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Examinations and marks have always been the theme for more or less discussion, not only at the Tech but at nearly all the colleges of the country. That these discussions have not been without their effect is attested to by the complete revolutions the systems have undergone in many places.

A system of marking has recently been introduced in certain branches in Brown University, the result of which will be interesting to note. It allows the work of marking to devolve upon the students themselves. Eight or ten men are selected from the class, whose duty it is to mark each man in the class at every recitation. An average of these marks gives the man his standing. If favoritism does not show itself to be a factor in this system, and there is no reason why it should, it is destined to be one of the most satisfactory methods of marking yet brought forward.

There are many studies here at the Tech which from their very nature would not admit of this system, so no plea for an universal trial will be made. But just now while the new examination system is being tried, a good opportunity is offered to compare the results of the four examinations with the results from a system of this kind in studies where it could be applied. If found successful it is plain to be seen that it would be very effectual in removing difficulties which often arise between student and professor.

Once again we wish to call the attention of our fellow-students to the duty they owe our advertisers. Consider; this paper belongs to you, it is published in your interests, and though we have learned not to expect aid from you in the way of items or even ideas, you should give our advertisers the preference wherever it is possible. A Worcester merchant recently told our Business Manager that he never saw a “Tech.” This man’s trouble, of course, is that he “don’t know a good thing when he sees it.” We would suggest in this connection that when you do have occasion to call on an advertiser, that you seize the first favorable opportunity to drop a hint which will leave the right impression with him.

It goes without saying that some of our largest advertisers are not impelled
to place their money with us with the hope of any great gain by so doing, but do so as an evidence of the interest they take in the Institute and its students. A little discrimination by the students when making purchases would well repay these men, however, and make them feel that their good will is appreciated.

The unconditional gift, to an educational institution, of money or other property amounting to a snug fortune, is always an interesting thing to contemplate. When the donor expresses the hope that the poorer boys in the community may receive the benefit of his gift, the picture is a still more cheering one. Mr. H. H. Bigelow, by his splendid offer to the Polytechnic Institute, has given an exhibition of philanthropy that has in it the elements of sincerity. He has placed in the hands of the corporation of this school, the means of doing a vast amount of work in the field of practical education, and, in a direction, too, where it is most needed. Gifts of money to colleges are, indeed, frequent, and are of course highly commendable, but they are generally intended to give a higher education to the already well educated. In many cases, also, these apparently magnificent donations are so hedged about by conditions, that it is difficult to see whence the benefit is to come. Mr. Bigelow has broken away from the restraints of custom and has made a gift whose use will be watched with great interest in educational circles. If rightly managed, this new school ought to be a great factor in solving the question how the many thousands of poor, deserving boys, who cannot afford to spend many years in school, shall be able to learn just what they want in a comparatively short time.

In view of the tons of questionable books that have been piled up on the news stands this summer, and their evident popularity, it seems unfortunate that so little effort is made at this school to lead students into the habit of thoughtful, discriminating reading. Perhaps it is argued that any advice about the subject would be construed as an admission that students can afford to spend time on something besides actual study. It would be very inconsistent, of course, to encourage the boys into the demoralizing habit of doing anything except study and attend to the necessary duties of life, not because there is really no time for such digression, but because the catalogue has a stereotyped expression to that effect.

It does not appear, however, that the students are greatly terrified by the statement, and probably the most confirmed grind on the place is not so addicted to his habit of incessant cramming, that he does not sometimes indulge in a little miscellaneous reading. A great deal has been said and written about what sort of literature makes desirable reading, and the conclusion is sometimes reached that every man is a better judge of what he himself ought to read than is anyone or everyone else. But many of us have never had good opportunities of judging what kind of literature would actually make desirable reading. We have a general idea of what is good, but we have never been educated up to the standard in this re-
spect, and, therefore, too often select our reading from the cheap editions displayed at the book-stalls, with reference to the seductiveness of the illustrations. We are none of us so old, or so afflicted with "big head," that we would not take kindly to advice on this point, and we suggest the appropriateness of an article for this paper on the subject, from someone whose advice would receive consideration. In the meantime, we recommend a careful perusal of the W P I.

A short time since our peace of mind was disturbed by learning, indirectly, that one of the Faculty was inclined to feel abused by a somewhat personal article that appeared in the last number of the W P I. No complaint was made, and possibly the professor's disposition to question the writer's kindly motive was short-lived. We are sincerely sorry, however, that the sole purpose of the article should have miscarried for a moment.

It is no part of the mission of the W P I to make anyone less happy than he would be if the paper didn't exist. At best it is no easy task to find enough of the good things of life to make one as happy as one ought to be, and sometimes it does seem as if one gets fewer opportunities for a good laugh here at school than would keep a yellow dog in smiles. Therefore, if anything appears in these pages that could, by any possibility, be construed as an attempt at a joke, it would be absolutely safe to conclude that the writer would feel flattered by such construction, without being obliged to write "This is a joke" at the end of his humorous endeavor.

Throwing aside our own humiliation at having what we considered a clever effort meet with such indifferent success, we will say that we are really sorry if anyone saw in the article anything that would bring our respect for the Faculty into question. We won't promise never again to joke at the expense of the Faculty, because the local field is too rich, and we should break our promise in the next issue if we saw the ghost of a chance. However, we will in future make a supreme effort to publish nothing that could possibly be twisted into the suggestion of a malicious motive on our part.

Among the communications received by the W P I during the past month is one which we feel called upon to especially commend for the substantial advice and sound principles it lays before the undergraduate chemists. It clearly demonstrates the supremacy of a general education over a specific one, and tells of the practical value of drawing and higher mathematics to a chemist.

The writer's example of an alumnum of the Tech who shows such proficiency in various ways, is a most convincing argument in favor of the broad education, still we presume to take an exception to the principle as stated for the W. P. I., an exception for which a basis has arisen within the last year or so. This basis is the accession of a treasure to chemists in the shape of the Salisbury Laboratories. Here is a chance for work of which those who spent their time in the old laboratory can have no conception; a chance which in all probability few of us will ever run across again. Shall we
then, not make the most of it? Shall we devote our efforts to those things, a chance for whose application may never present itself, and for which, as in the case of drawing, we have been given a ground-work on which to build, should occasion ever require it? After having devoted a year or even half our course principally to mathematics, shall we still continue to place the one chance of our course to attend similar exercises in other departments, which by their growing importance demand a more just share of the students' time than was formerly allowed them.

The Trustees have decided to fix commencement day one week earlier than it has been. This change is made so as to allow those who take part in the exercises to attend similar exercises in other places. The commencement exercises in many of the surrounding institutions are held the last week in June, as is seen by the many newspaper announcements of them made during that week. The increased public interest, and the necessarily greater advertisement the Institute will receive by this change, ought of themselves to be considered of sufficient importance to warrant the change.

BETWEEN THE GOALS.

Account of the Game with Williston.

"What has the foot-ball team amounted to?" This is a question we have heard frequently and the answer has been:—"Played one game and lost it." This answer however tells the least thing accomplished. In the first place and above all other things, it has made it possible for the captain of next season's team to start in with a respectable nucleus of men who at least know the difference between a touchdown and a touchback.

It has shown that there is good material in the Institute, and with the addition of such men as Cutler of the Academy and others who enter next year, enough of it to form a good team.

The lack of team work has also been made painfully apparent. This is due to two causes which can and ought to be remedied. The first is the fact that the men on the team are not regular enough in practice. The time which can be given to practice is so little at the best that every man should be out every night in order to be even in fair condition. It is a fact that the team that faced Williston had not before, nor has since, played together against the second eleven. The other cause of this lack of team work is, that only on two or three occasions has there been a full second eleven. A team can get but little practice without a full second eleven to play against. Even if the team does nothing more this season, it has accomplished a work of which it may well be proud when the obstacles which it had to overcome are considered. It has set the ball rolling in spite of the lack of interest which must follow a year without a team. Let the foot-ball men of the Institute see to it next year that they do as much as has been done this year for the advancement of the game, and let them remember in comparing the work of the two years that their work should make much the better showing.

WILLISTON GAME.

Williston, 14; Techs, 10.

The W.P.I. team reached Easthampton at about one o'clock. As soon after dinner as possible the teams lined up. It was agreed to play 35 minute halves. The W.P.I. team was made up as follows: Left end, Whittaker; left tackle, Rice; left guard, Reinbold; centre, Taintor; right guard, Bartlett; right tackle, Alderman; right end, Stoddard; quarterback, Barton; half backs, Yates and Southgate; full back, Tucker. At the beginning of the second half Dyer replaced Rice, and soon after Butterfield replaced Dyer.

Williston had the ball and gained 10
yards on a V at the kick off. Worcester then braced and held for four down. Yates, Southgate and Tucker carried the ball for Worcester to the 10-yard line. Here Williston obtained the ball on four downs and tried to hunt, but Worcester got through and stopped the ball, which bounded into Whittaker's hand and he scored the first touchdown of the game. Tucker kicked goal. Williston opened with the V again, and by steady work succeeded in scoring a touchdown without losing the ball from which goal was kicked. Worcester had the ball at the centre of the field and Southgate soon scored by a rush through the centre. No goal.

Toward the end of the half Tucker made a splendid run, being forced out of bounds three yards from the line. Somebody not in authority said bring it in 15 yards, but Taintor touched the ball in and rushed it across the line. The referee refused to allow it, however, and ordered the ball brought in. Worcester could not force the ball over again before the half was ended.

During the second half Williston braced, and aided by four fresh men succeeded in making two touchdowns from which no goals were kicked. In this half Williston used the V trick entirely, making small but sure gains each time. Time was called with the ball at Williston's 10-yard line and in Worcester's possession.

Worcester's backs rushed well and Taintor and Bartlett played the best game in the rushline. About 300 Williston men lined the field and cheered their team constantly during the game.

ANOTHER MAGNIFICENT GIFT.

Mr. H. H. Bigelow, of Worcester, the Donor.

A One Hundred Thousand Dollar Plant of Machinery Offered the Polytechnic Institute.

For the Purpose of Establishing a Trade School for Boys.

Letters from Mr. Bigelow, Superintendent Higgins, and Professor Alden.

Worcester is again called upon to witness the munificence of one of her citizens in the interest of practical education.

Mr. H. H. Bigelow, who has long been identified with movements for the advancement of the interests of this community, has given to the Polytechnic Institute a $100,000 plant of machinery and tools for a purpose best defined in his letter, published below. The gift was tendered to the Institute at a meeting of the corporation, held Oct. 18, 1890, and the comprehensiveness of the donor's idea has been fully commented upon in the local papers. There were present at the meeting Hon. P. Emory Aldrich, president of the corporation; Rev. Daniel Merriman, secretary; Waldo Lincoln, treasurer; and Senator George F. Hoar, Mayor Francis A. Harrington, Stephen Salisbury, Charles A. Morgan, Philip L. Moen and Rev. Austin S. Garver. Dr. Homer T. Fuller, president of the Institute, was also present.

In order that the alumni, who do not see the Worcester papers, may know more about Mr. Bigelow's offer, we publish his letter, together with others that have been presented to the corporation by those most qualified to judge of its utility. The gift is a plant of machinery and tools, once used in the manufacture of the Bullard rifle. The machinery was made by Pratt and Whitney of Hartford, Conn., a firm which has an excellent reputation for building fine iron-working machinery, and the stock is in good condition. The machinery is just what is needed to start and fully equip a school that will meet the donor's practical idea—a trade school for boys. Although formerly used in making the Bullard rifle, the plant contains little special machinery, but consists of such machines and tools as are found in a shop which is not employed in turning out a specific tool or machine.

The school will carry out (more than the Institute is now doing) the idea which was in John Boynton's mind when he founded the Institution in 1865. Then, the founder said in his letter of gift.

"** The aim of this school shall
ever be the instruction of youth in those branches of education, not usually taught in the public schools, which are essential and best adapted to train the young for practical life, * * * * and the various schemes of study and courses of instruction shall always be in accordance with this fundamental design, so as to thereby meet what our public schools have hitherto but inadequately supplied."

When Boynton made his gift, it was accepted with enthusiasm, and the institution was founded on his plan. Ichabod Washburn, when he gave the shops in 1866, combined his plan with that of the original founder. The school, however, has entirely outgrown the ideas of its founders and has so broadened its policy that its expenses have become enormous, and it is no longer a free school. The gift of the Salisbury Laboratories too, opened up lines of work far in advance of what the Institute was formerly doing.

A trade school conducted under the auspices of the Institute, will fill the place in Worcester County which it was originally intended it should occupy. It is proposed to make it not like either of the manual training schools at Chicago, St. Paul, or Washington; the methods of each of which are such as could not be adopted advantageously in this case. It will be a "half-time" school. Pupils of High school age will be taken into the school and instructed in a trade during half of each day, receiving mental instruction in the High school the remainder of the day, in a class in which the branches taught are such as will best fit them for the trades which they are learning.

At the end of perhaps a three years' course in the "half-time" trade school, the pupil will be admirably fitted to at once enter the Tech. It is intended that the trade school, although to be in a separate building—the Institute being already too crowded to permit of the installation of Mr. Bigelow's plant, shall be thoroughly a part of the Institute, and be fully in touch with all its methods.

Worcester's proposed trade school now has part of its plant. What it must have is a building in which to put the machinery. "Only two things are needed," says one of the communications. "First, sympathy and moral support. Second, financial resources. The Institute has had the good fortune to receive aid in a most liberal manner for extending its work. Such enlargement of the work was very necessary, and came none too soon. But the work contemplated for the departments that might be established by the aid of Mr. Bigelow's gift, appeals more strongly to the community in general than even the work so generously aided by the magnificent gift of the Salisbury Laboratories, with their costly equipment. If, then, the money necessary to the acceptance and use of the equipment offered by Mr. Bigelow is not for the time being in sight, may we not assure him and those interested in his plant, of our desire to foster his enterprise, and patiently endeavor to devise methods and provide means to carry it out as soon as practicable. To do less than this is to circumscribe natural growth, discourage donations to our work, deprive the community of a school for which there is a pressing popular demand, and the Institute of the stimulus and the credit which the addition of such a department would give it. In my judgment the offer of Mr. Bigelow ought not to be declined until, if necessary, the public has had opportunity to contribute the funds adequate to the acceptance of the gift, and the establishment of the proposed department."

It is thought that the new school, if started, can be made self-supporting after the first year. Its poorest graduate will have learned a trade by which he can earn a living. It will be essentially a school for the people.
MR. BIGELOW'S LETTER.

Hon. George F. Hoar;

Dear Sir:

For many years the question of better mechanical education of our boys has engaged my earnest thought.

The profound question underlying the true relations between capital and labor, I have of necessity passed by, contenting myself with the knowledge that capital and labor were dependent one upon the other, and that with a clearer understanding of each other's rights and opportunities, the seemingly conflicting interests would be adjusted in a harmonious manner.

My life has been given to practical details and to the actualities of life. I have studied facts far more than I have theories, and in the course of my investigations I have discovered some things worthy the attention of a statesman; therefore, I beg leave to present the facts and conclusions to you, and to suggest a possible remedy.

Years ago our machine shops were filled with skilled mechanics, men who had served an apprenticeship, knew the use of all tools, men who could build a machine from the making of the pattern to the adjustment of the last screw needed that the perfected machine should do in a perfect way the work for which it was designed.

There was no difficulty in those days in selecting from among the men in any shop many who were altogether competent to fill the place of superintendent in a thoroughly satisfactory manner.

Go into our shops to-day and you will find the system entirely changed; the skilled mechanic, the perfect master of tools, has given place to the man who has mastered one machine and the making of one part, that he can produce that part at the least possible cost, at the same time making for himself even more than a reasonable compensation. You will find to-day all the great shops divided into the production of parts, the expert on one having little or no knowledge of any of the others that go to make up the machines of this day. This state of things has been brought about by the competition in trade and through the agency of trades unions, which have strenuously opposed the apprentice system only in such numbers and under such conditions as they have imposed.

The result of this course has culminated in the substantial destruction of the splendid mechanics of the old days, so that where once many men in any one shop could be selected to fill high places, it now requires many shops to furnish one man of sufficient skill to control large mechanical establishments.

This condition of things has filled me with alarm, because I realize how much the future of New England is dependent upon the skill of her mechanics, and the success of her mechanical institutions, and I desire to do, so far as in my power, something to change the existing condition of things, and to enable Worcester boys for all time to so fit themselves for the labor of life that the mechanical pre-eminence and glory of New England shall suffer no diminution because of our neglect, or the unwise restrictions of the unthinking ignorant.

My opinion is that the only safe solution of this difficulty lies in the establishment of trade schools in connection with the present school system. I want to make it possible for the school-boy to learn the art of the machinist, of the carpenter, of the mason, or the bricklayer. I want the privilege of attending the trade schools dependent on good character, fair standing in studies and proper school age.

The splendid Polytechnic Institute is doing its good work from the highest possible standard. I want to supplement that good work by aiding in the establishment of a trade school in connection with, and as a part of the Institute work, that will give opportunity to learn a trade, where so rigid a standard of scholarship will not be required.

To carry out this idea, and for the permanent good of the boys of Worcester, I offer to the Worcester Polytechnic Institute a complete outfit of machinery, lathes, planers, drills, presses, milling, profiling, barrel-making and stock-turning machinery, with the special tools for making rifles—that has cost over one hundred thousand dollars ($100,000), and that has been used in a careful manner in our rifle factory at Springfield, Mass.

I will give the above-mentioned tools to the Institute of which you are a trustee, for
the establishment of a trade school under the general plan herein indicated.

I will give this machinery absolutely and without any conditions, other than that my purpose should be carried out, and will make the further offer that if it should be thought wise and proper to continue the manufacture of rifles at the trade school, I will take all that it produces at such fair rate as may be determined.

My offer of the machinery is absolute and free from all conditions, and no way dependent upon any special use you may put it to in the carrying out of the purpose I have so deeply at heart.

Sincerely yours,

HORACE H. BIGELOW.

In connection with the Mr. Bigelow's proposal to the corporation, a comprehensive letter was read from Superintendent Higgins, who dwelt at length on the subject of industrial education, and described the possibilities of the new school. Following is an extract of his letter,—

"Many thoughtful people, while acknowledging the advantages of our public school system, are conscious that a large class of boys, after completing the grammar grades, can find no school fully adapted to their requirements. They either do not wish, or cannot hope to look forward to a college course, and a high technical education is nearly or quite as far out of their reach. The few trades still adhering to the apprenticeship system either charge a high entrance fee, or are overrun with foreign applicants, and even after obtaining a place, the opportunities for learning are neither adequate nor satisfactory. Hence the greater number of American boys, adapted by strength, ability, and inclination for the industries, are debarred from entering them. The Technical school is beyond their immediate reach and the opportunities for a trade without the school is far below their needs.

The wide-felt need now is for a trade school, much more accessible than any of the technical schools, and much better than the shop, where the boy beginning as a drudge, finds that there is an acknowledged impossibility of thoroughly mastering the business or trade. The demand for such skilled young men is far beyond the supply.

The inducements to young men entering this field were never so strong, and a class of young men who rank high, both in attainment and in social life, are likely to choose mechanics for their life work.

At present, however, these boys, so especially fitted by nature, are being drawn into less promising occupations, solely for the lack of opportunity and sufficient inducements to awaken in them an appreciation of the possibilities in this direction.

What is needed, right here in Worcester, as a starting point, is a half-time trade school. Much thought has been given to the subject for some time past, and various plans have been proposed, but until recently nothing has looked sufficiently promising in the direction of financial support to warrant a beginning. The plan which is outlined below can hardly fail to be successful, if carried out, and the movement will mark another epoch in the history of education, in Worcester, or wherever the school is started.

The proposed school would consist of two branches, one for the mental training and the other for the shop work. At first the machinists trade, including pattern making, would be the special work undertaken, but these branches should be taught upon the broadest and most thorough basis. The school could be limited to 100 pupils, who had successfully completed the course in the regular grammar schools. The trade school should cover three years, with shorter vacations than is the custom in the city schools.

The book-training branch of the school, however, should be confined to the regular term time of the city schools. The branch of the half-time school would be a part of the public school system, while the shop training branch would be entirely independent of the city school.

The scheme, therefore, would require no serious change, in the work of the public school, except to arrange the instruction of 100 boys so that one-half of the time each week can be devoted to shop work, in the special shop constituting the second branch of the half-time school.

Considerable advantage would be realized from the fact that every pupil in the school would have the same definite end in view, having been selected for his natural fitness for this special course of study and work.
In the shop branch of the half-time school, it is proposed to give to the student a sound, practical training, much more than equivalent to that gained in learning a trade in any ordinary shop, in three years of continuous work.

In addition to his ability to earn wages, it is expected that the graduate would have a thorough practical knowledge of mechanics, elementary physics, and a general practical knowledge of shop methods, and of the materials used in the various industries, far superior to any one who has devoted three years to an apprenticeship, under the most favorable circumstances that can now be obtained.

It is proposed, further, that every graduate shall have a general knowledge of working drawings; and a degree of dexterity with drawing instruments that will excel even the present graduates of the technical schools, because there the work is much broader and extends over more ground.

It has been suggested, with evident truth, that if the shops of such a half-time school could be a department under the management of our Polytechnic Institute, great advantages would obtain, and the enterprise would have the benefit of the experience gained by the Washburn shops during the last 21 years. Such a trade school, as an annex to the Polytechnic Institute, would not be immediately practicable if the work of both branches devolved upon the Institute; because the school instruction would involve great outlay for room and instructors.

Besides covering, better than has ever been done, these grounds of manual training and trade teaching, this plan will certainly accomplish much more, viz.: A thorough common school education of three years, such as no trade school ever attempts; second, a thorough preparation for the highest technical schools, such as cannot be had in a crowded high school course; and third, a practical trade, enabling the graduate to immediately receive good wages for his skilled labor or for his dexterity as a draughtsman, or as assistant to a mechanical engineer.

It is confidently thought that the establishment of this school in Worcester will mark an epoch in the history of education.

Our locality, for such an experiment, is exceptionally favorable.

The unique and established character of the practice at the Polytechnic Institute makes reasonably certain, many things which in any other community would be extremely doubtful. Worcester and her institutions, it is reasonable to believe, may exert a wide-felt influence upon the great problems of the age, and especially upon those affecting our own country; the difficulties between labor and capital, and the promotion of the industries.

This trade school is now made possible through the generosity of Mr. H. H. Bigelow, who offers a complete shop equipment to the Polytechnic Institute, upon a basis so broad and free from conditions that it cannot fail to awaken the deepest interest throughout the community; and as soon as this event is announced, and the new possibilities for the education of boys recognized, the scheme that Mr. Bigelow's gift anticipates, will have hearty support.

* * * * *

Prof. George I. Alden's views on this subject, as expressed in a letter to President Aldrich, are in part as follows:

That there is a demand for some instruction for a certain class of boys, which leads in the direction of scientific and such studies, and which shall begin as early as grammar school period, is sufficiently proven by the attempt made in various cities to meet this demand, and by the amount and character of the current literature upon the subject of manual training in connection with the public schools. There are three ways which have been tried to bring about the desired end:

First, the establishment of a private institution, receiving pupils at the same age and with the same attainments as those who enter the High school, but having no connection with the public school system.

Second, the establishment by the city of a public High School, entirely separate from the ordinary high school, with a course including shop work and such studies as are deemed to be adapted to the class of pupils for which the school is designed.

Third, the introduction of the necessary manual work into the regular High School, for a part of the pupils, together with a suitable modification of the studies for such
part of the pupils as engage in the manual work.

It is easy to see at a glance that each of these methods has its objections and difficulties.

The first method is expensive, inasmuch as the teaching not only of the shop work but of all the branches, must be done at the charge of the institution.

The second plan involves too large an expenditure of public money, and involves the public school system in divisions of labor and other difficulties, which are distracting to those unaccustomed to the administration of shops and of business.

The same objections, only in a greater degree, may be urged against the third method.

The plan which, as I understand it, is contemplated, in case Mr. Bigelow's gift to our Institute can be accepted, is substantially this: The Institute will receive the pupils into the shop equipped for the purpose, and instruct them in the manual part of the training for half of each day, receiving, if necessary, tuition sufficient to defray the necessary expense of their instruction over and above the earnings of their department of the shop. This makes the department, when once established, self-sustaining.

During the half-day not occupied in the shop the pupil will receive instruction in the public High School, in a class in which the instruction is adapted to his needs, the public school being, of course, open to such pupil just as much as it would be in case he proposed to enter college instead of a Polytechnic school.

This new plan would have the following advantages:—

First, it would have a vital connection with and derive a great benefit from the public schools without involving our school system in anything expensive, distracting, or experimental.

Second, the shop work being under the supervision of the Institute—which stands by general consent easily in advance of any other institution in the conduct of a school shop—will insure the efficiency of that part of the work and secure results far better than would be likely to be reached by any inexperienced association.

Third, the shop department of the new school could probably be made self-supporting without tuition, and certainly with such tuition as could reasonably be charged.

Fourth, it would be popular, and receive abundant patronage and support, if we may judge from the history of other attempts in this direction, and from the public sentiment on the general subject.

The results of such a school would be felt in various directions, and would, it seems to me, be far-reaching and valuable. First, to the Polytechnic Institute, by giving boys manifestly fitted for its course a chance to begin earlier a course of training no less valuable from an educational point of vision, but particularly adapted as a fitting school for the course in the Polytechnic Institute.

Second, to the many earnest boys who cannot afford a long course of school work, but who would graduate from the new school with an education calculated to make them good citizens, and with a trade.

Third, to Worcester in particular, through her boys, who would be entitled to the exceptional privilege of the school, and also through the distinction she would gain as being the only city of the Union having a complete system covering the whole range of technical education; for with this new development and the inevitable growth of the present work of the Institute, she could truly claim this distinction.

THE SCHOOL PIN.

The "Greek Lamp" vs. The Scientific Emblem.

Some time ago, two members from each class were selected to constitute a committee on the matter of a school pin. This much was easily done, but it was a hard matter for the committee to get to work. The Seniors politely waited for the Middlers to call a meeting, since the latter were the beginners in the movement. The Middlers, through deference to their elders, courteously stepped aside and waited for the Seniors to take the lead. The Juniors knew that it was none of their business, anyhow. Finally, "One of 'Em" mustered up the nerve to call a meeting.

Through Mr. Burleigh, designs were obtained from Tiffany & Co. of New York. The committee was unanimous in the choice from the three designs obtained, and, by the way, this style was also the cheapest. It
consists of an enamel centre with gold rays extending out in all directions. In the centre is the antiquated "Greek lamp" and above—W. P. I.—below—'91 ('92 or '93.)

Mr. Burleigh suggested substituting the Tech shield for the Greek lamp, but some of the committee thought it would make too fine work to look well. It was finally decided to secure other designs before settling upon the matter. It seems to be the general opinion in the Institute that there ought to be some distinctively industrial or scientific emblem on the pin. This would seem better for a technical school than the traditional Greek lamp. The pin can be jewelled if desired, and the style preferred by the committee would cost five dollars without jewels.

If you have your mail sent to the Institute, tell your friends how to direct it properly. Letters have been seen on the table lately, addressed: "Worcester Institute;" "Tech School;" "Institute of Technology;" and even "Free Institute." We can stand the first three, but the last is positively galling to a student who pays $150 a year besides his laboratory fee.

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**SENSE AND NONSENSE.**

*Causes Which Make a Junior Crawl Out at the Small End.*

During a Junior's first six months at the Tech he is rather a doubtful quantity—now you see him, and now you don't. For the first few weeks of school he comes gayly into chapel with his classmates and his best clothes. His hair is nicely combed and he has a brand new look about him which says that everything has struck him just right so far. But the change comes all too soon; a flushed face, disheveled hair, hands and clothes white with chalk dust are the first indications that one of Chauvenet's light weights has met and bested him in a fair scrimmage. His whole demeanor continues to change from day to day; the smile gives way to soberness and the contented expression is superseded by an anxious, careworn look, when some fine morning—although no obsequies are announced—we mark that he has gone. For a few days we miss him. He may have been unnecessarily tall, but we tried to overlook it and were beginning to feel somewhat of an interest in the fellow. It would never do to print his version of the reason for his exit, so instead of looking him up for the sake of an interview, we simply conjecture that he failed to "get there" when the marks were passed out or that possibly the poor unfortunate had misconstrued some of the rules of the Institute and as a natural result he was crossed off the list. Perhaps his trouble may have been an over-zealousness to acquire the correct pronunciation of the German letter ü and the puckering of the lips caused a sound in the corridor which smacked of "Annie Rooney." For banishment in such a case we can only answer "Amen." Why even the wind for attempting to whistle through one of the chapel windows recently had a warning hand raised against it. A Junior don't know how to whistle anyway; there's an old filter-pump in the Salisbury Labs, that can make more noise whistling backwards than any two Juniors in the school. We don't wish to get up any matches, however, but will just state a few more rules which a Junior will find safe to bear in mind. Most of them have been stated to us without reasons, but they are all self-evident enough.

One is that smokers are warned to stop fuming as soon as the grounds are reached. This, of course, is to prevent an unsightly accumulation of "butts" on Tracy's window sill; also that any street gamins who may be tracking the Tech with a view to "next on it" may be kept at a safe distance.

Students are prohibited from visiting the Institute on Sundays. That's a good rule, dear Junior, if she can't come up some other day, bring somebody else. The monitors have been having too soft a snap.

Let us state here that it has been suggested, though not exactly as a rule, that a student should cultivate a cheerful disposition and should endeavor to always meet his fellow-students with a smile upon his lips. We would advise him in the majority of cases, however, to wait until the smell of the "smile" has somewhat abated. This is kind of an off year for cultivating this cheerful disposition.

An iron bound rule tells you not to be found trying your keys on the elevator doors. If you don't know exactly which one of your keys fit it, you shouldn't spoil the chances of others by clogging up the
lock with a broken key. If you do ride in this conveyance it would be wise to go up first and see if one of the Faculty is waiting at the top to receive you with open arms. He might fall upon thy neck with so much enthusiasm that you would resolve to return to the home you have deserted.

There used to be a rule against crossing Salisbury's field, but now that the walking has become better through there it has been withdrawn.

There are several minor rules which will be heard of from time to time, but if the Junior will look out for the few here stated his chances for longevity at the Tech will be much better.

DON'T DECRY THE BROAD COURSE.

An Alumnus Gives the Chemists the Benefit of His Experience.

TO THE EDITOR OF THE W P I:

It is with some regret that I have noticed in recent issues of the W P I a tendency on the part of the students at the Institute to favor the cutting down to narrower limits the broad course of study, which experience has proved to be a good one—especially is the Department of Chemistry the target which receives the hottest fire from these critical marksmen. It is true, "When the child becomes a man with a very definite idea of the pursuit in which he hopes to find a livelihood, especially if he must pay a big tuition to learn his business, he wants the privilege of at least expressing his ideas about what he would like to study." It is to be supposed that such an one will consult the catalogues of the best schools, and that he will seek until he finds a course of study adapted to his needs. Should he find that in no school is the course of study narrow enough to suit his purpose, he can probably get what he wants in some office. For instance, if to become a milk inspector is the height of his ambition, let him go to a milk inspector's office and learn the business. It will take but a few months there to become a better milk inspector than was ever graduated at the W. P. I. If, however, he finds that, on the whole, the course of study as arranged at the Worcester Polytechnic Institute is the best adapted to his needs; and, if he finds that those who have already taken such a course succeed well, and that as each year the work of these graduates becomes better known, the demand for new graduates increases, then let him pay the small sum asked for such a course, and get the most that he possibly can out of it.

In the office with which I am connected, there are at present seven chemists and several boys who act as assistants. These boys have studied only the most elementary branches taught in the common schools, and, of course, knew nothing of chemistry when they came here. They are now probably more skilful in chemical manipulation of the work required here, than were any of the seven educated chemists when they entered the works. Yet when a vacancy occurs in the chemical department, instead of promoting the office boy, it more often happens that one who has had the discipline and training of a scientific school is sent for to fill the place, in order that there may be one in the line of promotion fitted to fill any position that may come to him.

The Superintendent of the Pennsylvania Lead Company may fairly be counted as among the Institute's successful graduates. To see him at work at different times one might be puzzled to decide whether he took the course in Mechanical Engineering, Civil Engineering, Chemistry, Drawing, or Physics, but the catalogue indicates that he chose to spend his practice time in the latter department.

In 1882 it is quite probable that I should have heartily congratulated students in the chemical department who had been excused from a part of the course in drawing or in mathematics, but after eight years' experience and careful observation, I am inclined to regret the change.

Perhaps the majority of graduates will differ with me in this opinion; it may be that the editors of the W P I have taken measures to ascertain the opinions of those who have been graduated a sufficient length of time to have experience enough to make their opinions on this matter of value. If that be the case, and if these radical changes which are advocated be the consensus of such opinion, then the suggestions contained in the October number of the W P I are timely. A student in chemistry who expects to master the science in three years, even though he should devote all his
time to it, will be disappointed. But a man worthy to receive a diploma in the department of chemistry, will doubtless continue to study it after graduation—indeed to be a successful chemist, he must study this branch of science, and he will have facilities for such study; but the chances are that he will not pursue his study in mathematics or drawing after graduation, and if he fails to acquire a knowledge of these at school, the loss is practically irretrievable.

GEORGE A. MARSH, '82.
Mansfield Valley, Pa., Nov. 3, '90.

ENJOYMENT OF LIFE AT THE TECH.

We Are Lacking the Benefits of Better Acquaintance with Our Fellow-students.

The W. P. I. was founded as a practical institution, and this purpose of its projectors has been well carried out. The students can surely testify that the course of study is such as to require hard work. Our training here is on a level with the ordinary collegiate course, and many of us, were there no technical school, would be at Harvard, Amherst, or elsewhere. At such places the students are generally supposed to enjoy one continuous blast of hilarity from entrance to graduation, and the alumnus looks back upon his college days as "the happiest of his life." Here we are accustomed to think of the school year as one perpetual round of hammer, plug, and grind.

A man must occasionally have some relaxation from his regular duties. Even the Tech manages to get it. The Theatre and the Muese are popular with many. These, with a few social parties and a very small number of concerts and similar entertainments afford about all the enjoyment the average Tech gets out of life during the winter. There are many in the Institute who think there ought to be some social organization connected with it, and there are dozens of students who would much prefer to spend an evening, now and then, listening to a series of interesting literary exercises, and in the jolly companionship of their fellows, to the theatre or other (perhaps) non-elevating amusement.

If we had a few of such organizations, the school would be far more popular than it is. The dismal tales of life at the W. P. I. told by graduates are anything but inviting to the prospective student. At such places as Columbia, Harvard, and particularly Cornell, the management give liberal encouragement to all institutions which will add fame to alma mater.

But the greatest benefit is that which comes to the individual. Talk with graduates upon the advantages of a college course, and they will, nine times out of ten, refer to the benefits derived from mingling with men of various types and representing a wide extent of territory. We experience this to some extent, but how much better it would be to meet these men socially, instead of merely in the class or lecture-room. Can it be that in so large a school there are not enough to support a social and literary club?

FOR THE TECH'S FAIR FAME.

An Alumnus Sends His Counsel to the Foot-ball Team.

To the Editor of the WPI:

The first number of this year's issue of WPI came to me a short time ago and I was very glad to find it so ably edited. Its tone was good, its editorials bright and to the point, and a paper of the students and for the students, as it should be.

You will probably have imagined when you received this that I am going to speak about athletics, and you are right. I want first to speak about foot-ball, and I wish to know if the boys in the school are willing to endure such wretched playing on the part of the Institute team as to let the Academy team beat them 38 to 0. If the boys are the same "sandy" set I used to know there, I do not think they will tolerate it for a moment, but will set to work to remove this stigma at once. Foot-ball is a game which cannot be played without practice, and to be effective it must have a system which shall be as inviolable as the laws of the Medes and Persians. Above all let every student remember it needs, to be a success, his particular oversight, interest, and financial backing.

Early in the fall of '87, when I think it is generally conceded the Institute had the best team it ever had, it practiced four weeks before playing a game, and that first game was against Harvard. It was beaten 70—0, but came very near scoring. A week
[In the above communication, by one of the staunchest supporters that Tech athletics ever had, is voiced the opinion of all who are interested in the Tech’s fair fame in the athletic field. We agree with him in every point but one, and that is the blame he attaches to the captain of the foot-ball team in playing with the Academy team. If we had not been in the school for the last two months our ideas would be identical here also, but viewed from our standpoint the captain deserves naught but commendation for his untiring efforts to organize a team from the handful of indifferent fellows who could be prevailed upon to try for positions. A practice game at home was almost out of the question, as no second eleven could be organized, and it was when placed in these straits that the captain as a last resort consented to a practice game with the Academies. Ed.]

SOUTHGATE WINS.

All the City Tennis Honors go to ’92’s Champion.

Although this fall has not been the most successful season that the school has ever known in tennis, it has had perhaps as many brilliant features as any which the school has yet seen. It has developed the most brilliant tennis player the city possesses and the school is to be congratulated on having Hugh M. Southgate among its members. This young gentleman has won every honor at tennis singles which the city has given him a chance to win since the middle of last August, and his continuous list of victories with but one break—that of the county championship—has never yet been equaled by a local player. The season may be said to have begun with the tournament of the Crescent Tennis Club the last week in August. Quite a number of Worcester’s best players were entered, and the local papers predicted Southgate’s defeat almost before the drawings were
announced. But it was not so—this was
to last by quite a large number of spec-
tors, including a delegation of class-
and fellow-students of Southgate's. With
the sets at two—all the excitement was very
great and it was only after a hard struggle
that Southgate won the final set, thus win-
ing the match and tournament. South-
gate did not compare with Kirk in graceful
play or skill in the use of difficult strokes,
but his winning was, nevertheless, done
wholly on its merit, the ability to win being
of the greatest value to a player in a game
of this kind. The match with Crocker for
the county championship was the next to be
played, and as Smith had made an excellent
showing against Crocker the year previous,
Southgate was expected to give him a good
match for the championship. His utter
failure to make any showing at all against
the county champion was the cause of gen-
eral comment, and the reason of his inabil-
ity to get even one game in three sets, after
his fine showing against such men as Smith
and Kirk, can only be explained by the un-
certainty of the game. Southgate did not
confine his winning to singles in this tour-
ament, but with his partner secured second
place in doubles and first in consolation
doubles. Several other Tech men took
part in this tournament, among them being
Nelson and Lincoln. Immediately after the
Worcester Tennis Club tournament, the
Winslow Tennis Club began its tournament,
and, as was to be expected, Southgate was
again a winner, making his third successive
tournament won within about as many
weeks. But he still had one more to win,
and that was our own tournament. It was
generally conceded that Southgate would
win, although Dwinnell was regarded as a
dangerous opponent, and it was indeed so,
for the latter player won the first set, and
was playing well in the second and third
sets, but was finally beaten, through
Southgate's great winning ability, which
has staid by him so well during the past
fall. Perhaps the closest match of the
tournament outside the Southgate-Dwinnell
match was the one between Nelson and
Derby, the former winning two closely con-
tested sets. The tournament has been long
drawn out in play, the interest in the
Worcester tournament detracting from our
own, and the continual rain of two weeks
in the middle of September making the post-
ponent of play in the Worcester tournament necessary, so that the Tech could not hire the grounds until too late in the season for their use. This was a feature of last year’s tournament, and made it so much of a success. Our own courts have, however, been better than ever before during the past fall, and have been used very much the past month. The championship match for the Landsing cup was stretched out over two weeks in time but was easily won by Southgate, making him the possessor of the cup for the coming year. For several years past, the members of the Worcester Tennis Club have been accustomed to look upon Tech players as outclassed by their own club players, but at last we have a man whom we can justly claim is the champion of the city, Worcester Tennis Club and all. That man is Hugh M. Southgate. His feat of winning four successive tournaments in one season gives him a pre-eminent place among the city players, and that he has won his title beyond a doubt, ought to be the opinion of all capable of judging. For future reference we give the complete score of the Tech singles.

PRELIMINARY ROUND.
Dwinnell, '93 beat Cully, '92, 6-2 6-3
Bradford, '92 beat Clark, '92, Default.
Tucker, '92 beat Fish, '92, 6-1 6-0
Nelson, '92 beat Grimes, '93, 6-1 6-1

FIRST ROUND.
Southgate, '92 beat Yates, '92, 6-2, 6-2
Dwinnell, '93 beat Bradford, '91, 7-5 6-3
Nelson, '92 beat Tucker, '93, 6-3 6-1
Derby, '93 beat Converse, '93, 6-3 6-1

SEMI-FINALS.
Southgate, '92 beat Dwinnell, '93, 5-7, 6-3, 6-3
Nelson, '92 beat Derby, '93, 6-4 6-4

FINALS.
Southgate, '92 beat Nelson, '92, 6-2, 6-3, 6-4

CHAMPIONSHIP MATCH.
Southgate, '92 beat Dadmun, '91, 6-1 2-6 6-2 6-3

Middler—"Are you going into the field-sports?"
Junior—"Yes, I've entered in the bow-legged race. Are you?"
Middler—"No; but I expect to play hunch-back on the foot-ball eleven."

EXCUSED.
The Truth the Best in All Cases.
A Senior in the Office stood;
His brow was overcast;
Cold sweat-drops hung in beads thereon;
Each moment seemed his last.
A book was in his trembling hands,
A wild look in his eye.
"EXCUSES" was the label which
This man did terrify.
The day before had been so bright
That he could not resist
The chance to take his girl to ride—
And recitations missed.
Four marks this Tech had won ere this;
Two more did him await
Unless some happy form of words
Should save him from that fate.
With palsied fingers he did turn
The pages o' er and o' er,
But found among them no excuse
He'd not worked o' f before.
His burning cheeks did him forbid
The "Sickness" game to play;
Like Joseph with his vinegar
He'd give himself away.
He thought of every old excuse;
His brain was in a whirl.
The Senior now began to wish
He had not hugged his girl.
But suddenly it came to him,
And quickly he did write:
"Had pressing business out of town"
And then he took his flight.

THE TECH ELECT.
The Tech Elect has resumed its meetings, three very good ones having been held already. The subjects have all been of practical interest to electrical engineers, or even to scientific students generally. The meeting following the lecture by Mr. Taintor, on the telephone, adjourned to the telephone central office. Mr. Taintor was ready for the boys and explained all the mysteries of the place very fully.
The boys showed a variety of interests in the different parts of the establish-
ment, one becoming so enthusiastic on telephone matters that he went home with the "girl" most likely to learn to talk. Mr. Taintor gave each of the company a $1.75 treat in the form of a talk over the long-distance telephone to New York, $1.75 being the tariff to "outsiders." It seemed about as hard for the fellows to find just what they wanted to say over line as it usually is to find what they know of Pol. Econ.

Prof. Kimball deserves the earnest thanks of the Club for his efforts in its behalf.

The Club is a fine thing and should be kept up. The perfect freedom, the practical nature of the subjects, and the absence of the terrible bugbear, marks, makes it one of the best places imaginable for getting hold of things.

Y. M. C. A.

Report of State Convention at Haverhill.

The Y. M. C. A. Joint State Convention of Massachusetts and Rhode Island at Haverhill in October, was one of the largest ever held in the State. There were about five hundred delegates present. A bright, earnest enthusiasm ran through the entire session.

The best, possible, of everything was provided. The people of the city did all in their power to make the stay of the visitors pleasant. An especially interesting part to college men was the college men's conference, held at the home of Mr. Hosford. Papers were read by men from various colleges, those especially interesting being by two Harvard men, on their neighborhood work, particularly among sailors and children of the lower classes.

Mr. Sanders of the Intercollegian was present and explained the purposes of college Deputation work, that is, the work to be done by men sent from the older, larger schools to the smaller and newer schools having fewer advantages.

After the conference came the banquet tendered by our kind host. This was discussed with no less enthusiasm than the other matters of the evening. It is to be hoped that our local association may be able to profit by a visit from one of the larger schools during the year.

COLLEGE NOTES.

Interesting Items from Our Sister Seats of Learning.

There is but one college paper in England. Yale's new gymnasium cost $200,000.

A Japanese holds one of the professorships at Yale.

Williams of Yale has lowered the world's 100-yard hurdle record to 13½ seconds.

There is a movement on foot in the University of Pennsylvania to establish a chair of the Irish language.

The winner of second place in the Ohio State oratorical contest has been suspended one year for plagiarizing an essay.

The University of Syracuse is conceded to have the finest college building in America. It was the gift of one man and cost $700,000.

There are thirty-four colleges in Ohio; more than in all Europe put together, in fact there are four times as many colleges in America as in Europe.

The aggregate of contributions to American colleges during the year 1889 was $4,000,000, while the contributions thus far in 1890 are about $500,000.

The University of Pennsylvania has 500 Freshmen; Yale has 400; Cornell, 400; Harvard, 375; University of Wisconsin, 350; and Princeton, 275.

Athletics at Harvard costs an average of twenty-five dollars a year for each man. Some of our philanthropists consider twenty-five cents an exorbitant tax.

The University of Michigan, the largest college in point of numbers in this country, has recently started a college daily. There are now five college dailies in this country.

Russia is closing her colleges because she finds that higher education is incompatible with absolute monarchy, and her plan is to uphold monarchy even at the expense of education.

Owen's 100-yard record of 9½ seconds made at the American championship games has been accepted by the executive committee of the Board of Managers of A. A. U., and Cary's record of 9½ rejected. Prince-
ton feels much chagrined because of the rejection of Cary's wonderful run.

It is stated at Harvard that the dress suit will give way to the good old custom of cap and gown for class-day. There has always been opposition to supplanting this distinctly academic costume by a society dress, and this year the agitation has been taken up with more vigor than ever.

E. B. Bloss, '94, of Harvard, cleared 44 feet, 11 1-2 inches, in the running hop step and jump at the out-door meeting of the Boston Athletic Association, thus establishing a new American record. He also recently broke the Harvard record in the running broad jump by a jump of 21 feet, 10 inches.

The Johns Hopkins University has abandoned its foot-ball team and canceled all games they had arranged to play. The action was caused by the poor showing made by Johns Hopkins last fall. For several years past they have been beaten nearly every game they played; every second-rate boarding-school counting a game as good as won which they had arranged to play with Johns Hopkins.

The American Protective Tariff League offers to the undergraduate students of the senior classes of colleges in the United States, a series of prizes for essays on "Effect of protection on the purchasing power of wages in the United States." The essays are not to exceed eight thousand words, and to be sent to the office of the league in New York City, before March 1, 1891. The prizes are $150, $100 and $50.

We learn from the Cornell Era that the University of Pennsylvania is building a $75,000 theatre for the use of its students. In the next century, progressive universities will probably have annexes in which may be found faro banks, a roulette wheel, and a poker parlor, fitted with oriental splendor. A race-track and a cock-pit, with a prize-ring and a few other necessities of modern education, will be found among the equipments of the most complete colleges.

A little prank played by some of its students, recently threatened the University of the Pacific with complete disorganization. The Freshmen began the trouble by appropriating the canes with which the Sophomores were wont to promenade. The latter laid plans for retaliation but were foiled by a Junior, who thus brought his class into the field. Attacks of these three classes on the persons and property of the others were the immediate result and were becoming of great frequency and no little moment, when the Faculty called a halt and demanded that each make a restitution to the other for the losses sustained. The Juniors and Sophomores came to an amicable settlement, but the Freshmen, whose chief offense was the taking of the canes, declared they had destroyed no property and would make restitution for none. The Faculty immediately suspended the whole class for thirty days. The other classes were surprised and not a little angered at this and decided to leave the institution if the Freshmen were not reinstated. The Freshmen were reinstated.

**PERSONAL S.**

H. S. Mulliken, '88, is located at present in Aurora, Ill.

A. S. Cushman, '88, is with the St. Louis Furnace Co., St. Louis, Mo.

The Washington Branch of the Alumni of the W. P. I. is being sounded by Secretary Chamberlain, '87, on the question of the time of their annual banquet; it will come either Thanksgiving or Christmas. There have been some accessions to the ranks and the Society ought this year to have about a dozen at the table.

J. F. McNab, '87, and P. W. Southgate, '89, are studying law at the National University, Washington, in addition to their other work. The former has been elected treasurer of the post-graduate class of the school.

I. L. Fish, '87, and H. W. Carter, '86, are studying law at the Georgetown University.

A. I. Gardner, '89, is at the Columbian Law School.

H. V. Baldwin, '89, is in the Agricultural division of Census department at Washington, where he has supervision over a number of clerks.

C. A. Pierce, '90, has gone to Kansas City on account of his health. We wish Mr. Pierce a speedy return of his old time vigor.

We were favored a few weeks since by a
visit from W. E. Mumford, '90, chemist in the South Boston Steel Car Wheel Works.

Walter Hastings, ex '91, is in the general freight department of the Wisconsin Central Railroad lines, with headquarters in the Grand Central Passenger Station at Chicago.

J. A. Baylis, '89-'90, is with the Bell Telephone Company of Quebec, Que., but expects soon to be located in Montreal.

W. T. White, '90, is in Mumfield, Fla. engaged in rice culture.

W. E. Newbert, '86, formerly in the road department, is now in the Chief Engineer's office of the Kansas City, Fort Scott and Memphis Railroad Co., with office in Kansas City, Mo.

E. H. Rockwell, '90, is with Perry Blake, '83 at Hyde Park.

George Francis Myers, '88, has been elected to the fellowship at Cornell formerly held by Mr. Turnearne in Electrical Engineering.

L. N. Farnum, '90, is still building the Winchester reservoir.

Ninety-one has a man who has been engaged since his Junior year. Seniors sometimes pledge themselves during the latter part of the course, but it is not expected that a Junior shall conduct himself in this scandalous fashion.

Louis W. Southgate, '85, who is making a successful specialty of patent law in this city, was formerly in the patent office in Washington and not the pension office as erroneously stated in our last issue.

W. E. Hartwell, '89, and Miss M. Florence Dadman of Worcester were married at the residence of the bride's parents, October 29.

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SCIENTIFIC NOTES.

There seems to be no limit to the size of lenses for telescopic work. The lens of the Lick telescope is to be surpassed by one at San Diego which is to have a diameter of forty inches.

The most powerful artificial light in the world is the lighthouse on the Isle of Wight. It is an electric lamp of peculiar construction, owned by the English government and from which a light of six million candles has been obtained. Fine print may be read at night at a distance of from fifteen to twenty miles from this centre of illumination.

A new style of fly wheel which may be run at high speed without danger of bursting, has been constructed, and is in use by the Mannesman Tube Co. of this country. It consists of a cast iron hub to which is bolted two steel plate disks 20 feet in diameter, and round the periphery of which is wound seventy tons of wire under a high tension. Making, as it does, 240 revolutions, the periphery speed is 2.85 miles per minute.

Engineers seem to be determined to utilize Niagara's great water privilege by some means or other. A tunnel is contemplated to convey the water power to Lewiston, a manufacturing centre several miles below. The route has been surveyed and the project pronounced feasible.

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A FRIENDLY BOUT.

In striped stockings and canvas breeches,
And a strut that shows how his whole frame
itches
To hit some fellow a friendly crack,
To the lecture room stalked our quarter-back.

The fellow was there, and in less than a minute
With a whoop and a dash the two were in it.
The floor was cleared and the bald-headed row,
Was soon filled with Techs who'd come up to the show.

'Twas fun to see those stockings spin
Though the whirling caused a frightful din.
The ref'ee stepped forward to decide on a fall,
When time was called by a voice in the hall.

Then came the decision which filled them with awe,
For 'twas promptly decided to call it a withdraw
From the premises, for the first man they nab
In an unannounced scrap in the Salisbury Lab.

Senior mechanics have been drawing gears until they all have the tooth-ache.
TECHNICALITIES.

Who turned off the gas?

Power sports the dandy "mushy" of '91.

President Fuller was recently elected a deacon of the church to which he belongs. He is now a Ph.D. and a D.Kn.

Taxes for non-use of laboratory apparatus have been due for some time and their prompt payment is desired.

Materials are expected in a few days to construct bath-houses along the shore of the pond in the cellar of Boynton Hall. The course in bathing will not be elective.

All down to see Janitor Pease stay under water sixty seconds. Official timer, John Hurley with an alarm clock.

Any one who tampers with the gas meter will be held accountable for the monitor's funeral expenses.

Any '91 man who wants to have his conceit extracted has only to visit Tracy's room and ask to see the picture.

We object to the choir springing any more efforts like their first one on us. The frosty weather evidently had a bad effect on their pipes.

The subjects to be taken up in the coming meetings of the Tech Elect will be the storage battery and its applications, search lights and a report on "electro-magnets."

Professor in Chemistry. — "Chemistry practice is to teach us that etc., etc."

Junior (taking full notes)—Chemistry practice is too tedious that etc., etc.

"The good die young." This is a sad commentary on the virtuous character of some of our landmarks—namely the chapel organ, the personal "sizing-up" system, and the excuse-book.

No need to partake of the cup that cheers, to enable one to see snakes on the Institute grounds. Any sunny afternoon they may be seen vibrating along the walks in their fashionable striped trousers. We call attention to them in order that our elders may not be startled into the awful suspicion that they have "got 'em again" if they should chance to meet some of the hair-raising things on the road. In the event of such an encounter we extend our sympathies—

Several months ago the regular subscription bills were sent out to all subscribers indebted to the WPI, and it is a discouraging fact to us that not more than half of them have received attention. The reason for this in ninety per cent. of the cases is no doubt forgetfulness on the part of the individual. We do not imagine that our subscribers are endeavoring to defraud us of our just dues or that they have any scruples whatsoever against paying the annual dues of one dollar.

The fact that each man's indebtedness is small is probably the very reason why he has not remitted, but this forgetfulness affects us in a disastrous manner. The publication of this paper is a love job at most, and we hardly feel that we should be asked to pay for the privilege.

Duplicate bills will soon be sent out to those in arrears and it is earnestly requested that they shall receive prompt attention at the hands of the responsible parties.

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head Draftsman Pond Machine Tool Co.,
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