. It is safe to say that it has been many years since so large a number of the Juniors have taken a Trig. Exam. with E-ase.

The Professor asked a legitimate question, but not a peep from the class arose, merely because sixty-five Juniors were counting the fire-alarm.

Those interested in the school, especially the Alumni, will be pleased to learn, that, thanks to the additional facilities offered by the Bigelow gift, two comparatively new belts each with only three extra splices, have been added to the equipment of the Iron Room. The faithful strips of leather ruching which were replaced by them, have been put in the collection of the American Antiquarian Society, and may be seen by applying for permit at the Shop Office.

Rumor also has it that a syndicate of wealthy citizens, as soon as the necessary funds can be collected, intends to donate an oil can and two file brushes.

We learn indirectly that the management of the Washburn Shops offers unusual incentives to those students wishing to work this summer for the sake of profit. Skilled machinists, or workmen in the mechanical department, will be employed as journeymen on quite liberal terms, wages varying from *sixty to eighty cents per diem*, according to the ability of the man. With such an inducement as this, there is little doubt but that the iron room will be crowded during the summer months. Of course a certain amount will be deducted from these wages, to make good any wear or tear on the machinery which the work may incur, and also fines will be imposed if students persist in working over ten hours a day, but probably with the average man who has had a year's experience here, such oversights as these will be reduced to a minimum, especially the first one.

The list of gifts to the Institute which appeared in the catalogue last month, was incomplete in some respects. In behalf of the school, we beg leave to subscribe the following additions:—

Agent, sample cakes whisker soap; a friend, copies of Paxton Weekly and the Irish Earth, for reading-room; editors W P I, copious advice to Faculty on current topics; "T. G. Taggett," thumb and three fingers to shop; the Faculty, "leave to withdraw;" Class of '91, an example; Salisbury elevator, free rides for the children at various times; chapel organ, strains!!! the barn manure for filtration experiments; Prof. Eaton, a roast for the Juniors; Faculty, holiday, Feb. 23; Deane pump, feed for the boilers; Class of '93, 62 cents for apparatus; The Trustees, one week of vacation; Seniors, bonfire and picnic; '92 and '93, small bundle of rushes; Old Probabilities, several *sliding trips* on hill-side; several students, presence of lady friends; Prep class, unsavory reputation at Musee and elsewhere; Class of '92, pair of full-sized sneakers; Prof. Gladwin, sketching excursion; Faculty, discount of 95 per cent. on bill against Senior class.

It was very satisfactorily proven the other day, by members of the Middle Class, that the "Commencement Day Elevator," near the office, will, if started, stop before it goes through the roof. Some of the men volunteered to make the test, and for that purpose, stepped into the car, the door of which was immediately closed behind them by their fellow-classmates. Then some more fellow-classmates were despatched up stairs to set the thing agoing. Just as the prisoners were about to make a grand rush through the glass door a click was heard and presto! the caged ones were whiskéd away before the startled gaze of the onlookers. When the elevator reached the upper floor, the men there had no great use for it and sent it back again. This was kept up until some one remarked that he *felt* Doctor was coming. Then the experimentors were hastily released and the machine was sent up to view the tower.

FOOT-BALL AT VASSAR.

A senior nursing his first mustache,
A Vassar maiden on the "mash."
Quoth he, to chaff her, "I've heard they row,
Play base-ball, swim, and bend the bow;
But really now, I'd like to know,
If they play foot-ball at Vassar?"

He smole a smile that was sharp and keen,
She blushed a blush that was hardly seen,
And thought him just a little mean,
Thus trying to surpass her.

But she straightway blushed a deeper red,
While the sunlight danced on her golden head,
With an artful look in her eye, she said,
Gazing modestly on the ground—

"'Tis awfully rough to tackle and run,
And one's complexion is soiled by the sun,
But once and a while, for the sake of the fun,
At Vassar we do touch *down*."
The senior nor left, nor fled his place,
But "tackled" her gently about the waist,
She whispered "held," with winning grace,
And then touched *down* for safety.

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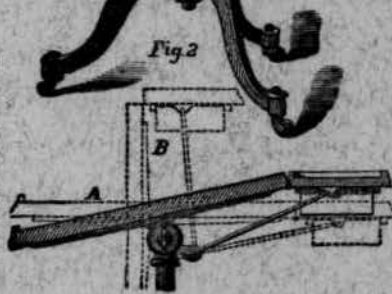
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