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CONTENTS.

<table>
<thead>
<tr>
<th>CONTENTS</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editorials</td>
<td>191</td>
</tr>
<tr>
<td>Important Announcement</td>
<td>194</td>
</tr>
<tr>
<td>Base-ball</td>
<td>195</td>
</tr>
<tr>
<td>The Civils</td>
<td>195</td>
</tr>
<tr>
<td>Camera Club Exhibit</td>
<td>196</td>
</tr>
<tr>
<td>The Socialists</td>
<td>197</td>
</tr>
<tr>
<td>Push in Foot-ball</td>
<td>198</td>
</tr>
<tr>
<td>The Tech Minstrels</td>
<td>198</td>
</tr>
<tr>
<td>Sewage Disposal by Electrolysis</td>
<td>200</td>
</tr>
<tr>
<td>The Socialists' Book</td>
<td>202</td>
</tr>
<tr>
<td>The New Courses</td>
<td>202</td>
</tr>
<tr>
<td>Dartmouth Alumni</td>
<td>204</td>
</tr>
<tr>
<td>University Extension</td>
<td>204</td>
</tr>
<tr>
<td>Communication</td>
<td>206</td>
</tr>
<tr>
<td>The Senior Class</td>
<td>206</td>
</tr>
<tr>
<td>Historical Society</td>
<td>206</td>
</tr>
<tr>
<td>Clubs, Personals</td>
<td>207</td>
</tr>
<tr>
<td>Technicalities</td>
<td>208</td>
</tr>
<tr>
<td>Athletic Association Constitution</td>
<td>208</td>
</tr>
</tbody>
</table>

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The completion of another volume of the WPI has been reached and with this issue the Senior members of the Board leave the management of the paper in the hands of the Middlers.

The year which this completed volume represents has witnessed many events of lasting importance to the Institute, which it has been our effort to faithfully chronicle. Changes in the Faculty and Courses, new impulses in athletics and social life have all received due attention, and the paper has tried to be the mirror of student opinion in all that claimed its reflection. No review of the year is necessary, our pages furnish that to the enquiring eye. It has been the policy of the past year to furnish all the Tech news that was worthy of publicity and record. We believe that because certain Tech news may reach the daily papers we have no reason to exclude it from our columns. For two reasons. First, a college paper is of no value after its first reading if it does not contain a faithful record of the events which are passing into the history of the institution it represents, and second, the daily papers, all honor to their keen interest in Tech affairs, but rarely give the news in its exact detail. And even for another reason we believe in this policy, the WPI goes to the Alumni as well as to the students, and must faithfully keep them in touch with the Institute.

This volume completes the old plan of a monthly issue, for with the next issue the WPI probably will become a bi-weekly. Throughout the country the colleges are demanding that their papers shall be published at least twice a month and nothing gives us greater satisfaction than that the time has come when this change can be made. We wish to extend our heartiest good wishes to those who, in succeeding us, venture on this untried field. It means hard and faithful work for them, but the usefulness of the paper will be vastly increased and we know that we can assure them that this new effort will in a measure be its own reward.

While thanking all our friends, the students, Alumni, Faculty and all who have taken an interest in our work, we would like to add a farewell editorial
request, and urge your cordial support of the bi-weekly and the new Board.

Our associations have been very pleasant in the months that have passed. Our readers have been thoughtful and considerate of the difficulties under which we have at times labored, the paper has each month met a cordial reception, and the Faculty have been uniformly kind, willing to aid in every way, and have cordially granted that the W P I was endeavoring in all its doings to manfully represent the Institute.

But pleasantest of all have been the associations of the Board. The Editor-in-chief wishes to express his highest esteem and appreciation of the members of the Board of Editors. We have worked together with perfect accord, and never was a man more generously supported and backed than he has been. The success of a paper like this depends more upon the genuine support of the editors than aught else, and support of the past year has been evidenced by the hardest and most willing work of all. Our associations with the Board will be among the pleasantest to be remembered of school life.

A notice in the corridor announces the contest for Prep editor that will be closed at the annual meeting, not far distant. As this notice would seem to sufficiently explain itself, we will only call attention to the interest which it should arouse in the Class of '95. The W P I Board is, we may say, a close corporation; it seems to be the only successful way of selecting the proper man, that he shall be chosen by the existing Board, and on the basis of work that he may submit. The W P I is not the less an Institute paper in that it is thus a private enterprise, but rather the more, for from this private control in the hands of a few men, comes the best success both editorially and financially, and also that independence which is of the greatest benefit to the Institute and its affairs. And so members of '95, do not feel that because your editor is not elected at a class meeting, that he is the less representative of the class. The time will come when you in turn must assume charge of the paper, and nothing better fits men for that responsibility than the actual work of an editor and the experience gained thereby.

The Board desires the editor selected to be the best that can be found, and so we ask you to take an active interest in this contest. The more contestants, the better will be the selection, and we are only able to judge of a man's capacity for real, genuine work, by what he submits.

In another column we give a full preliminary announcement of the Minstrel Show which indicates the thorough, energetic work that is being put into this effort for the advancement of the finances of our Athletic Association. Worcester has always taken a live interest in the Tech and now we are the solicitors of the City's support in an entirely new manner. College theatricals are always popular. Sander's theatre has rung again and again with the plaudits of "the people," and a Harvard entertainment always attracts the fairest and best. It is an experiment with us of the W. P. I., but we feel amply justified
in guaranteeing to our friends an entertainment in every way a delight and a success, one that shall not fail of general interest and one worthy of the Institute.

We are sure that no lover of college fun and keen jokes can fail to be attracted by the programme that is offered. We shall accordingly expect to see Horticultural Hall filled to overflowing with the friends of the Institute.

The W. P. I. is not likely at present to be very actively interested in University Extension, yet it is a subject of general interest to us, and it is hardly to be desired that one shall form a lasting opinion until both sides of the case have been viewed, and so we present the article of this month which has been contributed by one who after investigation is of the belief that there is another side to University Extension than that so popular at present. Just what will be the ultimate outcome of the present movement we are not prepared to estimate, but we can clearly recognize that there are forces at work in opposition, and that lasting success is not necessarily assured at the present stage of the movement.

FIRE! FIRE! FIRE!

We wish to correct a few things in our article of last month upon Fires.

It is only fair to state that there are a number of fire-pails in the Laboratories, and we wish to note with pleasure that Dr. Kinnicutt has in addition to hand grenades, a line of garden hose, all connected, in each of the chemical laboratories and so arranged that three lines of hose could be brought into any one of the rooms of his department on the upper floor. This deserves the highest commendation as well as the securing and placing of several keys to the box on West street, which has also been done by Dr. Kinnicutt. One key is in his office and one in the office of Prof. Kimball. Any local fire in the upper floor of the Laboratories, could be handled if taken in time, but we still maintain that the remainder of the building is not properly protected, and that too when it could be very easily and simply done. Instead of the hose on the stand-pipe having been removed for other purposes, we are told there never was any hose there. So much the worse. The addition of this hose would do much in securing safety from fire and we hope it will be done with as much speed as a certain other improvement has been made. We refer to the fact that the extinguishers in Boynton Hall have been filled since the last issue, for which we would extend our hearty thanks to the Office. It is said that there are several long ladders in the basement of Boynton Hall, although few are aware of the fact, or would know where to look for them if they were.

But yet, we can hardly feel that this is sufficient protection for a dry and inflammable building that contains so much of value as Boynton Hall.

The Shops, however, continue to merrily hum as if fire outside of the boilers were impossible, and the pent-up tears of the workmen are the only protection. Some day when the gift of Ichabod Washburn is rebuilt, a few buckets of water may be placed about the premises.

We are not suggesting these necessi-
ties for "the very love of kicking." No, not by any means. We recognize a need that we feel sure will be satisfied when it is thoroughly realized, and we would have this need met before it is too late. As students we are not alone in this request for protection from fire, for public sentiment is with us in this matter, and we would urge especially the danger which threatens the Shops.

If measures have already been taken of which we do not know, then we shall be prepared to acknowledge them with all honors, as we have done in the present instance, but as far as our knowledge extends, there is yet need for improvement.

IMPORTANT ANNOUNCEMENT.

The next issue of the W P I will appear somewhere about the 15th or 20th of next month, and after that date, every other week during the school year, making twenty numbers in a volume instead of ten. This change has been under consideration for some time by the Board of Editors, and now for the first time is announced. The paper will consist of sixteen pages and cover, and will probably differ somewhat in typographical arrangement from the present volume.

The Editors believe that such a change will be appreciated by the students. The Institute has nearly doubled in size since the paper was established, and a great deal more is going on upon Tech Hill than ever before. Numerous societies and organizations, are holding meetings; entertainments are taking place; and in a few weeks we shall be in the midst of a base-ball season with news rapidly accumulating, and two or three months later foot-ball will beat its height. Taking all these things into consideration, the Editors feel warranted in taking this step. It means more work, but this will be reduced by the opportunity of putting in news and announcements instead of "filling." During the foot-ball season especially, the desirability of reporting games before they are a month old will be at once seen.

But nearly twice as much printing means nearly double expenses and therefore the subscription price will be $1.50 per year, a raise of 50%. This is lower than the average college bi-weekly of the same size. The W P I is not published as a money-making scheme, and the Editors get very little for the work they do and the inconvenience to which they are subject. It seems as if no student will object to paying a half-dollar more, when he considers the increased value which the bi-weekly will have over the monthly. The present Business Manager thinks that, judging from the "kicks" which come now in reply to bills for one dollar, some of the Alumni may object to the increased charge. This should not prove true. We think the paper will be found more valuable than heretofore, and if the Alumni are generous in their contributions, new features can be added and its usefulness increased.

We ask the hearty support of the Alumni in this new venture, for we are assuming considerable risk, and rely upon them to sustain us in the future as they have in the past.

Our plans may fall through. Much will depend upon the success of our advertising-man. We hope however to build our castles of solid material, and
to meet the Institute world twice as often in the future.

W. P. I. B. A.

A meeting of those interested in the formation of a Base-ball Association was held in the chapel Feb. 20, 1892. It was called to order by Mr. Wallace, '92, who stated the object of the meeting. Mr. Rawson, '93, was chosen temporary chairman. An association was formed to have control of all baseball matters pertaining to the Institute and class teams.

The following officers were elected unanimously: President, A. E. Culley, '92; Vice-President, Harry L. Cobb, '92; Secretary and Manager, Joe H. Wallace, '92; Treasurer, N. M. Paull, '93. The above named, together with H. M. Southgate, '92, F. H. Stone, '93, G. Gordon, '94, and A. Warren, '95, were constituted a Board of Directors with whom all business was left. It was voted that this Board meet and draw up a constitution.

THE W. P. I. B. C.

Chances of a Good Ball Team This Spring.

The organization of a base-ball association to control base-ball at the Institute was a step in the right direction, and the Institute will in all probability be represented this spring by a good ball team, provided proper support be given it by the students. The management have been unfortunate at the start in their attempts to obtain a suitable place for practice indoors so that the candidates might have the benefit of a coach's advice before the season opened. Both the rink and the Agricultural Hall at the Fair Grounds would have been desirable and but for the extreme timidity of the Ground's Committee, who after several meetings and long waits decided that the building was not strong enough, we would now be putting in some good work toward limbering up batteries and batting practice.

If a place could possibly have been got, it would have been, for unceasing effort was the word, but it is evident that soon the Tech must show that it is a college and not a grammar school or kindergarten by building at least a shed where students can train for athletics and games. Despite the misfortunes which have confronted us we will nevertheless put a team in the field, and a mild guess as to probabilities might be in order.

The W. P. I.'s weakness for several years has been scarcity of pitchers, and it seems we are better supplied to-day than for years. Allen, '94, showed considerable skill last season and is sure to be better than ever this. He is level-headed and with decent support would have done well against Harvard, '92, last year. Dillon says he is going to try again and ought to develop some strength as a pitcher.

Stone, '93, has shown twirling ability.

A new man for the position is Abbott, '95, and he is said to be a good one. We hope so. Cobb, '94, can also pitch and will be given a chance.

The candidates for catcher will be Dyer, '93, Leland, '95, Gallagher, '94, Parka, '93 and any others who wish to try.

The rest of the team is of course vague and uncertain although the material is ample and of good quality.

Needham, '92, Tucker, '92, M. Goodrich, '93, and Perkins, '93, are liabilities for 1st base; Tucker, '92, Perkins, '93, Dwinell, '94, Lincoln, '93, Harris, '94, Dillon, '94, for 2nd; Culley, '92, will probably cover short, although some Preps may drive him out of his old position; 3rd base, Stone, '93, Harris, '94, Dillon, '94, Southgate, '92, Lincoln, '93, Perkins, '93, and any others who wish to try.


A series of games has been arranged with the Worcester Athletic Club team on their grounds, also practice games with the High School team on Dewey's field.

OF INTEREST TO CIVILS.

The following extract from a letter in reply to the enquiries of a recent graduate of the Institute was kindly sent us by the gentleman whose questions it answers, and we gladly print it in the belief that it is of
general interest to students and recent graduates.

* * * * *

I am always glad to answer any questions from any one who has graduated from the "Tech." Relative to the outlook for Engineers in the North-West, and particularly in Washington, I know very well the feeling that most young Engineers in the East have, that, if they could only get west of the Mississippi river, they would find the Eldorado where fame and fortune is readily achieved.

It is true that young men are not handicapped in the West on account of age anything as they are in the East, and there are very often opportunities for investment here, if a man can keep his head, where he can make some money aside from his salary. But I am inclined to think, taking the country through, that speculation of this kind is like mining, where, excepting in a few great mines, two dollars are sunk for every one taken out.

So with the speculations in new towns: a few may be prosperous, but many, who have invested in them, will be disappointed, and possibly have to wait many years in order to get their money out, and sometimes may not get it out at all. A good deal of money has been made on Puget Sound, in Seattle, Tacoma and here, and some has been lost in all these towns through buying far from the business centre during the height of speculation, but all these points are sure to be prominent and solid cities in time, and in fact are fairly on the road in that direction now.

While these things are true, young Engineers have one thing to contend with which they do not have in the East, and that is a large number of men who, have been road-men and transit men on railroad parties, without any scientific preparation for their work, when railroad work ceases, enter a town and hang out their shingle as John Smith, "C. E.," and proceed to do any work that turns up for about one-half what a skilled Engineer would charge, and with results that are disastrous to a good many of the profession, and to the pocket-books of the people who are foolish enough to hire this class of men. Of course in a few years this will be almost entirely done away with, and a man can establish his reputation as firmly and be as sure of support from the best clients as in the East; but you can readily see that where people come from all parts of the universe, and towns grow up rapidly, within the first few years everything is done in a hurry, and, as the saying is, "Every thing goes."

* * * * *

There has been a good deal of advertising of worthless towns to the injury of the Puget Sound country. Many of the town lots are not worth the maps they are printed on, but the resources of the country itself have not been exaggerated. I believe our natural resources are more varied and valuable than those of any State west of the Mississippi river, and that their development during the next ten years will greatly increase our population and wealth.

I do not advise you to come here, but I give you these facts and leave you to judge for yourself. If you consider this letter of any value to others you might send it, after reading over, to the Editor of the W P I to use as he sees fit.

Yours very truly,

J. J. DONOVAN, '82.

Bellingham Bay
and Eastern Railroad Co.,
New Whatcom, Wash.,
Feb. 25th, 1892.

CAMERA CLUB EXHIBITION.

A stereopticon exhibition, by Dr. J. M. Bemis, was given under the auspices of the Tech Camera Club, Feb. 25, in the Physics lecture-room. Although the night was rather chilly the room was comfortably filled with the friends of the Club. President E. W. Vail, Jr., '93 introduced Dr. Bemis. Not a few of the views were excellent and perfectly true to nature. In many of the landscape and water scenes the main idea was brought out into full relief while the shading and many artistic touches here and there throughout the entire collection of views, cannot be too highly commended.

The first view was from Salisbury Pond and looked quite familiar. Scenes from Scituate, a barge, Dog-Head Rock, the life-saving station were readily recognized by many of the audience. The Oread, St. Paul's Church and photographs showing different portions of Salisbury Street were among the Worcester scenes.
"A letter to the Squire" was deservedly applauded. In this picture, which we think the best of all, innocence and youth were blended in a most admirable manner. Views illustrating Moorish architecture, the Court-house at Grenada, and a street in Grenada produced a favorable impression. Several pictures of modern French painters were reproduced including a General and his Staff, the Ambulance Corps, Algerian Cavalry and various scenes from Algeria.

"After the Ball," illustrative of the duel as it flourished in the time of the French kings, gave one a vivid idea of such an occurrence. The ground covered with snow, the tall, bare trees making a perfect background, the victor hastening away from the conflict, the conquered one lying upon the ground, his life-blood ebbing slowly from him, all tended to form a most realistic picture of the whole. Among the views exhibited were The Yacht Adrienne, Knights of Old, The Sword Dance, Princess Louise, At the Ford, Trafalgar Square, Avon and scenes from the Lake. Mention should be made of E. H. Keith's view of Holden's Grove at the Lake.

The exhibition lasted until after nine o'clock. The Club may congratulate itself upon obtaining the services of Dr. Bevis for that occasion. A few more such evenings and we feel confident that a far more general movement towards this branch of art, will be made by the students.

THE SOCIALISTS OF '92.

During the past month much interesting business has been transacted by this society in the regular meetings, and also outside of them. Through the influence of one of the members invitations were extended the Socialists to pay a visit Friday, February 12, to the Home School. Very nearly every man availed himself of this offer. The reception was from 8 P. M. to 10 P. M. After the introductions games were indulged in. First came "Trimming the Bonnets." Each one was presented with a straw hat and told to select his ribbons from a large basket placed in the middle of the floor.

There was a lively scramble for the basket, after which the different competitors started to take their first lessons in the milliner's art. Twenty minutes was allowed for the work.

The men, scattered throughout the room in little knots, did their best to show how foolish it was to pay high prices for bonnets when the whole process was so very simple. The young ladies were charmed at seeing how deftly the Techs could jab their fingers full of holes without the slightest exertion. When the signal to stop work was given each Socialist found a young lady who was willing to wear his bonnet, so that the skill of the maker could be judged. The three teachers of the school were the judges. Much difficulty was experienced in making a decision, since all the work was performed with such excellent (?) taste. Finally, first prize, a basket of candy, was awarded A. H. Smith, while C. A. Needham received the booby prize, a farmer's old straw hat.

This game effectually broke the ice, and for the rest of the evening a merry time was spent. Refreshments, consisting of ice-cream and cake, were served. The floor was cleared for dancing, and the minutes flew quickly until 10 o'clock arrived. The boys were highly pleased with their evening's entertainment, and promised themselves to repay the kindness of their hostesses at the first convenient opportunity.

It was thought that nothing could be better than to arrange a sleigh-ride. Accordingly a committee was appointed to consider a ride for the following Wednesday evening. All but four of the members pledged themselves to take part in the trip. The committee decided to go to Leicester, and ordered supper at the Leicester House for that evening. Two barges left the Bay State at 6:30 en route for the Home School. Everyone was in readiness there to start. Three teachers accompanied the party. It was a very curious coincidence, and one much commented on, that these teachers should all occupy the same sleigh on both journeys. Usually it happens otherwise. This has led some to think the whole affair was the result of a well-laid plan on the part of the "pupils."

However that may be, it is certain the teachers themselves enjoyed their ride as well as their pupils, and in fact entered into the sport with much ardor.

With the tooting of horns, some large and some small, but all purchased for the same purpose-making a noise, the party started
off towards Leicester. Songs, class yells and "calls" enlivened the journey.

The frosty air seemed only to add a zest to the general merriment. The sleighing was excellent, perhaps the best that has been this year. The hotel was reached in due season, and all started in with the avowed purpose of having a good time. A pianist was quickly found and a dance arranged. Notwithstanding the fact that the floor was not waxed, it was probable no one felt his interest flag in the least.

The line of march was taken to the supper table, where covers for over forty had been laid. After investigating the mysteries of the several courses, chairs were pushed back. Mr. A. H. Smith, in a next address, presented F. W. Collier as toastmaster. No better selection could be made, Mr. Collier's apt and witty introductions of those who were to speak causing much applause. The toasts were: "Sleigh-rides." Miss Kimball; "American Democracy," Fraulein Habenmeyer; "The Home School," Miss Mellen; "The Gentlemen," Miss Carpenter; recitation, "Courting Under Difficulties," Miss Swett; "Reciprocity," J. F. Bartlett; "The Tech," H. M. Southgate; "The Ladies," M. J. Lyden.

Miss Kimball's very pretty play upon "Winsome, Witty and Wise" was deservedly acknowledged by applause. After the supper, games most dear to the hearts of lad and lassie were commenced. Just as Thursday morning was taking the place of Wednesday night the strains of a lively waltz died softly away. Wraps and overcoats were again donned. The bustle attending every departure was noticeable here also. The scene that followed must have reminded many of Stedman's poem, "The Doorstep," especially where he compares the girls to snow birds "willing to be mated."

The ride home was eventful. When the Home School was reached the Techs had the pleasure of hearing a girl's college yell, or "call" as they term it. Good-nights were spoken, and the end of a most enjoyable evening's entertainment had come.

**PUSH IN FOOT-BALL.**

An extract from the Harvard Crimson of March 9, 1892.

"About this time for several years past it has been customary to form a foot-ball squad for the purpose of interesting men in the game and of developing material for the 'varsity eleven in the fall. Generally this squad has been recruited from the class elevens or from men who have never played before. The 'varsity men have not considered it worth their while to join in. This year things will be essentially changed. Just as soon as the snow is off the ground, a call will be made for candidates. Capt. Trafford, Mackie, Gage, and Emmons of the first eleven, and Robb, Hughes, Garrison and Borden of the second will be the most prominent of these. The other men who played on the two 'varsity elevens are, for the most part in training for some other branch of athletics. The most promising men will be chosen and on them the efforts of the captain and coaches will be directed. The work will last for about five weeks and during that time no pains will be spared in teaching the men the finer points of the game. It will be hard work throughout but an exceptionally good chance for anyone to learn to play the game as it should be played and the experience he will gain, if he shows enough promise and energy to keep up with the work, will be of great value to him next fall, either as a candidate for the 'varsity or class elevens."

How would a similar plan work in developing foot-ball material at the W. P. I.?

**THE TECH MINSTRELS.**

Directly after '93's Half Way Thro' Supper, a meeting was held by the W. P. I. A. A. to devise some means of raising funds for the purpose of sending a team to the Intercollegiate games at Springfield. Considering the success '93 had in giving a minstrel show at its supper, the idea was suggested to have that class repeat the same thing in Horticultural Hall and to charge a slight admission. It was then proposed to make it an Institute affair, that is to have every class represented. This plan was regarded with much favor by the Association and a committee was chosen to look up the matter and report. The committee consisted of four men, one from each class: E. W. Marshall, H. W. Bracken, E. L. Burdick and G. Denny.

At the next meeting this committee's report was handed in. It strongly advocated the furtherance of the scheme and urged immediate action. The Association thereupon voted unanimously to organize the Tech Minstrels. Rehearsals were at once begun and the students entered into the spirit of the thing with much enthusiasm. The Institute is fortunate in possessing men who are not tyros in this line of work. In fact many of them have heretofore gained considerable fame upon the amateur stage. The students
went about the matter in a thoroughly common sense manner. Efficient instructors were engaged and in less than a week after the meeting those who intended to participate were hard at work perfecting their parts.

The idea is to have the show similar to the performances given by old-time minstrels. When the curtain rises we may expect to see blacked-up artists, sitting around in a semicircle, arranged in regulation dress suits, white shirt fronts, etc. The end-men may wear waistcoats and neckties of their class color. It is not fully decided who are to be the end-men but doubtless the make-up of the principals will be: Interlocutor, C. A. Needham; Tambos, Dyer, '93, and Emerson, '94; Bones, Philney, '95, and Pelton, '92.

Each of the men will have a song besides propounding the jokes to the interlocutor. In regard to these jokes it is well to say that special effort is being made to have them local. In this way anyone, not connected with the Institute, need not fear that he can not understand the "grinds." City affairs, the city hall, items of public interest will be dilated upon. Although Boynton Hall will receive its share of attention, yet it will by no means usurp everything. Witty songs, touching Worcester and Worcester people, will be rendered by the Institute's comedians. Nothing will be spared to make the "conversations" intelligible to the friends of the Tech.


The second part will probably include a character sketch by Messrs. Marshall, '93, and Emerson, '94, introducing many "hits" and songs, a burlesque Japanese Fan drill by twelve or sixteen Japanese maidens, snuggled through the custom-house from Japan, for the occasion, and probably a pathetic recital of the haps of our Football Team. The matter of a Banjo Orchestra is under consideration.

Last but far from being least will be the ballet performed by Messrs. Harris, '94, Parks, '93, Davis, '95, and Abbot, '94. Mr. Harry Doe of this city has been engaged as instructor and this fact alone should give proof of the treat in store for the audience. These four men are constantly rehearsing their parts and even now we can assure our readers that this ballet will exceed anything of its kind ever seen in the city, with the possible exception of the Talisman.

Horticultural Hall has been decided upon as the place of performance and the date, March 25, unless further change is made. General admission has been fixed at 35 cents. Checks will be given out for these seats which may be exchanged for reserved seats at 15 cents extra. No compliments will be issued to anyone, even the chorus must pay the stipulated amount. A small sheet will be printed by a committee for advertising purposes. A committee, one man from each division of the different classes, has been appointed to have charge of the tickets. This committee is to have charge of all the tickets and is composed of Messrs. Comins, L. C. Smith, Goss, Stevens, Eastman, Bartlett, Rogers, Heard, Killam, Goss, Gile and H. Davis.

This is the first time which we, as a school, have ever attempted anything in the theatrical line. There is nothing lacking to make this one of the greatest successes we have ever undertaken. The Faculty have given not only indirectly their consent, but also their aid. The "minstrels" have set up a piano in the Mechanical Model Room and are applying themselves diligently to their parts. Let us all pull together just as though the matter were something that directly concerned us. If every Tech does his duty the success of the performance is assured and the much needed funds will be available for the Tech Athletes.

Baptist educational institutions are the most heavily endowed of any religious denomination, having about $12,000,000 in colleges and universities.
WEBSTER ELECTROLYSIS PROCESS OF SEWAGE DISPOSAL.

An abstract of a paper read by Dr. Kinnicutt before the S. S. E. C.

About 1879, Mr. William Webster, an Englishman, while studying the action of iron salts upon organic matter in solution, conceived the idea that their decomposition could be effected by passing a current of electricity through the solution. He immediately began an investigation on the action of such a current upon various organic substances, suspended or dissolved in water, and as the result of this work brought forward, in 1889, the process known under the name of The Electrical Purification Process. The system consists of passing an electrical current through sewage, which is caused to flow through a shoot or channel in which metallic plates are fixed, these plates being connected alternately with the positive and negative conductors of a dynamo, driven by steam or other motive power.

Webster's first experiments were tried with plates of platinum and carbon, these, on account of the cost of platinum and the destruction of the latter by nascent O and Cl, could not be used on a large scale. Aluminum plates were next tried, and it was not until after a long series of experiments that iron plates were used. The action of the current on the sewage in connection with the iron plates seems to be as follows: A portion of the H₂O is decomposed, H being given off at the negative electrode, O at the positive. The organic matter separates into flocculent particles which are carried to the top of the liquid, where they remain until the bubbles of H₂, which have carried them up, escape, when the solid matter is precipitated. The oxygen given off at the positive pole being in the nascent state oxidizes a part of the organic matter, and acts rapidly on the iron of the positive plate, iron oxide being formed. At the same time the various salts that are contained in the sewage, as for example, sodium chloride,—common salt, are being decomposed. The sodium goes to the same plate as the H₂, immediately unites with the water, forming sodium hydrate, the chlorine goes to the same plate as the oxygen and acts on the oxide of iron, forming oxychloride of iron. This oxychloride is then acted upon by the NaOH, forming iron hydrate, which unites with the organic matter. An insoluble salt being produced which settles quickly. In this way part of the organic matter is destroyed by the nascent O, and a part is precipitated by the iron hydrate formed. Undoubtedly the Cl, which is not set free, being in the nascent state, destroys a greater or less amount of the organic matter.

The first experiments made on a large scale were tried at Peckham, where brick tanks were built, holding about 200 gallons. The results obtained were so satisfactory that larger works were erected with a capacity of treating 20,000 gallons per hour. In these works the sewage instead of being treated in tanks was run through shoots. The plates were made of iron, ¼ inch to 1 inch in thickness and I believe about 6 feet in length, fixed longitudinally in the trough. At the bottom of the trough was a channel to collect any heavy matter, and after passing through the shoot the sewage was allowed to run into a tank, and after remaining there for an hour or so the solid matter formed, settled, leaving, it is said, an excellent effluent, very free from organic matter, and containing as suspended matter only small amounts of iron oxide.

Sir Henry Roscoe made a careful study of this experimental plant and reported as follows: The reduction of organic matter in solution is the crucial test of the value of a purifying agent, for unless the organic matter is reduced the effluent will putrefy and rapidly become offensive. I have not observed in any of the unfiltered effluents from this process which I have examined any signs of putrefaction, but, on the contrary, a tendency to oxidize.

The absence of sulphurated hydrogen in samples of unfiltered effluent, which have been kept for about six weeks in stoppered bottles, is also a fact of importance. The settled sewage was not in this condition, as it rapidly underwent putrefaction, even in contact with air, in two or three days. The results of this chemical investigation show that the chief advantages of this system of purification are:

First.—The active agent, hydrated ferrous oxide, is prepared within the sewage itself as a flocculent precipitate. [It is scarcely necessary to add that the inorganic salts in
solution are not increased, as in the case where chemicals in solution are added to the sewage.] Not only does it act as a mechanical precipitant, but it possesses the property of combining chemically with some of the soluble organic matter and carrying it down in an insoluble form.

Second.—Hydrated ferrous oxide is a deodorizer.

Third.—By this process the soluble organic matter is reduced to a condition favorable to the further and complete purification by natural agencies.

Fourth.—The effluent is not liable to secondary putrefaction.

Mr. Alfred E. Fletcher also investigated the subject and reports as follows: The treatment causes a reduction in the oxidizable matter in the sewage, varying from 60 to 80%. The practical result of the process is a very rapid and complete clarification of the sewage which enables the sludge to separate freely.

It was noticed that while the raw sewage filters very slowly, so that 500 cc. required 96 hours to pass through a paper filter, the electrically treated sewage settled well and filtered rapidly.

Samples of the raw sewage having but little smell when fresh, smelt strongly on the third day. The treated samples, however, had no scent originally and remain sweet without putrefactive change.

In producing this result two agencies are at work, there is the action of electrolysis and the formation of a hydrated oxide of iron. It is not possible, perhaps, to define the exact action, but as the formation of an iron oxide in part of it, it seemed desirable to ascertain whether the simple addition of a salt of iron with lime sufficient to neutralize the acid of the salt would produce results similar to those attained by Webster's process.

In order to make these experiments, samples of fresh sewage were taken at Crossness at intervals of one hour during the day. As much as 10 grains of different salts of iron were added per gallon, plus 15.7 grains of lime in some cases, and 125 grains of lime in another and the treated sewage was allowed to stand 24 hours; the results obtained were not nearly as good as by the electrical process.

In 1890 the town of Salford invited gentlemen interested in the various processes of sewage purification to make working experiments on the sewage of that town in order that an opinion might be formed as to which could be best permanently employed. The gentlemen controlling the electrical process accepted the invitation and constructed large experimental works. These works according to the description, for I have not been able to obtain any drawings, are as follows:

"The crude sewage was passed, 3,000 gallons per hour, through a channel of brickwork 90 feet long, 4 ft. 9 in. deep, and about 14 in. wide. In this channel were suspended the iron plates which form the poles or electrodes, 364 in number. They were made of cast iron of a common quality, ½ in. thick, 4 ft. deep, and 2 ft. 8 in. in width. For electric reasons they were divided into 28 sections, each containing 13 plates, connected by copper strips to a dynamo. The plates were fixed longitudinally in the channel so as to present their edges to the flow of the sewage, and as the space between the plates is five-eighths of an inch, every particle of the sewage in transversing the length of the channel was subjected to the action of the electric current."

In regard to the results of these experiments, Mr. J. Carter Bell, the consulting chemist of the county borough of Salford, reports:

"In regard to Salford sewage I can confirm the statements of Sir Henry Roseoe and Mr. A. E. Fletcher, who have both reported on the process, though whether the effluent produced would be considered by the authorities sufficiently clear and colorless to be sent into the ship canal without some sort of filtration, I am unprepared to say. Whatever process be adopted I believe the Local Government Board insist on filtration through land, though without specifying the area, and it is certainly clear that a very small area would suffice for producing not only an innocuous but a colorless effluent from the electrical process.

"The arrangements for treating the whole sewage of Salford would be exactly on the same lines as for the above experimental work, the control has shown that its application presents no material difficulty inherent to the process, even with such a large
volume of liquid. So confident are the directors of the Electric Co. that success must follow these efforts, that they offer to put down the plant for the purification of any quantity of sewage and not to ask payment until it has been proved that the desired end has been accomplished.

Regarding the cost of the method of treatment, it is stated that for the purification of 10,000,000 gallons in 24 hours the necessary plant would consist of four engines and dynamo's, any three of which should be able to do the whole work, and 3 boilers each of 200 H. P. This is estimated would cost about $80,000, to which must be added the cost of about 5,000 tons of iron plates at about $20 per ton or $100,000. Total cost, $180,000. Interest on plant at 4%, $72,000.

The total H. P. required for treating 10,000,000 gallons in 24 hours is calculated at 400 H. P., based on actual trial. For each H. P. we can reckon the amount of coal at 2 1/2 lbs. per hour, or for 400 H. P. as 1,000 lbs. This would amount to 12 tons per day or 4,380 tons per year. The management of the above plant, running night and day, would require two engineers, at $2.50 each per day; two firemen at $1.75 each per day, and at least four other men, at $1.75, to take care of the running of the sewage, etc. A superintendent, I should think would be necessary, whose salary we can estimate at $1,200 per year. Total amount of wages per year would equal therefore $5,580.

The waste of the iron of the plates is calculated at about 3 grains per gallon, which equals for 10,000,000 gallons 2 1/2 tons, costing $45 per day or $15,425 per year.

Total cost of running plant for one year for the purification of 10,000,000 gallons per day:

- Interest on plant, $7,200
- Coal, 21,900
- Wages, 5,580
- Iron, 15,425

Total cost, $50,105.

This does not include repairs or wear and tear on plant.

THE SOCIALISTS' BOOK.

At a recent meeting of the Socialists, much discussion was indulged in relative to the advisability of publishing some memorial of the organization. At first it was proposed to print a pamphlet, recording the doings of the club and distribute copies among members alone. Next the plan was broached to publish a book in which the Socialists were to figure prominently. This scheme met with hearty approval and after considering the matter a little more fully, a board of editors was immediately chosen.

It will consist of M. J. Lyden, Editor-in-chief; Assistant Editors, F. W. Collier and F. E. Hammond; Business Manager, H. M. Southgate. The editors were empowered to elect two more men to their number and the Business Manager to appoint two assistants. Over one hundred dollars was pledged to carry out the scheme. Messrs. H. D. Bracken and J. H. Wallace were subsequently elected to the board of editors. Mr. Southgate has appointed as his assistants, J. F. Bartlett and J. H. Wallace.

Several meetings of the board have been held to perfect all arrangements. The book will not be a class-book but will be after the same idea. Since the Socialists form such a large part of the class, a considerable amount of space will be devoted to it. The class-day orations will be printed. Miscellany of interest, humorous especially will receive due notice. All matter that can, even indirectly, be construed as objectionable to anyone will be eliminated.

The merry times the Socialists thus far have had together and undoubtedly will have during the next few months, will be written up in as entertaining and humorous manner as possible and will form a feature of the book. Cuts, illustrative of various occurrences are already being designed. The book will contain several full-page engravings. In fact, the editors will spare nothing to make the work at least an artistic success. Since it is not to be a class-book, much matter that must otherwise be utilized may be dispensed with. This should undoubtedly relieve the pages of all material, of interest to only a very few. The aim is to publish a work which will be interesting to the general public and doubly so to the present students and Alumni of the Tech.

THE NEW COURSES.

In the last number of the WPI, a brief statement of changes effecting especially the Electrical and Mechanical Departments, was
outlined. Since that time the choice of courses has been the subject of a great deal of discussion by those students interested, and a large majority are still undecided. Hence a general summary of the work of the different courses and the advantages offered may be found a help. The Middle Mechanics have the choice of the following courses:

The regular Mechanical Course which will continue nearly the same as heretofore, and which includes in the Senior year ten hours per week shop practice. The Trustees have voted and arrangements are being completed for a three-story addition to the shop on the north end.

The new undergraduate Electrical Course. This is exactly the same as the Mechanical except that the time spent in Senior shop practice, will be given to work in electricity, amounting in all to 340 hours. The work in this course has not been fully decided upon and will not be until the catalogues are out, but Prof. Kimball has in mind something like the following: accumulator work, theory of the dynamo, dynamo and motor testing, practical work with the dynamo, electrical machinery, electric lighting and photometry, station wiring, switch-board wiring for arc lights, alternating currents and power currents, and line testing. During the last half of Senior year students will spend six hours a week in the special study of some electrical subject approved by the professor in Electrical Engineering, and write a thesis based upon this work. At present much of the practical work in this course can be done at the model station of the Electric Light Co., close by the Institute, for the officers have been extremely courteous to students in this department and have given them the range of the plant, for a great variety of practical work under commercial conditions. While the divisions are small, this privilege may be continued. This of course means very unusual advantages to students in Electricity.

The post-graduate course in advanced Electrical Engineering will be continued for the present, and is open to all graduates of the school. It includes besides the work of the undergraduate course: design and construction of direct current electrical machinery, telephone systems, electric railways, mathematical theory of electricity, etc. Students who have taken the undergraduate course can take the post-graduate also, and instead of a repetition of the work of the former (340 hours) will be allowed advanced engineering and laboratory practice in its place. No additional degree is given those who take this course. To many the question will arise as to the relative value between the post-graduate and the undergraduate courses. The man who has completed the undergraduate course it is expected will, after a little, be qualified to take such a position as a superintendent of a plant, while one in the other course will pursue a more extended study in electrical theory and practice than can be given in any undergraduate course of four years, and the position to which he may attain is only limited by his ability and opportunities. The two might be compared to the courses for degrees of B. S. and M. E. in Mechanical Engineering.

Again, those students who wish may make up during the summer all or any part of their Senior practice in the shop, and spend the corresponding time in the Senior year upon the Electrical Course. If all the 340 hours are thus made up, the student will probably be allowed to take his diploma in either course, as he will have done the work, excepting a thesis, of both. This has not yet been decided upon, but is the general opinion of individual members of the Faculty and Trustees. Another question undecided is whether or not by writing both an Electric and a Mechanical thesis, a student can obtain two diplomas. The general sentiment seems to be strongly against this and it is extremely doubtful if two will be given, at least the same year.

For those Mechanics who never expect to have much to do with electricity, but who would like to give extra time to Mechanical Engineering, there is still another plan. Professor Alden offers, provided they make up their Senior practice in the summer, work in the Mechanical Laboratories in testing and in advanced Machine Design. This can be given anyway to such students as wish it, and if a sufficient number apply, a regular line of work will be laid out for them. Prof. Kimball thinks this would be the more profitable plan for those intending to go into a pure manufacturing business, where the only use of electricity would occur in the lighting, and a knowledge of this would be obtained.
in either course, for all students have two hours per week lectures in the first half of the Senior year upon the technical applications of electricity to the telegraph, telephone, electric lighting and the transmission of power.

A great deal depends just now upon the action of the Middle Mechanics, for all the courses effecting them, are in a state of transition, and whatever request for studies a considerable number make, that request will probably carry considerable weight. It is an opportunity for choice which few classes will have, for by another year these questions will probably be settled.

If a sufficient number of the Middlers express a desire to make up practice this summer, it is probable they will be given preference in the Shop during the spring, with a possibility of having the month of July reserved to them and a special line of work. Professor Alden and Supt. Higgins also plan to have something like 100 hours of the time spent in the Laboratories in draughting under an expert draughtsman, and in Machine Design in connection with the shop-work.

DARTMOUTH ALUMNI OF WORCESTER.

The first annual banquet of the Dartmouth Alumni Association of Central and Western Massachusetts was held in the Bay State House, Friday evening, February 26th.

In the absence of Lieut. Gov. Haile, the President of the association, Judge Hopkins presided and introduced President Bartlett, State Treasurer G. A. Marden, F. P. Goulding, Esq., and others.

The Worcester Telegram in its report of the gathering mentions as present:

Prof. Homer T. Fuller, '64.
Prof. Levi L. Conant, '79.
Prof. M. P. Higgins, '68.
Prof. John E. Sinclair, '58.

It then adds further "While the dinner was in progress the members present had a pleasant time discussing old times at the college. When half way through cigarettes were lighted and were puffed with a touch of the gusto of old college days."

We cannot fail to be impressed by the scene which thus rises before our eyes of our "Friend from Dartmouth" in such hilarious company.

UNIVERSITY EXTENSION.

Probably at the present time there is no subject more thought of, or more earnestly considered than that of university extension. In one or two preceding issues, an idea of the workings of this scheme was outlined and the feasibility of the design commented upon. Searcely a college paper in the eastern part of the United States, but what contains regular articles pertaining to this matter. Harvard, Yale, Columbia, Johns Hopkins, and Princeton are engaged in examining the question from a practical standpoint. The professors of Brown University are highly enthusiastic over the success they claim to have made in Rhode Island by putting this idea into execution.

An American Society for the Extension of University Teaching has been formed to furnish an object lesson on the successful diffusion of a college education among the masses. A monthly journal, devoted wholly to this subject, has just published its eighth issue. The newspapers are being urged to advertise, gratuitously of course, the project. Doubtless there are not ten papers in all New England who have not, at various times, been deluged with the characteristic long slips of notices, prepared and sent out by the American founders of this English notion.

In the November issue of the WPI a detailed examination into the subject was made. The opinions of the Faculty and others were given, and the summation of the whole matter was that although University Extension might in several instances prove advantageous yet in general something more was necessary if success in this country were to be assured. The outcome of the work in America is being eagerly regarded by its supporters in England. The claim is made, that, in the latter country, nothing could be more evident than the tremendous advances made in the public favor by the earnest prosecution of the work. Nevertheless there are many who are so unkind as to say that the results of all the endeavors made and thousands of dollars spent are nil. However, the American Society is keeping right on issuing their prospectuses filled with glowing accounts of its present progress and predicting much good fortune for the future.
Perhaps the following taken from one number of the monthly journal will give an idea of the strides being made or, better, the superficial success attained thus far:

"It is safe to say that no one who attended the first annual meeting of the National Conference on University Extension, which closed its sessions in Philadelphia on December 31, 1891, failed to be impressed strongly with the fact that a step forward had been taken in the work of University Extension, and that a new era had opened for this movement in America. The first stage in the history of the work was that of inquiry, of experiment often isolated and always more or less unorganized, and on the other hand, of the dissemination of information and of gradually widening knowledge of this system of teaching. This stage is definitely passed. University Extension has been successfully established in more than a hundred important towns and cities in all parts of the United States and Canada, and every one interested in education can now easily gain a more or less adequate acquaintance with the methods of the movement."

In discussing the question the Gazette of this city goes right to the bottom and says "University Extension, from all we can learn, is a humbug and a delusion and an off-shoot of an English humbug." Which declaration is quite radical to say the least. But the paper in the further proof of its first statement gives some very interesting items concerning the matter. Seeing the growing interest manifested everywhere upon mention of this subject and considering the fact that so skilfully has the plan been argued, in not a few of the newspapers and magazines, it may not be amiss to give an idea of University Extension as published in the Gazette.

At once the promoters admit the plan had its start in England and that its main reliance is still, English advice and help. The reason for this being the case may be easily explained.

The old universities have for centuries been maintained by crown grants, of the most liberal description. Naturally they became quite rich and as a consequence were filled with sinecure offices. These offices had almost enormous salaries attached when we compare them with the very small amount of work involved. The trades unions of England are very strong and are already urging Parliament to cut down the fat livings of the Established Church of England and thereby lessen the annual tax rate. The large sums demanded for the maintenance of the royal family are arousing the most hostile comment. In short, the commons, through their representatives, are turning a most scrutinizing glance in the direction of anything labelled "grant." It was probably to protect the universities, especially against the attacks of the trades unions that the scheme of University Extension was first conceived. The design is to popularize, and to open a college education to the workmen of England. Lectures on advanced subjects were delivered by tutors or professors in the neighboring towns. It is more than probable that much good might evolve, were the seed to strike the right ground. But that is where the rub comes. That ground can only be made right by a previous system of thorough cultivation.

Again we have a marked difference in the two educational systems of England and America. America depends wholly, we might say upon the success of its public school system. University Extension will, at this time, have a tendency to distract attention from far more important public needs. Its much heralded announcement of "anticipating, in part, a college education" must of necessity exercise a fatal influence on our school system. The popular mind will not readily distinguish between this announcement and one promising a college education "in whole." Not that the sponsors of the scheme promise a college education, but that when they promise even an approximation to it, the tendency will be to magnify that approximation to its ultimate limit.

A purely scientific subject will not be comprehended. A preliminary education must pave the way for its reception and even then, how many men are there in this country who can throw aside the important duties, engrossing all their faculties, to acquire something new and which, after all, may not be fitted to their precise needs? It is a fact that in this country university professors do not hold sinecures. Their work is increased many-fold beyond what is usually accomplished in England in the same lines. In England only the well-to-do can expect to obtain a college education. Here, there is not a young man in the country, who if he really desires to enter a college and there acquire an education, can not do so.

In this country there is no need of popularizing the colleges. To-day there are as many poor boys in college as wealthy ones. The usefulness of a university is recognized
and heartily admitted. Whatever the needs of the English youth and however much University Extension caters to them, there is actually no good reason for that system in this country.

S.

A COMMUNICATION.

MR. EDITOR.

During the past six months several complaints have arisen from defects in the blacksmith shop.

Owing to poor and faulty drafts the smoke and gases from the fires have on several occasions not been conducted out through the flues but have remained in the shop making it extremely disagreeable, not to say harmful, for the men. In support of this, there is an instance of one student who suffered quite seriously from these gases. His eyes were attacked by the smoke and for a week or more they pained him and obliged him to discontinue all work. There have been numerous other times when the draft has failed to operate in an effective manner and consequent ill effects have been experienced by the students.

Immediately following a heavy storm the floor of the shop was inundated to a depth of several inches. When the blacksmith arrived, he set to work sweeping the water out through the drains and succeeded in cleaning the surface of the greater part of the water. This helped matters only temporarily as water continued to find its way through the crevices in the wall, and, although the sweeping process was resorted to several times, large pools formed in the hollow places and rendered it impossible to go in or out of the shop without stepping on stones to avoid wetting the feet. It was so damp that both of the students working that morning had colds which seemed directly traceable to the wet and unhealthy condition of the shop. The point is that the students should not be allowed to work under such circumstances. In the case of the escaped vapor, smoke and gas, it is so disagreeable to breathe and to face, that men get out of the place all they can. Now let the students be excused, or else remedy the trouble so that they may not actually suffer while performing their work.

"MECHANIC."

THE SENIOR CLASS.

A meeting of the class was held Feb. 15, at noon, in the Chapel, for the election of the class-day orators. M. J. Lyden was elected class orator, F. B. Knight, tree orator, and G. F. Freed, class historian. The selecting of an ode and class poem was postponed until the first week of May. These two offices will be open to competition. At a meeting Feb. 29, a list of nine men was made out and presented to the faculty, as candidates for the office of valedictorian. Upon comparison with the faculty list, five names were found in common, and a class meeting was held March 7, at noon, to select a valedictorian. The candidates were M. J. Lyden, A. H. Smith, L. C. Smith, E. H. Fish, and E. L. Smith. The final ballot resulted in the election of M. J. Lyden.

THE HISTORICAL SOCIETY.

Two regular meetings have been held on Friday evenings Feb. 19th and March 4th. At the first of these Dr. E. P. Smith read a very thorough and interesting essay entitled "English Literature and a Critical Estimate of Shakespeare's King John." Mr. A. L. Smith also read a carefully prepared paper on "Simon de Montfort" and Nathan Heard, '93, one on "The Rise of the House of Commons."


The exercises concluded with the reading of Scene I., Act I of Richard II.

At the second meeting four papers all bearing evidence of careful preparation were read,—William Wallace by Wright, '93; "Rise of the Universities" by Prof. U. W. Cutler; "Edward I. and Wales" by Kent, '93, and "Edward I. and Scotland," by Starbuck, '93.

The second scene of the first act of Richard II. was then read.

The Society expects to finish this play in three or four meetings after which it will adjourn until fall.

Much interest has been manifested in the Society by the students and although weather
and outside attractions have conspired repeatedly against it yet a goodly number have been present at each meeting.

It was expected that a public meeting would be held to which the students and friends would be invited but there will probably be none this spring.

**TECH ELECT.**

This society has been in a state of innocuous desuetude for some time past but is now reviving. The time of meeting was changed first to 4.45 Monday, and then, on account of the Faculty meeting, was again changed to Friday, same hour. The Middle class are the main attendants of the Club. The Juniors began well, but have dropped off. This is not as it should be. The advantage to be derived from this club must of necessity depend somewhat on the length of one's connection with it. Consequently the earlier in his course one begins this work the better. Members of both the Junior and Apprentice classes, as well as all other students and the Faculty, are cordially invited to attend.

**TECHNICAL ASSOCIATION.**

This association has not met since our last issue. The officers have been in conference several times and have determined upon a plan of laying out four dirt courts in place of the turf courts heretofore. The courts will extend north and south and will be, as it were, two in series and two in parallel. The cost has been estimated, both by a careful survey and by an experienced grader, and the estimates are respectively $200 and $75.

To raise this amount subscription papers must be circulated and subscribers obtained. Let every one give as liberally as possible. The officers of the association desire the hearty support of the students for their energy in taking hold of the matter thus early in the season. The enjoyments of tennis are too well known to need any encomium, and each should feel it his duty to help the cause.

**SALISBURY SANITARY ENGINEERING CLUB.**

Very interesting meetings have been held for the past few weeks, and a series of well prepared papers have been enjoyed.

The Club deems it wise to close the meetings for the year at the April vacation, as after that athletic interests will demand the time of many of the members.

Two meetings, however, will be held in April, at which it is hoped the Hon. Phinehas Ball and Dr. F. L. Woodward will be able to address the Club.

The following are the list of topics for the remainder of the year.

March 15.

The Uses of Filters in the Purification of a Water Supply.—W. A. Scott, '94.


March 22.

Plumbing.—Mr. John F. McCartney, Inspector for the Board of Health.

March 29.

The Self-Purification of Streams.

Dr. G. D. Moore.

April (Dates not fixed upon.)

Methods of Laying Sewers.

Hon. Phinehas Ball.

Board of Health.—Dr. F. L. Woodward.

**OTHER MEN'S THOUGHTS ARE OURS.**

"Lives of poor men oft remind us
Honest men won't stand a chance,
The more we work there grows behind us
Bigger patches on our pants.

"On our pants once new and glossy,
Now are stripes of different hue,
All because subscribers linger
And won't pay up what is due.

"Then let all be up and doing,
Send your mite however small,
Or, when the snow of winter strikes us,
We shall have no pants at all."

**PERSONALS.**

'86; A. F. Walker was married at Huntsville, Ala., Sept. 30, 1891, to Miss Maurelien Ridley. Mr. Walker is at present engaged in superintending the construction of a dam and canal for a water power development, together with the erection of a cotton mill, at Camden, S. C.

'88; G. F. Myers, Pittsburg, Pa., was married Jan. 14, in Boston, to Miss Grace Whiting, daughter of Mrs. C. B. Whiting of Hotel Kempton. Mr. Myers is a graduate of the Cornell School of Mines, class of '90.
TECHNICALITIES.

The Prince M. P. rial—Aldus.
“Et eetera.” Wallace.
Mundin. “I have an idea.”
Senior Class meeting:—“See here Mr. President, call yer (Collier) meeting to order.”
Middler Plus:—“Going to Smith the 22nd?”
Middler Minus:—“What Smith?”
A Fact. She:—“What’s good to kill lice on a canary bird?”
He:—“Did you ever try electrolysis?”
She:—“No. What kind of stuff is it?”
It is rumored that certain individuals will wear their Institute pins upside down until “something happens.”
Mush-Hill says: “Deacons’ daughters are”—well, yes,—but he doesn’t know anything about “ministers’ sons.”
Did Prof. C. mean anything personal when he said: “Do not speak of reading between the lines of a book?”
Who said incompetency? “The trend of the mountains in Missouri is eastward towards the Connecticut valley.”
Geology. “Earthquakes are caused by the pressure within the earth similar to a bean breaking by shearing stress.”
K. thinks there must have been something humorous about the recent earthquake in Japan, because in so many instances it was reported to have brought down the house.
Professor (looking at his watch)—“As we have got a few minutes I shall be glad to answer any question that any one may wish to ask.”
Student—“What time is it please?”—Texas Siftins.
A Miller’s Falls hack saw machine has been set up in the shop. It started in today (March 10) to cut off an inch bar of round steel. Its progress through the bar will be reported next month. It will probably be used “in lectures and in instruction to classes,” as a model of how not to work.
Order-loving Middlers were much horrified and shocked at one of their class meetings when the son of one of the Professors voted against behaving well during the Chapel exercises.

Instructor: “Mr. Dyer, please illustrate by a dyergram on the board.”
“Mr. Gage, what is indicated horse power?”
“Horse power as indicated by the g(age).”
Were these intentional or accidental?
Farwell, ’93, is at a loss to understand how the scenery was introduced in that remarkable “Thesis Drawing” in the Civil room. We are afraid that the sun painted it there.

ATHLETIC ASSO. CONSTITUTION.

For many months past the Constitution of the Athletic Association has been a dead letter to all intents and purposes; meetings have been held at different times than provided for therein; officers elected for terms of different lengths, and above all, the qualifications for voting were not heeded in the least. This fact coupled with the formation of a separate Base-Ball Association, seemed to warrant the revising or redrafting of the old Constitution, and accordingly at a meeting of the Association several weeks ago, a committee consisting of the President and one member from each class was ordered to take the matter in hand and report. The committee was elected as follows: Pres., Fish, ’92, Bartlett, ’92, Comins, ’93, Whipple, ’94, and Ware, ’95. Owing to the sickness of Mr. Fish, the work was a little delayed, but finally after considerable discussion, the Constitution given below was accepted by the committee and adopted by the Association at a meeting held March 14.

It differs in many respects from the old one. The most important change, is that of having no admission fee, and instead, making all students members. This rule is now common to the Foot-Ball and Base-Ball Associations also. This will do away with a great deal of machinery which never can be worked successfully at the best. Money will of course be raised by subscription, and there is no doubt will be given much more freely, for most students will sooner give away a dollar than pay it for something in which they see no value. Another important change makes the Secretary of the Association also Secretary of the Board of Directors. By this means it is hoped that the two organizations can work more harmoniously together, for any question com-
ing up in one as to action taken by the other can be at once settled. It also greatly facilitates the keeping of records made by athletes competing in any games under authority of the entire Association or the Directors alone. The change in the conditions of membership alone, necessitated altering at least a quarter of the original Constitution, and besides that and the clause relating to the Secretary many other sections were redrafted. Among other things the committee had the audacity to omit one word of the stereotype expression in athletic constitutions running, "shall keep in a book kept for that purpose."

ARTICLE I.

NAME AND OBJECT.

Section 1.—The name of this Association shall be the WORCESTER POLYTECHNIC INSTITUTE ATHLETIC ASSOCIATION.

Sec. 2.—Its object shall be the encouragement of athletics among the members of the Institute.

ARTICLE II.

MEMBERSHIP.

Section 1.—All students of the Institute are members of this Association.

ARTICLE III.

OFFICERS.

Section 1.—The officers of the Association shall consist of a President, Vice-President, Secretary, Treasurer, Keeper and Board of Directors.

Sec. 2.—A member of the Association is ineligible for any of its offices unless he has been a member of the Institute at least one-half year. Exception is made, however, in the case of the Directors from the Apprentice Class.

ARTICLE IV.

DUTIES OF OFFICERS.

Section 1.—It shall be the duty of the President to preside at all meetings of the Association. He may call a special meeting at any time and shall at the written request of fifteen members who shall represent three classes. He shall exercise at all times a general supervision over the athletic interests of the students.

The President of the Association shall also preside over the meetings of the Board of Directors, and in case of a tie, shall cast the deciding vote.

Sect. 2.—It shall be the duty of the Vice-President to preside over the Association in the absence of the President or at his request.

Sec. 3.—It shall be the duty of the Secretary to keep in a book for that purpose, an accurate record of the proceedings of every meeting of the Association, and this record must be read, and approved by the Association at its next meeting. He shall keep in another book a list of events at all field-days of the Institute with the winners and the record of each and also a list of all records made by students competing in other sports under the Institute colors or under the authority of the Board of Directors or the Association. This list for the preceding half-year must be read, and approved by the Association at its semi-annual meetings.

The Secretary shall also serve as Secretary of the Board of Directors, but shall have no voice in the proceedings.

Sec. 4.—It shall be the duty of the Treasurer to take charge of all funds of the Association. He shall keep in a book for that purpose, an itemized account of all moneys received and paid out by him, and his accounts shall at all times be open to the inspection of any officer of the Association. He shall pay money out of the treasury only when bills are audited by the President. At each semi-annual meeting, he shall read a report giving the financial condition of the Association.

Sec. 5.—It shall be the duty of the Keeper to take charge of all the property of the Association, and of which he shall keep an itemized account, and this account shall be at all times open to the inspection of any officer of the Association.

Sec. 6.—The Directors shall form an Executive Committee of the Association; shall arrange for all field-days, runs, etc.; shall have full authority over all teams and athletes contesting under the name of the Association, and may take any action regarding the athletics of the Institute they may see fit, provided it does not conflict with any action taken by the Association as a whole. Moreover any action of the Board of Directors may be rescinded by a two-thirds vote of the Association.
Article V.
ELECTION OF OFFICERS.

Section 1.—At the regular meetings in the fall, and in January, the following officers shall be elected: a President from the Senior Class, a Vice-President and a Keeper from the Middle Class, a Secretary and a Treasurer.

Sec. 2.—The Board of Directors shall consist of two members from each class, elected at the several class meetings. With the exception of the Apprentice Class, one Director shall be elected in January, the other in September, both to serve for one year. The Apprentice class shall elect two Directors, one to serve until fall, the other until the January following.

Sec. 3.—All officers shall serve until a successor is appointed. Vacancies may be filled at any meeting of the Association.

Article VI.
MISCELLANEOUS.

Section 1.—The regular meetings of the Association shall be held at noon on the second Friday after the beginning of the school year in September, and on the second Friday in January.

Sec. 2.—Cushing’s Manual shall govern the proceedings of all meetings of the Association.

Sec. 3.—The New England Intercollegiate Athletic Association rules shall govern all field-meetings of the Association.

Sec. 4.—Twenty-five members shall constitute a quorum for the transaction of business.

Sec. 5.—Notices of each meeting of the Association shall be posted by the Secretary at least twenty-four hours in advance.

Article VII.
AMENDMENTS.

Section 1.—This Constitution may be amended by a two-thirds vote of the members present at any meeting of the Association, provided that a copy of the proposed amendment shall have been read before the Association at least a week previous.

Sec. 2.—Any section of this Constitution may be suspended by a two-thirds vote.

Sec. 3.—This Constitution shall go into effect upon its acceptance by a two-thirds vote of those present.

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