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IT is not often during school life, that we are called upon to mourn the departure of one who has been near and dear to us, a fellow-student and classmate, whose friendly words and thoughts have many times encouraged us. In the death of Harry Dwight Yates, we feel the loss of one who was in every sense worthy of the regard that true worth and unfailing manliness always win from fellow-students. It has pleased God to take from us one whom we all loved, and the loss comes as the first break that the angel Death has made in the ranks of '92. In another column we record the regard of classmates and friends, but here it is fitting that we extend our deepest sympathy to the bereaved friends, the sympathy that springs from a heartfelt love and appreciation of the character and friendship of Mr. Yates, and a sympathy that we wish might in some way cheer and comfort those who knew and loved him even better than his fellow-students. It is hard to see the silver lining, and to read the mystery of life, but may God reveal it, and in the revelation bring unmeasured comfort to the bereaved relatives of our friend, Harry Dwight Yates.

No Semi-Annuals! A medley of sentiments greeted this announcement several months ago. Most of us like the announcement, but some do not look with favor on the alternative, snap-exams. The consensus of opinion we believe to be in favor of the change, and the one-week-earlier Commencement is satisfactory to all. Still, although the examinations are unannounced, there is something that makes us study the student skies of January with something akin to the interest with which we look for showers of meteors beneath the milder skies of August. "How many exams are we going to have sprung on us today?" is the rising thought of many a Tech.

We sometimes wonder whether the plan so favorably received in many institutions will ever be adopted at the W. P. I. We mean the plan of no examinations except to students whose term standing shall fall below a certain per cent., say seventy-five or eighty. This would undoubtedly remove much
of the discomfiture of examinations as given at present. The adoption of this plan might give an incentive to higher quality of daily work, and this would certainly be a great gain over the cramming system of study which regular examinations call forth and which the present system is intended in part to remove.

The day before the Institute closed for the holiday vacation, a professor closing his book at the end of the recitation, spoke pleasantly to the students before him of the work done over and then heartily wished them the—in other places—usual compliments of the season. Though the work done in that room had probably been as incessant and arduous as any required in the Institute, there was probably not a man present at that closing exercise who did not feel amply repaid for all his effort by those few kind words from such an unexpected quarter. And not only that, but it was a stimulus to better work when the days of vacation had passed.

If other professors could have heard the grateful comments made by the students when they had left the room, such little courtesies which cost nothing and give so much pleasure would not be so far apart. The contrast between this professor and another, who kindly increased the ordinary lesson fifty per cent. because of vacation does not reflect to the credit of the latter, at least from the student’s point of view.

Although the reign of La Grippe has been absolutism complete in Worcester for the past few weeks, the Institute seems to have been singularly favored, in that but few of its members have been seriously ill. At the present time a number are absent and a few are quite ill: to those fellow-students the WPI would extend its sympathy. Surely a man needs sympathy who is obliged, from any cause, to be absent during the busy days of mid-winter, for work here is so pressing that its loss is deeply felt, and La Grippe seems to be especially enervating in its after-effects. So, while we feel favored to have escaped, we sincerely wish the speedy recovery and return of those who have been less fortunate.

The first of February is near at hand, and we would remind our readers of the “song contest,” as announced in our November issue. The Tech never essayed to graduate literary men; but surely there must be more poetical talent among the Alumni than we have reason to infer from the manner in which they have responded to the thought of a college song.

We hardly care to repeat the words of our former article, but we feel that there are men among our graduates who are in a high degree capable of writing such a song, and we only desire them to favor us with the little work that it may mean. Of course, an engineer’s life is not an unoccupied one, but can you not find time to revert for a little while to student days, and recall your life here; then we are sure you will respond to our desire for an Institute song, and send us your contribution. Don’t leave it for some one else to do, but try it yourself, you who may be reading this editorial. The reward is
not great; but one would hardly expect a loyal son of the W. P. I. to write a Tech poem for financial reward.

We trust we shall receive many contributions during the next few days.

We regret the tardy appearance of this issue, but we have been entirely unable to present it to our readers at an earlier date owing to a combination of circumstances at the printer’s as well as the press of our own work. We trust our readers will be patient with what it has been beyond our power to control.

HARRY DWIGHT YATES.

It is rare in the history of the Institute that classmates have been called to mourn the death of one of their number. But twice before in ten years has this sad duty devolved upon a class; it now falls upon the class of ’92.

Harry Dwight Yates, who died at Portsmouth, N. H., Dec. 28, 1891, was born in Portsmouth, N. H., Aug. 19, 1870. He was the only son of the late Captain Arthur R. Yates, U. S. N.

After pursuing a course of study at the Rogers High School at Newport, R. I., where his father was stationed for three years, he entered the Worcester Polytechnic Institute, as a member of the Apprentice Class, on Jan. 28, 1889. Here his sterling qualities of character soon attracted all, and he rapidly became one of the most popular men in his class. As time passed on, and we recognized more fully the beauty of his character and his high aim in life, our friendship for him grew upon us, until he held the highest esteem and love of both his classmates and professors. Our high esteem for him was manifested by the various offices which he held in the class and the Athletic Association. This appreciation was not confined to the Institute alone but was general among a wide circle of acquaintances in the city. He took great interest in all athletic sports and was a member of his class base-ball and football teams and the Institute eleven. Although enthusiastic in athletics he was not less devoted to his studies, and took high rank in his class-work.

Unfortunately, just before the half-way supper of the class he was obliged to drop out of school from a sickness which he hoped would be temporary. By the advice of his physician he remained out an entire year, intending to return to the Institute as a member of the class of ’93.

He was taken ill Christmas day. A physician was summoned and he was found to be suffering from inflammation of the kidneys. His condition rapidly becoming worse, he sank quickly, became unconscious and died early Monday morning.

This blow, heavy on the class, falls with double force upon his grief-stricken mother, who mourns also the recent death of her husband.

The Portsmouth Journal of January 2, says so truly of Mr. Yates:—

"It is not often, even in a world where the possibilities of disaster and loss seem to be practically infinite, that our sympathies are so keenly aroused as by the passing away last Monday morning of this bright young life. One’s thought went back at once to the so recent day when that brave and honorable officer, Capt. A. R. Yates, was laid to rest amid such universal regret and sorrow, and it seemed almost incredible that after these few brief weeks the stricken family should be compelled to endure this second great calamity. It is indeed difficult to measure such a loss. There are no words for it. Here was a young man whom all who knew him held in absolute regard for his mature mind, his earnestness of purpose, his serious view of life, his noble and dignified character. He knew what duty demanded, and in all the relations of life sought to keep himself true to it. He carried his sense of duty into his work, and was a diligent, conscientious and successful student. The President of the Polytechnic Institute at Worcester, where he pursued his studies, writes of him. ‘He was very much respected and loved by all who knew him here, and I felt unusually attached to him. He was manly, noble, true and faithful, and seemed to me to have the spirit and evidence of a true Christian.’ All his friends will feel the justice of these words. In his fine sense of honor, in his devotion to the practices of religion, and above all, in his brave and manly assumption of the new responsibilities which had recently come to him, he exemplified our thought of the true Christian. Who can help grieving that a life of such fineness and strength, after giving us a few glimpses of its quality, should be snatched away. To those upon whom the blow falls most heavily, goes the deep sympathy of all who knew our friend. ‘Thank God!’ said Lan-
dor, 'Divine man can bear up against harsh
calamity!' May the truth of that saying be
shown anew in these days."

Class Action.

On Friday evening, December 28, as
many of the Senior class as could get to-
gether so soon after the news of Mr. Yates'
death had been received, gathered at the
Y. M. C. A. building and made arrange-
ments for the procuring of a suitable floral
tribute.

At a class meeting held in Boynton Hall,
on the day following, Messrs. Tucker and
Collier were appointed to represent the class
at the funeral and a committee was appoint-
ed to draw up resolutions to express the
sorrow of the class in the loss of their hon-
ored friend.

At a class meeting held Wednesday, Jan.
6, the following resolutions, presented by
the committee, were unanimously confirmed
by the class:

"Whereas, in the providence of God, we
are called to mourn the death of our former
classmate, Harry D. Yates, be it

Resolved, That the class of '92, Worces-
ter Polytechnic Institute, received this sad
intelligence with sorrow and regret;

Resolved, That the class cherish with
pleasure the memory of his cheerful com-
panionship and amiable disposition;

Resolved, That each one feels that he
has lost a true friend and the Institute one
of its most promising and respected mem-
bers;

Resolved, That the class extends its
heartfelt sympathies to the stricken mother
and sisters in this, their deep affliction;

Resolved, That a copy of these resolu-
tions be forwarded to them and that they be
published in the W P I and daily papers.

"G. F. Freed.
"L. C. Smith.
"G. H. Day."

REPORT OF THE COLLEGE CON-
FERENCE, IN BROOKLYN, N. Y.

While in Brooklyn during the Christmas
vacation, I received a ticket to this confer-
ence. Although it was held in Y. M. C. A.
bldg., it was not a religious meeting, but
a gathering for the purpose of eliciting the
views of the different colleges on education-
al matters, a general interchange of ideas.

It enabled me to listen to the ideals held
up by other colleges; which was very profit-
able, as well as interesting.

This conference was truly a college con-
ference, for none but male college students
and alumni were able to obtain tickets.
Invitations were sent out to all the colleges
of the United States, and most of them
were accepted. On account of the heavy
rain, the audience was not as large as ex-
pected; but there were about twelve hun-
dred students present.

Speeces were made by representatives
of Columbia, Yale, Princeton, Amherst,
Wesleyan and Brown University. Ideas
expressed by these speakers were practical,
as well as interesting. The first speaker
was Prof. Fisher from Yale, his subject
being "College Education, and the Oppor-
tunities and Obligations Resulting from It."
He said: "The increased importance of the
modern languages and of the literatures
that belong to them, and still more, perhaps,
the astonishing growth of the natural and
physical sciences, have obliged the colleges
to introduce elective courses. But the gen-
eral aims of college education are not essen-
tially altered. There is still the same end
in view, the development and culture of
mental powers." The student's turn may
be for sciences, in the strict sense of the
term, but he must rejoice in the percep-
tion of scientific truth for its own sake, as
well as for its utility. When the old
philosopher was asked, 'What is the use of
philosophy?' he answered, 'It is too good to
be useful.' By that, he meant that it is an
end, in itself.'

Then he spoke of the importance of our
keeping up the intellectual life, by reading
after we leave college; also, of leavening
our influence with the spirit of religion.

The next speaker was Pres. Patton, of
Princeton. "Princeton and Education,"
was his subject. He said that the very
strong argument in favor of those colleges
that are situated in the country, where the
dormitory life is so conspicuous a feature,
is, that there is an indefinable and indescrib-
able something that a man gets, not al-
together from the class-room nor from the
lips of the professors, by going to college,
but it is the education that students give to
each other. He spoke of the growth of
athletic and of religious matters, as the two
remarkable features that characterize the college development of the present time. He did not say that they stand in relations of cause and effect; but he thought that they act and react on each other. "And this other thing is also a fact," he said, "that there never was a time when the Christian influence was so respectable, so strong an influence, so controlling an influence as at this moment, and it is very largely due to the influence of the Y.M.C.A. in the college." And about the religion that students should uphold, he said, "We do not want the religion that is simply pious; we want the religion that is rational; we want the religion that knows what it is, and believes what it does. And, believe me, the time is already here, when the world will wish to know, and the educated man will have the responsibility thrown upon him of saying, whether there is anything left of the supernatural religion."

When Mr. Patton had taken his seat, Pres. Low of Columbia presented Pres. Gates of Amherst, to speak on "College Men as Leaders." He spoke with fine delivery, and dwelt upon the duty of students in raising the level of society. He said that by the logic of events we are called to be leaders in the great work of diffusing ideas among our fellow-men, in bringing life—social, industrial and political—into harmony with the best ideas. "We must put into our life more of self-sacrifice; for it is only by serving others that we can truly be leaders. How can we attain to this state?—Be helpful! Communicate ideas! Give out moral energy! Let the light you have shine! We do not lose moral or intellectual power by giving an impulse to our neighbor. Here is the difference between mechanical forces and intellectual, moral and social forces: if you give your neighbor a 'cut-off' with half the electric current that lights your house or runs your factory, your own house must be half lighted, your own factory can do but half its work; but when you give him your best thoughts and your heartiest, friendliest sympathy, there is more light, more warmth, more power for you both. By giving, you gain."

In regard to politics, he said, "Let us stand for civil service reform, speak out in favor of clean, honest administration. Let us not allow our standard of morality to become lower in political affairs than in business affairs, for the world looks to us to live by those ideas which are the life of the soul."

After Pres. Gates, Pres. Raymond of Wesleyan spoke on "The Philosophy of Methods." He spoke of personality as meaning "self-directed life in the light of reason."—toward the maturity of which, the college education directs. In speaking of the curriculum, he said, "Shall we study languages? Most assuredly, and, unless the boy starts too late, both ancient and modern. To read into the literature of any great language, is to feel the heart-throb of the spirit of another age in its best utterance; to master a language is not only the power to translate an author, for we might well ask who can do that, who can translate Luther's battle-hymn, 'Ein feste Berg ist unser Gott?' but it is to acquire capacity to see and to feel."

The last speaker was Pres. Andrews of Brown, who took for his topic, "The Moral and Religious Value of Higher Education." "Mere material resources do not constitute nor create fine civilization." Wealth unaccompanied by what is higher can be naught but degrading to a nation's character. Things can never take the place of men. Trade, commerce, business industry, these are important factors in human culture, but by themselves they have in no case yet made a nation great. While it cannot be said that the school of learning is the sole nursery of the sublime temper necessary to the splendor of civilization it is certainly most important and indespensable."

MORTAR BOARDS AGAIN.

By invitation of the class of '94, acting in accordance with an article in last month's WPI, '93 chose a committee, consisting of President Flinn, Butterfield, Howe, Paull, Sinclair and Comins, to act in accordance with a committee from '94 in regard to a school hat. The committee from the Junior class consisted of President Whipple, Harris, Dwinell, Cobb, Norcross, and Stevens. Why '92 was left out we are unable to state unless it be that the class is supposed to have too much good sense to take any stock in vague schemes of wild Juniors.

After two or three unsuccessful attempts to effect a meeting, eight members of the
'94 seems to be in favor of the adoption of the mortar board, pure and simple. '93 does not favor this although they might favor some sort of a hat; the committee are, as a whole, against it. '92 don't want any hat, but they don't seem to be in it. Future developments of the affair will be watched by the Institute with interest.

Y. M. C. A.

A special meeting of the Y. M. C. A. will be held on Sunday afternoon, Jan. 24. All the students are cordially invited to be present as an interesting meeting is expected.

Arrangements have been made by which delegates from at least two other New England colleges will be present and address the association. Thus an excellent opportunity will be afforded for hearing what the Y. M. C. A. is doing in other institutions.

Owing to the pleasing success of the Junior reception the officers of the association are contemplating the holding of a similar one for the entering Prep class early in February, and if the necessary financial arrangements can be made the plan will be carried out.

Some of the members are desirous of publishing a hand-book of useful information concerning the Institute, lists of societies, classes and their officers and other local information, but unless advertisements sufficient to guarantee its success can be obtained, it hardly seems as if the treasury was in a condition to carry it out.

However, such a hand-book would be valued by the students, and in many colleges it is an established feature of association work.

PROF. GLADWIN'S SKETCH-BOOK.

In his recent venture, "Reminiscences of Travel," Prof. Gladwin has collected together a series of finely executed sketches that have been hailed with delight by the large number of the alumni who have subscribed for the book. The book was received from the publisher, Lucius P. Goddard of this city, shortly before Christmas, and although of so recent issue, a large number have been sent to members of the alumni. The sketch-book is dedicated to the alumni and the Professor's past pupils, and is gotten up in a manner that is very creditable.
to the artistic taste of our genial friend. It is bound in the Institute colors, steel gray and crimson, and contains a varied collection of sketches, many of which are familiar to Tech men, accompanied by appropriate selections from verse and prose and described by illuminated title-pages. First comes a beautifully executed, half-tone side view of Prof. Gladwin and it is the one thing that will, we feel sure, be the best appreciated of all. Following is a reproduction of a photograph of the Professor seated at work amid the familiar models of the drawing-room, which is also an excellent likeness. With a few well-chosen words with reference to the dedication of the Institute, we are introduced to "Up the Polytechnic Hill," a sketch of our familiar climb.

The sketch of Diomedes, so favorably received at the alumni banquet of last summer, exhibits a beautiful combination of light and shade. Woodland sketches in Connecticut and "Among the Berkshires" follow. "A Chippewa Squaw" and "A Sioux Buck" are suggestive sketches of Indian life. "Flora," from the east in the drawing-room, is a well executed, difficult subject.

One of the very best things in the book is a sketch of a Georgia pickaninny, and no one at all familiar with child life among the colored people of the South can fail to see this sketch without the keenest appreciation. Then a series of beautiful lake sketches from the wilds of upper Canada, a morning view of the harbor and light-house at Provincetown, a group of Newfoundland sketches, and an iceberg, succeed in order.

A group of sketches at Chester, England, suggest thoughts of the Roman conquest and all the romance-laden history of that ancient town.

Nothing in the book is more realistic than the chill atmosphere and icy-looking ocean in which are set the three icebergs that form the closing sketches of the volume. All these present rare forms, but especially noticeable, are the arch and the profile iceberg. The latter has a most perfect profile of a man's face, high forehead, strong nose and a long beard that dips into the ocean, while above and near the top of the "berg" is a perfect likeness of a feminine face with features suggestive of those with which sculptors have chosen to represent Minerva.

Altogether the work is one of which Prof. Gladwin may feel justly proud, and which will find a ready acceptance at the hands of many Techs past and present.

The book is offered to the Alumni at $2.75, and to the general public at $3.00. Prof. Gladwin has recently decided to make a special price of $2.50 to all undergraduates and we doubt not a large number will avail themselves of this opportunity to obtain a pleasant reminder of Institute life.

We wish Prof. Gladwin every success in his work and welcome his latest effort as a choice addition to the associations of the W. P. I.

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A SUGGESTION.

The truth and value of Prof. Kimball's article in the November number of this paper, on what constitutes an electrical engineer is not to be gainsaid, nor can it be doubted, that in many respects the proposed new schedule of study for the mechanic is an improvement, but there is a point where it appears a change would be beneficial, both to those who intend to be electricians and those who do not.

The shortness of our course necessarily precludes much election as to studies, but here is a suggestion, the carrying out of which might give a little latitude in shop work, and make a division line between electrical and mechanical engineers, which the present course does not seem in great measure to do. Suppose that practice time on the one hand were given up to the construction of electrical apparatus, for which it is probable there would be a ready sale, and on the other hand, suppose, that, instead of each class designing the same lathe work, which, we frankly state, does not, in our opinion, conduce to originality, a certain amount of time were given to the invention of machines for various purposes. A practical mechanic, in conversation with the writer at one time, said he believed that this would be a beneficial course. He was a man of experience and sound judgment, and his opinion was of weight.

We would not abolish the work now done, nor leave it to journeymen. We simply believe that a man who wishes to devote his energy to electrical work will not be greatly benefited by twist-drill grinders or hydru-
ic valves, except in a general way. We simply wish to see a discrimination made with some regard to a man's future course, and we guarantee good results. We believe it possible upon a line similar to the one here suggested, to reduce the electrical course to three and one half years, or at least, to give a better course in electricity than is now offered in that time.

COMMUNICATIONS.

Mr. Editor:—

Why don't we organize for baseball? Surely, this seems most unseasonable, but if it be an advantage to elect the manager of the foot-ball team one year in advance, why not then elect the base-ball manager three months ahead? If the foot-ball manager can arrange games to better advantage in the spring, why couldn't the base-ball manager arrange better games in the late winter or early spring?

In the light of experience it seems best that the school organize a separate and independent base-ball association immediately, and elect a manager. The manager's office will be no more secure, anyhow. There is a stigma cast over base ball in general by professionalism, and base ball at the Tech in particular by our record (?) of last spring, of which it may be simply said, that it ought to teach us the very truth this article is intended to emphasize that we cannot make a ball team in a day, or in a mouth. Moreover, many men regard base ball as of no importance to us, and think we should devote all our energies to foot-ball. While it cannot be denied that foot-ball is our game, that there is more interest to the square inch than in base ball to the square foot, yet we have room and need for both. As was well put last spring: "Base ball can no more be stopped in springtime than the blooming of the arbutus." "Tis the natural way of living.

It can thus be seen that the position of manager of the ball nine this next spring demands tact, enthusiasm and hard work. If we unite these qualities in the one elected to that office, we cannot do otherwise than have a gloriously successful season. To the colleges must we look for the redemption of base ball from its present unfavorable position, and the W. P. I. can and ought to take a part.

Now boys, let's organize. Let's have a constitution and a set of officers who are hustlers, particularly the directors. Let's elect a man for manager who has base-ball to the very tips of his fingers, one who will try to give his men a little practice somewhere indoors in pitching and catching. As soon as the frost is out of the ground let him get his men out and make them work. Let him get a good coach. And finally; let him keep hustling from his election until the last play of the last game, and we won't have to sigh for "Allie Gordon" and "Willard Fuller," for we'll have a team second to none we ever had, and second to none in any college of our size.

This is written by one who has every interest of the Tech at heart, particularly anything which benefits athletics. The writer is sure in the above article he only echoes the sentiment of "Many Techs."

Mr. Editor:—

At almost the commencement of a new term, it seems well to say a few words with regard to at least one of the studies that will be taken up by the Middlers. This is steam engineering. No one will pretend to deny the advantage of this study to a mechanical engineer, but I feel disposed to question its value when studied by the Civils. At once we hear the cry of the so-called broader educationists who proceed to deplore the tendency to contract the mind. Nonsense! we are not here to learn everything, we are here to study certain professions. When we go out into the world we may dabble into anything, if we want. The Civil has but three years, really but two and a half to study a subject which takes a lifetime to really comprehend. He has no time to take up this thing or that under the delusion that it will "broaden his mind." He is supposed to be here for one thing, which were he to study every day for the entire course would give him rarely a working knowledge of the subject, and yet we hear it argued that, one hour per week employed in a study contrary to the liking of nine out of ten Civils, will benefit him. Why in last year's class there were Civils who never looked inside their books until the end of the year. Then it was for the laudable desire of "cramping up," and after the
exams. They spent their time trying to forget all they learned on the subject. If a Civil really desires to study steam engineering he can find plenty of time to do so during the course or at its end, and it can be guaranteed that a few days' earnest study will prove of more advantage to him than a six months' course as taken in the second half of the Middle year. I contend that dropping "steam" in the Senior year was a step in the right direction and the sooner your "broad educationist" learns the fact that three years, and not four, constitute the course, the better it will be for all concerned.

CIVIL.

**THE TECH.**

**M R. E D I T O R :**

Several having asked for the words which the '79 Glee Club used to sing to the college song, "The Pope," I enclose the same that through the medium of the W P I their request may be granted and old memories revived.

The Prep, he leads a jolly life,
He makes bird-houses with his knife;
He does not know secant from sine,
I would the Prep's short lessons mine.

And yet the Prep is sometimes sad,
Sometimes the buzz-saw cuts him bad,
He bores his fingers full of holes
And burns his hands on dowelled-poles.

The Junior is a happier man,
He cuts Free-drawing when he can;
He takes the night to recreate
And warbles glees before her gate.

But still he is not always gay,
He crams for T. E. N. E. all the day;
At night he dreams of Trig and Dutch,
Likewise Sturm's Theorem and such.

The Middler is an ugly cuss,
He struggles through the Calculus,
Smith serves him **idioms** and **notes**,  
While Johnny feeds him asymptotes

His Practice gives but little hope,
Though Prep and Junior furnish soap;
His clothes both soiled and button-less
Are much perfumed with H₂S.

The Senior's life is far the best,
Although he works like all-possessed;
He flunks in Rankine through and through,
And slips Electro statics too.

But soon he knows he'll be at ease,
When Uncle Stephen gives degrees,
And vexed no more with force and stress,
He'll sign his name with a big B. S.

**AN AUTOMATIC ABSORPTION DYNAMOMETER.**

For some time Prof. Alden has been at work upon an absorption dynamometer, and has now perfected it in most of its details. The apparatus is designed for three purposes: to maintain an uniform load upon an engine under experimentation or test, to accurately measure the useful power developed by the engine, and to automatically regulate the rate at which energy is absorbed.

This dynamometer is essentially a friction brake with comparatively large rubbing surfaces, thus giving a low intensity of pressure at any one point. Pressure is produced by water from a main, and enough water is allowed to pass to absorb the heat due to absorbed energy. The rubbing surfaces are finished smooth and run in a bath of oil. Automatic regulation is secured by a slight angular motion of the brake which operates the valve controlling the water supply, and hence the pressure.

The brake consists of a disk keyed to the crank-shaft of the engine. The disk is finished smooth except for one or more radial grooves in each face. The disk is surrounded by a cast-iron shell consisting of two pieces bolted to a ring of the thickness of the disk. Two copper plates, concave toward the shell, bear against the disk and form with the shell two water-tight compartments, the copper being "spun" out into a cavity in the iron and held in place by driven rings. One chamber communicates both with the main and the other chamber. A chamber filled with oil lubricates the disk by means of the radial grooves. The shaft revolves in bearings in the shell which carries an arm carrying weights. Angular motion of the arm is limited by stops.

The automatic valve consists of two brass tubes, one fitted inside the other, but free to revolve therein. Each tube has slots nearly
parallel to its axis, one is connected with the supply, the other rigidly with the brake. A flexible tube encloses the whole. The valve is so adjusted that a small angular motion of the brake varies the free water passage through the slots and the apertures into the chamber being constant the pressure is thus regulated.

The operation of the brake is this: The oil chamber is filled and sufficient weight to give the required load is hung on the arm. The engine is then started and speeded up. Water is then admitted to the automatic valve in any suitable manner, and thence to the chambers. The pressure of the water forces the copper plates against the disk, thus causing sufficient friction to lift the weight arm. This motion operates the automatic valve, checking the flow of water to the brake, and regulating the moment of friction on the disk to the moment of the weights on the arm.

The first trial gave excellent results. The arm stood midway between the stops with only a slight and slow vibration, and without the use of a dash pot. The water is a little sluggish in response to the motions of the regulating valve, so that there is no sudden vibration and the load is practically level. The low intensity of the pressure at the friction surfaces, their smooth finish and perfect lubrication, and the constant temperature maintained by the uniform flow of water, are also favorable circumstances for the unusual steadiness and complete regulation realized in practice. Prof. Carpenter of Cornell, for whom one of the brakes has been constructed, is greatly pleased at the results, calling it "almost an instrument of precision." The Gazette of this city, in commenting upon the brake, says in substance, that it must be a source of pride to Worcester people, who are watching with interest all developments at the W. P. I.

**OUR NEW SOCIETY.**

During the last month the chapter of the Phi Gamma Delta located here has been completing its organization and has hired a room at No. 41 Knowles building.

This has been handsomely and expensively furnished and constitutes a very pleasant feature of the club's life. Each member has his own private key and after the hours of the Institute are over can come hither and meet his associates.

Regular meetings are held on Saturday evening and the initiation of four members, already pledged, will shortly take place, which will make the membership fifteen.

The pins have arrived and are certainly very neat and ornamental specimens of workmanship and design.

The shape is that of a rhombus, the centre of the pin is covered with black enamel having in the centre the words Phi Gamma Delta and beneath it omega, mu, eta, in smaller type, all in gold. Just above these letters is a small white star of pearl. Around the enamel runs a cord of gold and then the outside edge of the pin is a band of gold about one tenth of an inch in width, in this the jewels are set, if desired. The beauty of the pins, as well as the cost, can be as much increased as the purchaser desires by the use of the jewels in the setting. Pearls and rubies, diamonds and a variety of gems are used and the ordinary pins range in value from five to a hundred and fifty dollars. Those which the Pi Iota chapter wear were obtained from Philadelphia and may be seen anytime on the members’ waistcoats.

**NEARLY HALF-WAY.**

In a few days ’93 will rouse the welkin as its members gather to celebrate the longed-for Half-Way. Unusual preparations have been made, and unless the Grip gets a new deal or somebody wants to hold it in Chicago, this year’s Half-Way will be the finest of any in the history of Tech Hill. For nearly two months, three committees have been actively at work arranging for the supper, entertainment and menu.

The supper is to be very elaborate, Rebboli, catering. All the latest dishes, many of them imported and designed by Worth. The menu in full is as follows:

- Holy Terra-pin.
- Mispickels.
- Mashed Saratoga Chips.
- Snakes' Feet on Toast.
- Roast Duck with Pear Sauce.
- Waldo House Ball Eagles.
- Fried Bacalhau with Koch-o.
- Cat's Back à la Blücher.
- Four quarters with Mint Sauce.
- Frizzled Hare and Bear Neck with or without dressing.
- Prick Punch.
- Plane T.
- Sawdust Joints with Lard Oil.
- Pressed Lips.
- Office Coquettes.
The entertainment committee has had the actors in training for four or five weeks, and talent most distinguished is expected. The hall is to be decorated for the occasion. The menu cards are well under way and are guaranteed to surpass all predecessors. The whole class is practicing on the Faculty song and satisfaction is guaranteed or money refunded. Extra timbers have been put in on the floor below the dining hall and George W. has consented to be present. The orgies are to close with a scalp-dance and bonfire, wood and coffee to be furnished by the Institute.

ENGLISH COMPOSITION.

This is the title of a recently-published book which consists of a revision of a course of eight lectures delivered by Barrett Wendell, assistant professor of English at Harvard, before the Lowell Institute.

Prof. Wendell treats the subject in a decidedly new, interesting, and especially instructive manner. He has chosen to lay down almost no rules, but the great principles which should control the writer are clearly and distinctly set forth.

As few possess the ability to properly express their thoughts in writing, a perusal of the pages of this little book cannot fail to be beneficial.

He who reads the first pages must be at once interested, and also convinced that the thought and reasoning of the author are correct. At the very beginning, Prof. Wendell strikes the keynote to composition, in saying, "The question is not whether a given word or sentence is eternally right or wrong; but rather, how accurately it expresses what the writer has to say—whether the language we use may not afford a different, and perhaps a better means of phrasing his idea."

The chief principles which should control the composition of sentences, paragraphs and whole compositions, are those of Unity, Mass and Coherence. Good use must always govern our choice of words. In choosing words, two things are to be considered:

what they denote or name, what they connotate or suggest. The three distinctive qualities of style are Clearness, the secret of which is denotation; Force, the secret of which is connotation; and Elegance, where the secret lies in adaptation. By such principles as the above, carefully and clearly explained, one readily grasps the governing laws of English.

The space devoted to punctuation in a simple and easily comprehended manner, serves to enlighten a subject which to many is shrouded in obscurity.

Perhaps one illustration will convey some idea of the book. At one time in the course of his instructions to the students, he wrote the following sentence: "Be sure that your sentences end with words that deserve the distinction you give them." When he revised what he had written, he was impressed with the fact that in this very sentence he was violating the principle which he was laying down. By the principle of Mass, he had made "Be sure" and "give them" emphatic, while evidently "end" and "distinction" should be emphasized. After a little deliberation the following shorter, more compact and perfectly massed sentence was produced: "End with words that deserve distinction."

The ten years of study which he has devoted to this subject have only served to deepen his interest in it; and the reader cannot fail to be impressed with the necessity of care and thought in speaking and writing English.

NEW YEAR'S RESOLUTIONS.

It has been a long time since the Editors of the W P I have been able to lay before the Institute public so good an illustration of journalistic enterprise as the remainder of this article represents. It is nothing more or less than the New Year's resolutions adopted by various persons connected with the school. What lends additional value to this thesaurus of good things to come is the fact that it may be relied upon as authentic, since the entire list appended was copied from the official list appended to the courtesy of the Recording Angel.

The visit of the W P I man to the office of this functionary was an extremely pleasant one. It was a long tiresome journey to the establishment where the records are kept,
but we felt amply repaid before we left. As we entered the yard Father Time was busily engaged in shovelling sand into his hour-glass for the next half year, and just inside the door his wife was trying to make up an hour-plan with twenty-five hours per day for the same purpose. After waiting a few moments Mr. R. A. appeared, and having read our note of introduction—signed by the Faculty—and learned our errand, directed an attendant to take us to the counting-room on the top floor. The elevator by which we mounted was a W. M. S., and by accurate readings could be seen to move. The shaft was said to be without a bottom, and now and then a whiff of $SO_2$ came up and made us sneeze.

At one of the landings we saw a spiketail individual busily setting type, and on inquiring learned that it was A. D. Evil getting out a new book in Mechanics for '93's use. Arrived at the top story we were shown to the books pertaining to the Institute and from them copied the following, which must be of interest to all:

- L. P. K.—Not to use over two boxes of cigarettes per day.
- M. P. H.—To try and make improvements about the shop before being compelled by city officials.
- A. S. K.—To attend chapel once during the year.
- U. W. C.—To find at least twenty-five new adverbs before Jan., '93.
- A. L. R.—To acquire what few things I don’t know as yet.
- F. E. B.—To be in the picture of the intercollegiate team this spring.
- Z. W. C.—Not to be responsible for the manufacture of the German language.
- A. L. S.—To combine steam engineering with civil.
- W. F. B.—Same as A. L. R.
- M. W. G.—Not to die any more.
- J. H. W.—To get a dollar from every Prep.
- V. G. C.—To be careful of my good looks.
- F. W. E.—To keep awake in lectures.
- G. F. F.—To keep my profits down to 250%.
- E. W. H.—To give my pockets a rest.
- C. A. T.—To take a Turkish bath.
- R. H. T.—To leave that “short chunky little one alone.”

C. A. N.—To let the wind whistle through my whiskers.
C. O. S.—To plug up.
E. L. M.—To resign the presidency of the Historical Club.
L. C. S.—To shave.
T. E. B.—To stop swearing.
H. M. S.—To take a girl on a sleigh-ride.
E. H.—Not to take '93 to Boston.
C. E. G.—To keep away from the Front St. Museum unless attended by my mother.
W. C. H.—To go easy on the shop telephone.
E. W. M.—Not to participate in serenades.
A. F. N.—Not to monkey with the police.
H. L. P.—Let somebody else pitch.
F. M. R.—To instruct the Faculty in electricity.
D. W. B.
G. O. R. {To be careful and not take cold in our throats.
D. D. M.
J. M. G.—To win the mile run in the Intercollegiates.
A. C.—Not to throw chestnuts on the platform or fail to pick up stray shells.
V. N. C.—To keep away from the leading lady.
The Janitor of Boynton Hall.—To make all the noise and dirt possible in school hours.

THermo-MAGNETIC DYNAMOS AND MOTORS.

Edited by the Tech Elec$.t.

An examination of the most fundamental principles of the conversion of the heat energy of coal into electrical energy shows that by far the greatest waste is in the engine and boiler, it being a good combination which will give back 25% of the theoretical power, while the dynamo and motors are efficient to above 90%. This shows how desirable is the direct transformation of energy from heat to electricity.

So far experiments along this line depend upon the fact that magnetizable metals lose this power at varying heats, iron undergoing this change at a bright red heat. Taking advantage of this fact, Dr. Gore, in 1868, constructed a thermo-dynamo which consisted of a soft iron rod connected with
a battery, surrounded by a helix connected with a galvanometer, the whole placed between the poles of a horseshoe magnet; on passing a current through the rod it became heated, lost part of its magnetism and a current was induced in the helix.

Profs. Thompson and Houston in 1878 and a Mr. McGee in 1884 constructed thermo-magnetic motors very like each other in principle. That of the first two consisted of a disc of thin steel between the poles of a horseshoe magnet and that of the latter of a ring of round iron placed transversely across the axis of a bar magnet. Schwedoff's machine consisted of a steel ring with brass arms. In each machine heat was applied unsymmetrically with respect to the poles. The armature thus lost part of its magnetism and as the cooler portion was nearer one pole, it was more strongly attracted. But when it came into the flame it in turn became heated, so a continuous motion took place.

These experiments attracted little attention. But in 1887 Mr. Edison gave work in this line a new impetus by the description and exhibition of a "pyro-magnetic" motor or dynamo, which he gave before the A. A. A. S. In this motor the field magnets were horizontal, the armature upright. The latter consisted of a number of thin steel tubes about 1/4" in diameter arranged around a hollow spindle in the form of a cylinder. Below the armature is a grate fire and a chimney draws air through the spindle, out of apertures at the lower end, through the fire when it becomes heated, hence, through part of the armature tubes, the number and position of these tubes being fixed by means of two screens of fire clay, one above, the other below the armature, and so arranged that the heated part of the armature is unsymmetrical with respect to the poles, therefore motion is set up. By surrounding this armature with suitable windings electricity may be developed.

Later in this year Mr. Menges of the Hague brought out a dynamo and motor in which the armature was a Gramme ring either surrounding four poles or enclosed by two. The armature was, of course, mounted on a spider and revolved horizontally. The heating took place on a thin sheet iron "distributor" between the magnets and armature. This was cut half way through alternately on each edge and was bent into a sinuous form. Heat was applied by Bunsen burners. When used as a motor the armature was unnecessary, being of service only in the use of the machine as a dynamo.

The disadvantages of machines of this type are: The slow motion of the armature, necessitated by heating and cooling, which according to Mr. Edison can succeed each other not more than 120 times a minute. This means tremendously powerful field magnets as the lines of force can be cut only 240 times a minute instead of 2400, as in an ordinary machine; consequently, the weight of these machines is great relatively to the output. This would be offset by the abolition of boiler, piping and engine, also by rendering possible the employment of cheaper help as attendants. Evidently, also, the iron to be heated must necessarily be thin to heat and cool quickly, and must, therefore, be liable to disintegration from oxidation. This may, however, be a remediable difficulty. Evidently, along this line much may result, and it is advised that the reader keep posted on this subject and if possible do some experimenting. Martin and Wetzler's book on the Motor has a list of references.

SENIOR CLASS MEETINGS.

A meeting of the Senior class was held January 6, and much business relating to Class Day was transacted. The report of the committee on the class photographs was presented and discussed. It recommended that Mr. F. H. Rice be chosen class photographer. This recommendation gave rise to much debate; some of the men favored trying another photographer this time owing to the great objection made against Mr. Rice's work by several of last year's Seniors. However it was decided by vote that Mr. Rice should have the patronage of '92.

The next business taken up was the question of a class reception, usually held Class Day. Many were in favor of the reception, but advised having it in the winter when more time could be given to the matter. They claimed that to have such a reception Class Day would be to put too much work into one day because the orations, etc., would not be completed until about four o'clock, then the reception would have to
be sandwiched in between this hour and the time for the Alumni banquet in the evening. Finally it was thought best to elect a committee to report upon this matter; to arrange an order of exercises for Class Day and to consider the advisability of publishing a class book. The committee as elected consisted of the following:—M. J. Lyden, J. F. Bartlett, E. H. Fish, W. F. Burleigh and G. H. Miller.

Resolutions upon the death of Mr. H. D. Yates were read and approved. A vote of thanks was tendered Messrs. Collier and Tucker for having attended the funeral.

Another meeting of the Seniors was held Jan. 13. The report of the committee on arrangements for commencement week was presented and voted upon. The following resolutions were carried:—

That the Class Day exercises should be held and that the subjects should be the same as those intended for last year, namely: President’s Address, Class Oration, Tree Oration, Poem, Ode, History and Grinds. These exercises are to be held upon the portion of the grounds near the Electrical Laboratory. A band is to be in attendance.

That a reception be held in the Salisbury Laboratories Tuesday evening of commencement week. If possible the grounds are to be lighted. An orchestra will furnish the music. Admission to this reception will be by invitation alone. These invitations may be either artistic or plain, according to the discretion of the proper committee.

It was recommended that a change in the usual manner of graduation be sought for from the Faculty. It was deemed inadvisable to have a class-book, but recommended a souvenir. It was also voted to hold the customary class-supper directly after the graduation exercises were finished, on Thursday evening.

The following committees were ordered: A committee on class-day exercises. The duty of this committee should be to attend to the regular exercises of the day; to obtain the band, etc. A committee on the class reception, this committee to have full power to provide for everything necessary to the success of the evening. A committee to confer with the Faculty in regard to decorating Association Hall for the graduating exercises. A committee on the class-supper. A committee on the souvenir. A committee on nominations was then elected by the class. This committee is to have power to nominate men for the preceding committees and to hand these names to the class for action thereon. The men composing this committee are as follows: M. J. Lyden, F. W. Collier, A. H. Smith and H. W. Bracken.

FRESH AIR.

It would seem that in an Institute of so practical a character as ours, a little more attention might with profit be paid to ventilation. Our rooms are well heated and comfortable, but after a room has been occupied by a class for several hours, perhaps a half day, it seems only fair we should ask for a change of air before we are obliged to occupy it, at the expense of ach ing heads and stupid work. The windows should be opened at least once or twice a day between recitations and an opportunity given to thoroughly drive out the bad, vitiated air. What one of us has not spent one, two or five hours of positive misery in the dead air that has been vitiated by the classes preceding us. We dare not open the windows in such a room while occupied, if we do, it is at the risk of severe colds and all the attendant evils of a draft of cold air at this time of the year. Certainly it would be but little work to change the air between recitations, or at noon. Whether that be the janitor’s work, or that of the instructor we do not know, but certainly a little effort in that line on the part of the latter would sometimes greatly improve the recitation work of his classes. We are sure of that.

We remember with grateful thoughts how Prof. Eaton always changed the air of his room in this way, and we recall no recitations in which we more thoroughly enjoyed clear heads and fresh air than in his. This is written not in a spirit of cavilling, but only in the assurance that a little thoughtfulness in this line will increase the pleasure and ease with which the work will be done by both class and instructor.

The prize for the song contest will only be awarded for a production that in the opinion of the judges is worthy the Institute’s acceptance as its song.
THE SOCIALISTS' SUP.

By our Special Correspondent.

This organization, although the youngest in the Tech, is beginning to acquire a considerable influence, especially among the Seniors. It is bringing the men together more than any other scheme ever started here and has proven beyond a doubt that such a thing has long been needed to develop class feeling in the Institute. Scarcely had the first theatre party been successfully carried out when the efficient executive committee made arrangements to have an oyster supper just before the Christmas vacation. The committee was supported in its plans by the entire club, and the Tuesday evening before the recess was chosen as the night of the "Love Feast."

On that evening at eight o'clock, the men were to meet in Association Hall. At the designated time every member, but two, appeared at the hall prepared to do the best he could to make the affair a success. Considering the fact that one of the two absentees was ill it may be seen how general was the interest taken in the entertainment.

The men formed by twos and the line of march was taken up to the Brunswik. Several of the fair sex were met on the way and were compelled from force of circumstances to walk between the long line of Socialists. Then the boys would slow up so as not to make the fair ones feel lonesome. The Hotel reached, every one registered a name; almost any name under the sun went down on that register. The hotel clerk gazed in mild surprise when one of the long-haired Socialists became "rattled" and forgot his name. A very pleasant half-hour was spent in the parlor at the piano and with such good effect that several of the regular patrons of the hotel felt themselves obliged to chasse up and down the corridor from pure sympathy.

Then the folding-doors were thrown open and the dining-hall was disclosed to view. Novelties in the shape of "drei Mädchen" presided over the tables. One of these gazed very tenderly, very pityingly into V. G. C.'s eyes when the latter ordered six bottles. The menu which was only a prelude to the forthcoming entertainment, was taken up and discussed for about an hour; after which the cigars were lighted and "mascots" passed around. The fellows were charmed by a graphic reading of a very thrilling anecdote by one of their number who obligingly told them when it was time to laugh at the joke. The meeting now adjourned to the parlors.

Then the real fun commenced. The piano was tuned up and the echoes were awakened by recitals of the woes of the Gambolier, Solomon Levi and the Prodigal Son. 92's famous quartette, not the Phauned-up quartette, entertained the company with several songs. A hymn, very appropriate for the occasion, was given in German by one of the quartette.

At half-past eleven the men saw "Nellie home," and then gathered together for "Auld Lang Syne." The party broke up with the firm assurance that success had attended the first social attempt of the Seniors.

UNIVERSITY EXTENSION.

A World's Conference on University Extension, to meet at Chicago in 1893, has been called by the American Society for the Extension of University Teaching. The Universities of Cambridge and Oxford, and the London Society for the Extension of University Teaching have already agreed to send delegates; and it is hoped that Scotland, France, Denmark, Norway, Sweden, Germany, Austria, India and Cape Colony, in short, all countries where University Extension has taken root, may be represented. Canada will undoubtedly join the conference. The great universities of the Eastern United States—Harvard, Yale, Columbia, Cornell, Princeton and Johns Hopkins—are interested in all questions relating to the influence of the University upon our national life. The new University of Chicago, with Dr. Harper at its head, is already strongly committed to University Extension, and will give to a World's Conference on the subject a welcome commensurate with its own comprehensive ideals.

Now that University Extension in the United States reaches from ocean to ocean, the need for consolidation, for careful and well-devised advance, becomes imperative. Kansas University is already offering University recognition to certain classes of
Extension students. Every University in the country should be represented at the World's Conference, and all matters pertaining to recognition of Extension students by the universities should be subjected to the keenest criticism before adoption. This is but one of the many subjects which should come up for discussion at a World's Conference. Information regarding the Conference of '93 will be furnished by Mr. George Henderson, Secretary of the American Society for the Extension of University Teaching, 1602 Chestnut Street, Philadelphia.—Amer. Soc. Univ. Ext. Bul.

Y. M. C. A.

Topics for noon meetings.

Wednesday, Jan. 20. Paul; Phil. 3.

Wednesday, Feb. 3. How to become strong Christians; Isa. 40: 28-31.

Tuesday, Feb. 9. Applied Christianity; Phil. 3: 7-16.

Wednesday, Feb. 17. Praise Service.

DESCRIPTIVE GEOMETRY.

All the students are aware of the method of teaching this study in the Institute either by means of notes from dictation or hectograph prints of the problems and solutions.

By this arrangement many precious hours are practically lost by the student in copying these notes into a substantial form, and for years " Copying Descript" has been one of the bugbears of the Middler.

If it is impossible to select a text-book which shall embrace the necessary features, why would it not be a good idea either to have the present set of notes published in an inexpensive form, or else have them hectographed neatly on uniform papers which could then be bound in a similar manner as the German exercises?

In either case the additional expense would be gladly met by most of the students even if the purchase of the book was not required as in the case of the other studies.

It does not seem as if we had the time to spend in copying when it could be devoted to much better advantage to performing problems.

THE PREPS.

Scarcely will this number of the WPI be issued when our palatial halls will be invaded by an unfeathered swarm of youngers. Some long complexion, some short, some whiskered, some shaved, but all laboring under the awful thought that the turning point of their lives has come. If they fail "all is lost." If they succeed, the world is theirs. How proud will the parents be of their fortunate boy! How pleased will she be when the news comes how her Cesar has passed the Rubicon.

With what veneration will our Prep gaze upon this old gray mass with its fixtures, Faculty, etc. But when the poor lad comes under the influence of those hardened Juniors how fast he will lose his premature veneration. If he has not done so already how quickly will he learn the identity of the various Tech "vidders" and the rallying places of the different church societies.

For his first half-year our Prep will be as far from being a Tech as though he had never heard of John Boynton. From 7 a.m. until 5 p.m., he will study mathematics, English, learn to make triangles, shave fingers and carry dinners. The remainder of the time he will apply himself diligently to his lessons. He will try to convince us all that he is the coming man; he will play base ball and of course will lose; he will study the mysteries of rotary movements as exemplified in billiards and ten-pins; he will seek to outshine '95's Socialists, and if he does his days are numbered for the Ides of June will tear him from us.

How pitifully do we all gaze upon this "coming event," this shadow of '95, and wonder how it is possible for anyone to look so hopeful, since all Preps are hopeful. We listen with condescending grace when he begins to tell of his conquests and how he performed the very new trick of rolling the big sphere across the floor of "Gladys's" room. And when he prattles away in this childish fashion we sadly shake our heads and predict an early death.

Among the different classes, Prep life is regarded in many ways. The Junior tries to forget he was ever there; the Middler remembers such a time whenever he hunts for "a little bit of paper" and looks at his neighbor's work before the the latter starts
in to break up a new pair of taps; the Senior, has reached that stage of life when "fond memory brings the light of other days around him." But all agree that there were many jolly days in Prep life.

LOST IN THE WOODS.

"Oak, Caroline! if you I pine
O willow, will you not be mine?
Thy hazel eyes, thy tulips red,
Thy ways, all larch, have turned my head;
All linden shadows by thy gate,
I cypress on my heart and wait;
Then gum beech cherished, Caroline;
We'll fly for elms of bliss divine!

"Oh, spruce young man! I cedar plan
Catalpa's money, if you can;
You sumach ash, but not my heart;
You're evergreen, so now depart
You'd like to poplar, that I see,
Birch you walnut propose to me.
Here's pa! you'll see hemlock the gate;
He maple-likely say 'tis late!'

"Locust that lover, while he flew
For elms before that parent's shoe;
He little thought the dogwood bite
And make him balsam much that night.
Hawthorne path he travelled o'er,
And he was sick and sycamore."

PRIZES FOR PHOTOGRAPHS.

(Scheme of the League of American Wheelmen,
to Improve the Condition of Poor Roads.)

The chairman of the Roads Improvement Com. of the L. A. W. has recently sent circulars around to the various camera clubs throughout the country, offering prizes, amounting in all to one hundred dollars, in gold. The prizes are for photographs of roads, preferably those in well-known counties. They are of fifty, thirty and twenty dollars, and are offered for the first, second and third best collection of three photographs, submitted to the committee. The idea is to show the "goodness of good roads and the badness of bad roads." If convenient, it would be better if photos of wagons upon the roads could be taken. This would illustrate in a very clear manner the condition of the roads, whether this condition were good and firm; or whether they were muddy and swampy. The L. A. W. is after views of the latter kind of roads, and especially after views of the too frequent sight of heavy teams buried in mud up to the hubs. The League thinks in this way to arouse popular sentiment against the wretched roads, drives, etc., so common throughout the country.

In other words, it is desired that the photographs should represent the necessity of better roads. The pictures will be judged by the clearness and general excellence, the location, whether in important counties or not, and the size. Competition will close July 1, 1892, and prizes will be awarded July 7. If possible, all photographs must be accompanied by negatives.

The Tech Camera Club will not, as a body, enter as competitors, but undoubtedly several of its members will submit specimens of their work to the authorized committee; and during the summer vacation we hope to hear of a golden shower falling near Boynton Hall.

SALISBURY SANITARY ENGINEERING CLUB.

An interesting meeting was held Dec. 22, when Mr. Wallace read a paper on "Sanitary Plumbing and Sewer Connections."

January 12, the Club listened to a carefully prepared paper by Mr. Baker on "The Contamination of Water Supplies."

Much interest has been manifested in the work of the club in the few meetings that have been held this term. A number of new members have been voted in from the Junior class. It is hoped that next half, after the practice of the civiis and chemists has been commenced, there will be many more from '94 who will avail themselves of the opportunities here offered to obtain much valuable information.

The following is a list of topics as arranged for the next few weeks:


Jan. 26. Street cleaning and its relation to quality of sewerage, including methods of paving and cleaning, Mr. E. L. Mundin.

Feb. 2. Chemical Precipitation; its successes in other places. General discussion led by Mr. A. D. Flinn.

Feb. 9. Metropolitan Sewerage of Boston, Mr. F. B. Knight.

The semi-annual election of officers will occur in connection with the meeting of January 19.
THE HISTORICAL SOCIETY.

The meetings of the society have continued to draw out large numbers and the fact that the members are undaunted by cold and storm seems to prove that the interest with which the year's work was begun is not likely to weaken, as the year advances.

With the acquisition of Prof. Cutler, Mr. Combs and others, just as the club began King John, an opportunity for studying and enjoying Shakespeare was presented which has meet with a natural and hearty response.

At the meeting held Friday evening, December 23, a remarkably interesting paper was read by Chas. E. Stevens, Esq., who had kindly consented to favor the club with an essay, on "The Time of King John," which he had prepared for a previous occasion. Beside regular work, papers were also read by Prof. Smith and Mr. Combs.

At the regular meeting, held January 8, papers were read by Mr. Hammond, '92, Mr. Baker, '93, and President Mundin.

Act IV. of King John was read and after a most enjoyable evening, a business meeting for the election of officers was announced for January 22.

TECH ELECT NOTES.

At recent meetings of this society Geissler Tubes were shown and experiments with the Holtz machine were performed; the theory of Leyden jars was discussed. Tests of storage batteries were given and elementary principles of the dynamo have been explained; the theory and construction of the arc light has been commenced; the incandescent light is soon to be entered upon. Problems in bell wiring were made plain. An explanation of different ammeters and voltmeters was given.

The club is in a most flourishing condition, having a membership of nearly forty, with an average attendance of 15 to 25. The club would like to see a delegation from '92 come with some degree of regularity this half, but hardly expects it.

Dr. Kimball has given the club much valuable assistance, and has brushed away many a knotty point. Prof. Sinclair, and Supt. Higgins have also attended a few times each. The club extends a cordial welcome to each and all of the professors as well as to the students.

PERSONALS.

Recent News from the Alumni.

'74; W. S. Locke is superintendent of the American Zinc-Lead Co., of Canon City, Colorado.

'76; L. H. Bateman is employed as resident engineer on the Brookline (N. H.), and Pepperell R. R.

'77; W. M. Towle is mechanical engineer with Mansfield Machine Works, Mansfield, O.

'78; F. S. Clark is a partner in O. F. Douglas & Co., manufacturers of pumps, Lafayette, Ind.

'80; C. E. Wells is engaged with Mebithur Brothers, Contractors, of Chicago, Ill., as civil engineer.

W. O. Green is President of the Preshtigue Company, Chicago, Ill.

E. E. Clark is at work as erecting engineer for Deane Steam Pump Co., Holyoke, Mass.

'81; H. R. Underwood died from inflammatory rheumatism in August of last year.

'82; J. H. Mason is Superintendent, Boy's department, in the Stout Manual Training School, Menomonie, Wis.

G. A. Marsh is Assistant Superintendent of Penn. Lead Company.

C. C. Hall is Assistant Manager of the Bellville Steel Co., Bellville, Ill.

'85; F. B. Rice is General Manager of the United States Ammonia Company, of New York City.

G. F. Higgins is in business as road engineer and contractor in Manchester, N. H.

'86; W. G. Wesson is General Manager of the G. A. Schastry Company, Springfield, Mass.

H. B. Sawyer is at present instructor in Physics at the St. Paul High School.

F. A. Higgins has completed a medical course at Harvard and is serving as House Surgeon at the Children's Hospital, Boston.

H. C. Hawks has gone into business in Boston as an electrical engineer and contractor.

C. A. Bennett is now occupied as Professor of Mechanic Arts at the New York College for the Training of Teachers, New York.
W. F. Brooks is engaged with the Peninsular Railway Company, as civil engineer in Lower California, Mexico.

'87; J. C. Knight is a mechanical engineer in Boston, his business to advise in the building of Cotton Mills and Mechanical Plants, furnish plans, specifications, and the superintendence of construction.

'88; J. B. Chittenden is a student in Königsberg, Germany.

C. W. Chadwick is now occupied as a Christian Scientist in Omaha, Neb.

G. W. Burr is in business as a coal dealer in Hingham, Mass.

'89; W. S. Putnam is engaged as draughtsman in the Bridge and Construction Department of the Pennsylvania Steel Co., Steelton, Penn.

E. O. Hathaway is assistant roadmaster of the Connecticut River Railroad, with headquarters at Springfield, Mass.

'90; Loring N. Farnum is at present connected with the Manchester Water Works.

M. W. Allen is in Utica, N. Y., with the Utica Belt Line Street Railway.

E. W. Lazell is manager of the Virginia Brick Co., of Roanoke, Va.

G. H. Nutt is instructor in wood-work and mechanical drawing at the New York College for the Training of Teachers.

E. H. Rockwell is a manufacturer of woolen yarns at Leominster.

W. L. Smith is draughtsman for G. L. Morrison, Chicago, Ill.

'91; J. A. Whittaker and B. A. Gibson are at present in the employ of Woods and Rugg of this city and are engaged in the survey for Fitchburg's new water works.

W. H. Baird, as assistant to Prof. H. H. Nicholson, director State Experimental Station, Lincoln, Nebraska, is engaged in "special beet and sugar investigation."

H. Homer Tracy is a student in the School of Naval Architecture, Cornell University, Ithaca, N. Y.

Norman V. Fitts, was united in marriage to Miss Anna L. Stickney, at Lancaster, Mass., December 22. Among the many presents, were several souvenir spoons from classmates of '91. In Mr. Fitts's class was a club of which he was a member, and the members of which agreed to give a souvenir spoon to the bride of the first to be engaged. Mr. Fitts is engaged in mechanical drawing at Little Rock, Arkansas.

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TECHNICALITIES.

Nature furnishes the leap-year, the girls do the rest. (?)

It looks as if Butterfield would receive the appointment as Assistant in Mineralogy. The Socialists of '92 evidently intend to dynamite, for they've had one banquet already.

Under the careful tutorage of Mundin, '92, Prof. Smith is making considerable progress in Pol. Econ.

Dec. W P I article on Tech Senate. "If the senate did nothing but propose," Great Scott! Suppose some girl accepted it!

A story is going the rounds, that one of the Seniors was convinced of the necessity of a shave, by an over-zealous relative, and in consequence thereof was despoiled of a three-weeks' growth, when he was too weak to resist.

Members of '92 and '94 were observed turning "billies" in the wood room not long since. Is the rush on the flag to be an annual occurrence?

Juny: "Well yes, we did make considerable noise at our class meeting. When 83 men get together there's going to be some racket you see? Middly: "Yes, but when '93 men get together, there's going to be a bigger kind of a racket, don't you know?"

If any of the Techs have ever taken a constitutional through Grafton street,—No, I haven't a girl out there—they may have noticed a small by-way leading off to the westward which in Boston would probably be labeled "Hymeneal Altar," but is here designated as "Union Place."

The York and Hillside mineral collections present a very attractive appearance in their new quarters, room 16. The collections have recently been arranged in systematic order, new pieces have been received in which to mount them, and the result is very gratifying to all who are interested in a well classified collection of choice specimens.
The Tech has a few Smiths, but not all there are in Worcester. A young lady of this uncommon name started out to hunt a family of the same name on a certain street, and found eight, none right. Evidently the Tech can’t have all the good things of life.

Irate storekeeper to boys in front of his door: "Stop your yelling; you make more noise than the same number of Polytechnic students." Those youngsters must be precocious, for it’s hard to beat the average Tech in a holloa, even if he does spend most of his time on a hill.

It is stated on good authority, that there is one Middler who has bested Prof. H. in sixteen different arguments. The other day this enterprising youth caught the Prof. between his two pets, Brown and Sharpe’s work, and Whitworth gauges. These pets didn’t agree, and the Prof. was completely cornered.

The mechanical drawing-room has recently received a much needed improvement in the shape of a drawing-board rack, in which the drawing-boards may be safely kept. Those who have had the experience of soiled drawings and hunts for misplaced boards will look with pleasure on the change.

Prof. "What’s the matter? Five men have absolutely failed and I don’t see how I can regard them in any other light than as having failed." Did he intend to convey the idea that if he felt just right, he might regard these dead flunks in some other and more favorable light?

_SCENE I._ Before Light on Scientia Hill.
    Enter Sir Isaac, Middlers, Juniors and attendants.

1st. J.—I hear footsteps ascending the hill.
Sir I.—It cannot be, but if it were, I and this trusty club will o’erpower them.

CHORUS: Three cheers for his nibs.

_SCENE II._ The same.

Alarums, retreats, etc., enter two of the finest, clad in blue coats, brass buttons and billies.

1st. Cop.—Why thus is the midnight rest of your peaceful sleeping citizens disturbed?

Sir I.—On! On! On! Down with the villains! Throw up your hands!

2nd. Cop.—Behold, sir, this emblem of power (displays badge.)
Exeunt omnes, alarums and chambers (n—wt—n also) go off.

**THE COLLEGE WORLD.**

The Harvard Freshmen crews begin work in the tank this week.

The University of Berlin has 3,000 students, 800 of which are Americans.

The candidates for the Princeton baseball nine have begun regular practice.

It is estimated that there are at present 40,000 women studying in American colleges.

There are one hundred and ninety college papers in the United States.

It has been decided by the Princeton faculty that no special student shall be allowed to play on any of the University athletic teams unless he has been in college at least two years.

A new four years’ course in electrical engineering has been established at the Columbia School of Mines.

By the catalogue of the new Leland Stanford University there are in attendance 440 students of whom 90 are women.

The miners’ safety lamp made by Sir Humphrey Davy, which is the first one ever used, is to be seen in the Boylston laboratory at Harvard.

The six senior members of Phillips Andover’s victorious eleven will enter Yale next year.

Amherst has received $335,000 in gifts during the year past.

There is talk of uniting the University of the City of New York with Columbia College.

The undergraduates at Amherst recently presented Mr. W. H. Lewis, Capt. of the football eleven, with a gold watch and chain. Mr. Lewis has also been elected class orator.

O. S. Campbell, Columbia, ’91, the American tennis champion, is soon to sail for Europe where he expects to contest with foreign players.

Cornell has received gifts amounting to $5,000,000 during the past year.
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