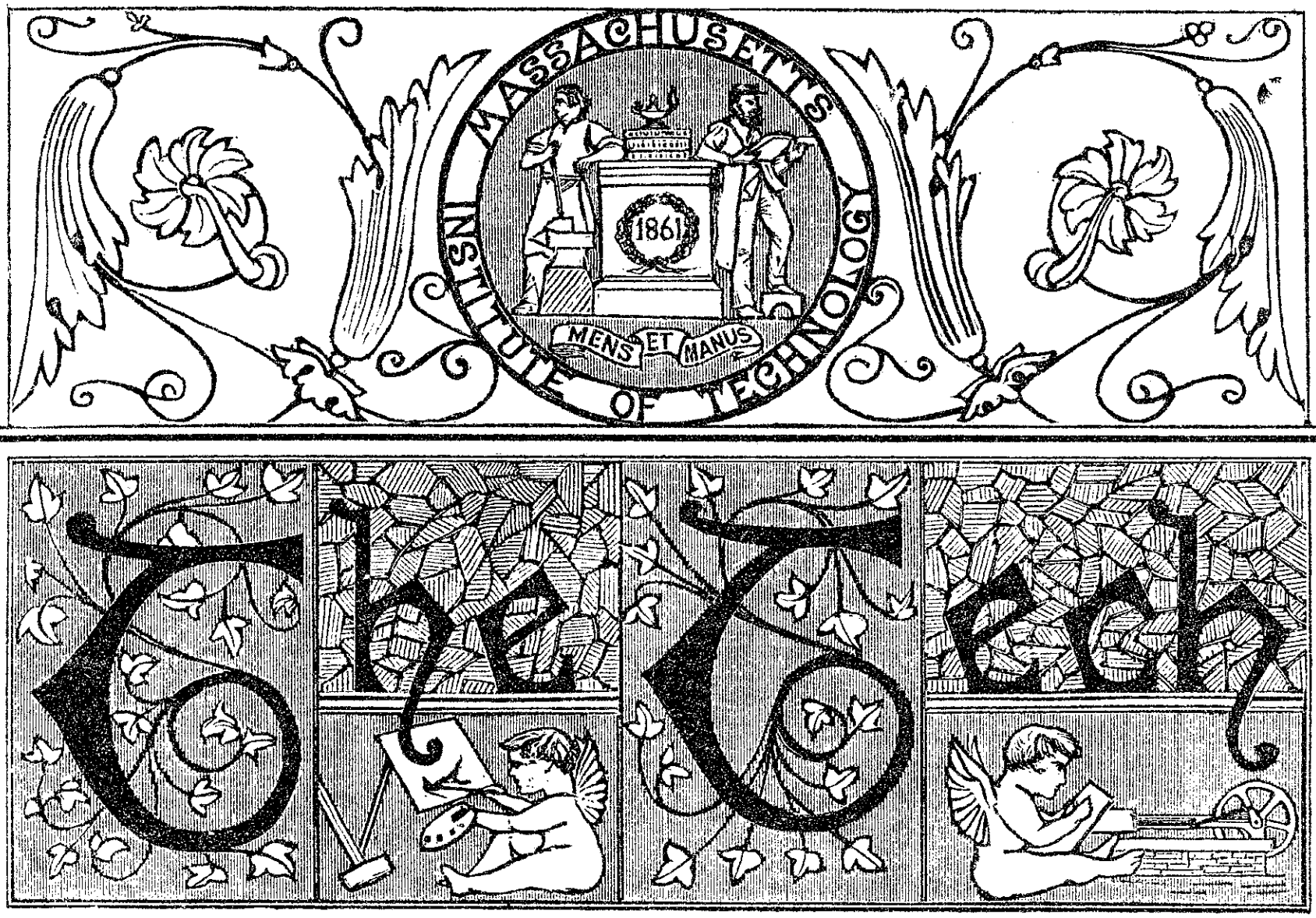

April 22,
1885.
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BOSTON, U. S. A

The Tech.

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THE TECH.

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AVING, at the Institute, no large independent library, we cannot, like some of our exchanges, boast in this respect. Nevertheless, it is doubtful if many colleges enjoy such unexcelled library facilities as we. The books of the Boston Public Library, numbering 430,000 volumes, are at the disposal of all students of the Institute, and when located in their new building, which is to be hardly more than a stone's throw from our principal buildings, will be most convenient of access. In addition, the Boston Society of Natural History grants to our students the full use of its valuable library.

Of the most value to us, however, are the various department libraries located at the Institute. Placed, as they are, directly in the reading-room of each department, their use is much increased by their proximity. These department libraries are of the greatest value to students, and though small in numbers, consist of the most important publications relating to the respective departments. The general library in Room 3, Rogers, numbers about 1,500 volumes, and is under charge of Prof. Atkinson, to whom we are indebted for these figures. In the Chemical library there are 500 volumes; in the Civil Engineering, 400; in the Physical, 670, which is especially full in works relating to electricity; the Architectural, about 500 volumes; the Rogers library, 675 volumes; the Mechanical Engineering and Biological, 200; the Mining, 350. The last has recently been increased by the addition of many new books, and is now a most valuable library, comprising as it does all of the important American works on metallurgy, besides many in French and German; in all, there are about 5,000 books in these libraries, and this number is constantly increasing. As working libraries their value cannot be overestimated.

THE recent suspension of the Junior class by the professors in the quantitative chemical laboratory appears to us to be unwise, unjust, and unnecessary.

The indirect cause for this action was the alleged general disorder which has been shown by the class in the laboratory for some time past; the immediate cause was an occurrence too trivial to be recorded here, and it is this which lends a certain amount of ridiculousness to the whole affair.

There, undoubtedly, have been misdemeanors committed by the class while in the laboratory, and we do not wish to attempt to excuse these; but it is perfectly safe to say that they have all been committed by less than a half-dozen men. Yet no attempt has been made by the authorities in the laboratory to single out and punish

these as they deserve, but the whole class has been made to suffer for the faults of a few.

At the time of the suspension, less than half, perhaps only a third of the class, was in the laboratory; nevertheless, all had to go, including men who were, by confession of the instructors themselves, entirely guiltless of any misbehavior whatever. Truly this is *blind* justice! We hope that the matter will be treated with all fairness at the next meeting of the Faculty, and we are confident that it will end to the honor of the class.

THE system of taking account of the work done by students for their college paper, and giving them credit therefor, as so much work in English, has been discussed at several of our colleges, and has been adopted by at least one. This we believe to be the practice at Harvard, and that with good results. We are not aware that the subject has ever been mooted at the Institute, but it is certainly worthy of consideration.

The benefits of such a system are manifest. In the first place it would add materially to the prosperity of the paper. At the Institute, where, however deplorable it may be, comparatively little time can be spent in rhetorical studies, such a system would, we believe, go far in stimulating contributions from students, who, without being assured that they would apply in their regular work, would seldom, if ever, contribute at all. No one can fail to appreciate the great value of a power to express his thoughts with clearness and facility, and this power is, we all know, to be acquired only by practice in composition. If, by any means, students could be induced to become regular contributors to their paper, they would not be long in discovering that in so doing they were adding immensely to their own mental stock-in-trade, as well as to that of the paper.

Secondly, it would go far in directly relieving the editors by making the large amount of time necessarily spent in literary work for the paper serve a double purpose. While not wishing to unduly magnify any claims of our own, we c feel strongly the necessity of economy of tim if the best interests of the paper are to be serve and should it not seem advisable to extend th practice to all classes, it might at least be i stituted for the editors of the paper.

"A LONG felt want," whose filling woul bring local repute and gratitude sem annually, is the compiling and publication of th examination papers of the Institute. Accordin to present usage, as the annuals and semis con on, there is great demand for old papers, friend in the higher classes are besought for their o examinations, and there is general search amon the superannuated note-books and memorand and he can count himself fortunate who can g several successive papers on one subject.

Most of these papers are worthy of preserv tion, since they are the result of earnest effo to cover the main points of a subject, and th answers to those of several years would form good synopsis of the course.

One of our most able lecturers lets it b known that the questions for his new examin tion are mostly included in past papers; becau if a student can answer all the questions fo merly given, he must have a good knowledge the lectures.

Judging from the demand for old papers, an the increasing number of students who desi them, if they could be issued in a cheap for the sale ought to pay for the trouble an expense.

WE are gratified to learn that the Faculty a taking steps to render full justice to th special students of the Institute in the matter granting certificates, a matter which was di cussed in a recent number of THE TECH.

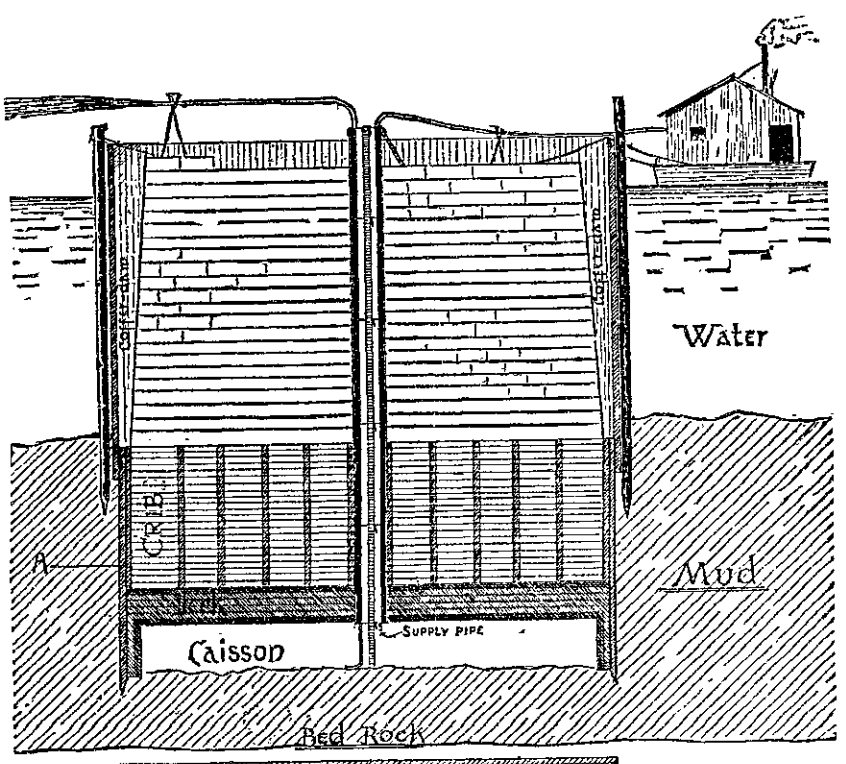
We feel so strongly the injustice of any oth course, that we are confident that the result their deliberations will be all that could desired. We shall await the outcome with i terest.

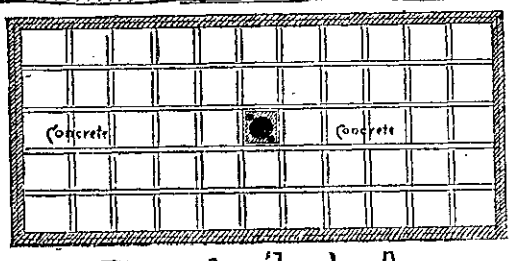
Sinking a Pier at Havre de Grace.

DURING last summer, while spending a couple of weeks at Havre de Grace, at the mouth of the Susquehanna River, the writer had an opportunity to watch the construction of some of the piers for the new Baltimore and Ohio Railroad bridge, and thought it might perhaps be interesting to some of the students to know the method used there to sink the caissons.

Wishing to provide for the few sailing vessels passing up and down the river, and not wishing to build a draw, the Railroad Company were compelled to build their bridge ninety feet above the river.

The greatest depth of mud through which they had to pass was sixty-three feet, with twelve feet of water, and the greatest depth of water was forty feet, with fifty-five feet of mud, so with the ninety feet above the surface of the river, it makes a solid piece of masonry nearly two hundred feet in height. They were fortunate in finding the bed-rock quite level.





Plan of crib at - A.

The method adopted to sink the caissons was by the pneumatic or plenum process, and very similar to that used at the Brooklyn bridge.

The caisson is first constructed on shore, and is nothing more than a huge box without a bottom, the largest of them being thirty-five feet by seventy feet and eight feet high, inside measurement. The sides are built of the best foot square yellow pine timber, and on this a deck four feet thick is constructed, consisting of three courses of timber, each one foot square, placed crossway, and three courses of four-inch plank crossed in the same manner. The inside is lined with three courses of plank, and the whole is thoroughly calked and pitched until air tight.

On the outside, foot square timbers are spiked perpendicularly, the lower ends being bevelled, forming the cutting edge of the caisson. The spiking on of the timbers is done in a very secure manner with spikes three feet in length. The deck is braced up with a very strong truss.

In the course of construction they leave a hole in the deck into which they put a forty-inch iron cylinder, making it fit perfectly tight, the same being sixteen feet in length, with a trap-door and valve at each end. False bottoms are then put on the caissons so that it may easily be floated to its position. Air is then forced in by means of compressors located on scows. The men then descend into the iron cylinder, the lower trap being closed, and after having the upper trap closed, they open the lower valve and the compressed air rushes in from below. This is termed the air-lock, and as soon as the air in the lock becomes equalized with that below, the trap door drops down and the men descend into the caisson and proceed to knock off the false bottom. They tried to force it off by the pressure of the air, but did not succeed. The bottom removed, they proceed to build on the crib (see sketch) which holds the concrete; it is built of heavy timbers, well spiked and bolted together. A square opening is left in the centre, through which the iron cylinder and supply pipe pass, and also the

pipe used for the removal of the dirt, sections being added as the caisson sinks with its increasing weight. The last section of the cylinder that is put on is always used as the air-lock, the other traps remaining open.

When the cribbing has reached to within ten feet of the depth of the mud through which they have to pass, they then commence to build on the cut stone. The object of keeping the crib ten feet below the bottom of the river is to avoid that destructive insect, the teredo.

As soon as the bottom of the river is reached, the men descend into the caisson and proceed to excavate. The pipe used to blow out the dirt is about eight inches in diameter. The dirt is piled up around the mouth of it, and on opening the valve, it disappears up the pipe in a few seconds. This is the only means they have used to remove the dirt and mud, and have sunk the caissons on an average of four feet per day.

Thus the compressed air answers three purposes: first, it supplies the men; second, keeps out the water and keeps the caisson afloat; and third, is utilized to discharge all the dirt.

After sufficient material has been removed from beneath the caissons, the pressure is reduced and the whole mass gradually settles down, guided by the piles and hawsers, after which the operation is repeated until bed-rock is reached

When clay is encountered, water is forced down and mixed with the clay so it may easily be blown out. But when clay-mud is met with, and the weight of the structure forces itself down into it, a coffer-dam is built around the caisson to assist in keeping it afloat. The success of the whole work depends upon keeping the structure almost afloat in the mud and water, this being accomplished by the air pressure below and the coffer-dam above.

After bed-rock is reached, the openings are planked over and the whole interior of the caisson is filled with concrete; and as they ascend, the iron cylinder is withdrawn and the shaft filled likewise. Four of the piers are carried to a depth of ninety feet, and three to a depth of from seven-five feet to ninety-five feet.

J. S. A.

The "Last Match."

A parody on the "Lost Chord." Seated one day at the organ, etc.

Returning one night from the opera,
I was weary and ill at ease;
And my fingers wandered idly
Over my bunch of keys.

I knew not what I was doing,
Or what I had in view,
But I struck the keyhole truly,
And the door, it open flew.

I wandered up the staircase,
And groped through to my room;
'T was dark as pitch around me,
A black and horrid gloom.

My heart was throbbing wildly,
For what, I hardly knew;
A piercing pain came over me,
That cut me through and through.

It may be that thoughts of the morrow
Had seized my trembling frame;
That the knowledge of unstudied lessons,
To my fluttering conscience came.

It may be that the opera inspired me
By its grand and thundering strains;
It may be that Damrosch had tired me,
And inflicted those terrible pains.

It may be that in searching my match-box,
I found not a match to be there;
And stumbled and struck on my knee-pan,—
The pain, oh! 't was fearful to bear.

F. L. V. H., '88.

Moonlighting.

[*Paper read at a meeting of the class of* '85.]

MOONLIGHTING was to the regular torpedo trade of the oil country what "moonshining" is to the liquor trade of Kentucky,—a business carried on by a few adventurous men with the aid and sympathy of the majority of the people, though actively fought by the regular dealers, aided by a trained body of spies. The moonlighter, although subject to heavy penalties if convicted, made money rapidly, and at one time threatened to drive the regular company from the field. His occupation, created by the reaffirming of the Roberts patent in the earlier history of petroleum, kept pace with the increasing industry, and, spasmodically attacked and stamped out in one place, sprung up wit

new strength in some new locality, and only died when a short time ago the ban was removed by the expiration of the patent. At that time the number of men and amount of capital invested in the till then illegal business was shown by the appearance of so many competing torpedo companies springing at once into existence fully equipped. Now no longer carried on so largely by the uncertain light of the moon, or of early dawn, but in the broad light of day, the handling of torpedoes has been shorn of its charm of venture, much of its danger, and therefore of its great profits.

In 1864, Colonel Roberts obtained a patent covering the use of explosives in oil wells, to increase their production. His torpedo was a cylindrical tin canister, filled with gunpowder, and with percussion cap on its upper end. This, when lowered into the fluid of a well, was exploded by dropping a weight upon the cap His idea was that the oil occurred in seams or crevices of the rock, and that by the explosion, fissures were opened to these cavities It was with some difficulty that well owners could be persuaded to let the experiment be tried, since they feared that it would merely fill the hole with broken fragments; but the wonderful success of a few shots proved their utility. Nitro-glycerine was soon substituted for gunpowder as being more certain and easily handled, and shots of eighty quarts of nitro-glycerine, equalling in effect over a ton of gunpowder, are frequently used. The patent has proved a fortune to the owner, the torpedoes used in 1880 being valued at over a million dollars.

With declining production and prices, the torpedo became to the oil producer a necessity and an enormous expense, since Roberts' prices were high, the cost of a large shot amounting to hundreds of dollars. The materials for a torpedo are cheap, and the manufacture not difficult; so many men, to avoid the heavy royalty, began to make their own nitro-glycerine, and to use it secretly, doing the work by night, trusting to the light of the moon, hence the term "moonlighters."

The professional moonlighter did not acknowledge any wrong-doing in his occupation, but if convicted posed as a martyr to unjust and corrupt decisions of the courts. He could not appreciate the nice distinctions of the lawyers between a principle and a method. He was told that it was not torpedoing itself which was covered by this patent, but the method of putting in the torpedo, which method was the only one possible. For instance, he might torpedo a well, provided there was no fluid in it; but how could he avoid having some fluid in the hole short of turning the whole country upside down to drain? To him it seemed a parallel case to being told that he could explode torpedoes under the surface of a lake, providing there was no water in it.

The fight went on in the courts and in the field. To punish infringers it was necessary for the Roberts Company to have witnesses who could swear to the facts, and as informers are detested even by the law-abiding, and their lives were sometimes in danger in the rougher part of the country, it was necessary to employ men cunning as a fox. They were not to interfere with the moonlighter, but to see everything without arousing suspicion. Thus many a well-owner, who had had his wells moonlighted months before, and had almost forgotten about it, was dismayed at the summons to appear before some distant court, where, if the offence was proved, the royalty fees, costs and expensive delays proved a most serious penalty.

A description of one moonlighting experience may serve to give some idea of the business. Accidentally hearing that a friend's well was to be shot, and happening around the engine-house after dark, an invitation to stay and see how it was done was accepted. With the owner of the property was the contractor, who had just finished cleaning out the well, a work of several days.

He was a strong, daring fellow, formerly a driller, and, having had long experience, set up business for himself, taking contracts to drill new wells, clean out old ones, and, like many of the men following that occupation, was glad to get an occasional job of shooting the well on which he worked, more especially if it was in an

out-of-the-way place, since of course the pay was high and labor easy.

The nitro-glycerine was not to be delivered until about midnight, so each tried to rig up some kind of bench to lie down upon. We did not wish to light a lantern, for several reasons: one, because we rather courted seclusion, and again the well was gassing freely, and the gas might settle down around us. So, after plunging around in the dark and feeling over all kinds of lumber covered with grease and full of old nails, we got desperate and took what flat boards we could find, laid them down in the dryest part of the engine house, and then sought some rest, — if it might be called rest to squirm around on a few oily boards, twisting first on one side and then on the other, to avoid a rusty nail which seemed bound to dig its way into the flesh.

Finally, after shifting around several times, the whole contrivance slipped off into the pool of oil and mud which formed a large part of the floor, and we concluded we did not want to sleep any way.

The contractor was talkative, and, as usual, the conversation was principally upon recent accidental explosions of nitro-glycerine, which at that time were unusually destructive. He told of a tight place he was in the week before, while putting in a "sleeper" for one of his customers. A "sleeper," he explained, was a way of avoiding the Roberts royalty. A well-owner would order from the company a small shot of five or six quarts, saying he only wanted "to loosen her up a little," but the night before the shot was to be put in, would get a moonlighter to place secretly forty or fifty quarts of nitro-glycerine in the well, but not explode it. When the company's man put in the small shot, this would explode the sleeper, and the well owner would thus pay royalty only on the small shot. In this particular case he was putting in fifty quarts in three sections. He had lowered two sections all right, and when the third was only a few hundred feet below surface it suddenly stopped as though wedged in by a small stone. Pulling on the cord was of no avail, daylight was fast coming on, and to add to their danger the well began to show signs of flowing, in which case the t would surely be thrown into the air. I a desperate jerk loosened the obstructi he got the shot to the bottom only a few r before Roberts's man came in sight.

With stories and dozing the long nigl on, and at last about two hours after midni sound of wheels was heard, and a man d with the nitro-glycerine. He said he have delivered the stuff long before, b been delayed by a "spotter." When highway, before turning into the road leads off up to the well, he stopped to and from the sounds made out that he wa followed. He drove on rapidly, hoping such a distance that he could hide by the side and let the pursuer go by, but fou plan would not work. At last he hit trick to get away. About two miles ahe road ran through an open country an swung around the base of the hill, and passing through a dense strip of woo crossed by an old wood road that ran b the other side of the hills near to the which he wished to get. He whipped horses, and, arriving at the strip of wo drove a little way in, hitched his team, an tening back to the edge of the woods, hid a clump of bushes. Soon he could make the dim moonlight, the spy hastening ov open road. Just as the spy came oppos place of concealment, he snapped off volver three or four times. The startled whirled, nearly unseating his rider, and ga away. Before the spy could control his and muster up courage to enter the woo moonlighter had reached the cross roa was far away on the back track over the h

Now, safely arrived, the square tin can taining the nitro-glycerine were lifted ca out of the wagon, the long tin shells were from their concealment, quickly filled an ered. Everything was done rapidly, bu extreme carefulness, and it was with a d feeling of relief that the weight was dr and we saw from a distance the grand g oil bursting out as if to greet the rising s

The Senior Ball.

ON Friday night, April 10, *the* event in the annual social history of Technology came off in Odd Fellows' Hall, and the ball to the Seniors of '85 was started "a rolling." We cannot speak authoritatively as to the difficulty in starting the mass; but as to its subsequent capers, it may truly be said, that there was scarcely a "moment of inertia," for any of the human particles therein.

The Fates were propitious and interposed no obstacles to disturb the even tenor of its path, for a smoother, more slippery floor never sent thrills of expectant collapse to the hearts of the devotees of Terpsichore.

It has seldom been the privilege of the scribe to witness a more charming array of fair ones than lined the spacious hall on this evening, and many a sigh was breathed, and many a heart carried away with the image of a fascinating partner; or perhaps, only the fascinating image of a might-have-been partner in the 'steenth extra. The men were a highly respectable and distinguished looking class, and reflected great credit upon their Alma Mater.

The members of the committee were zealous in their efforts to make those present enjoy the evening, and the "ghastly row of unattending men" was limited to a select bunch at the doors, which was useful in protecting those within from the draught.

The design of the dancing cards was very unique and graceful, and had the arms of the Institute in relief upon a raised bar running across from corner to corner. The covers were bound together by a crimson knot, and the orders were held in place by gray tassels.

Mrs. Francis Walker, Mrs. William Sedgwick, and Mrs. Charles Otis received the guests, and were the most delightful of matrons.

The music was excellent, and many a festive repeated waltz indebted us to J. Howard Richardson's orchestra.

We cannot forbear expressing our dislike to the venerable Institute custom of buying tickets for supper, and suggest that it would be far better to have the subscription price proportionally larger and *include* the spread. We are not aware that the custom prevails anywhere else.

Without exception, this was the most agreeable and successful Senior ball that we have ever had, and redounds greatly to the credit of the managers and committee.

'85 "Professors' Evening."

SOME time ago it was suggested, at a meeting of the class of '85, that a pleasant feature of Institute life would be an occasional social meeting of professors and students, making possible a friendship which would extend beyond the limits set by class-room and laboratory exercises The suggestion was at once adopted and carried out last Friday, when sixteen of the professors responded to invitations to spend a social evening with '85, past and present, at Young's Hotel.

At half past eight nearly all who attended had arrived. Mr. Richards, class president, then called the meeting to order, and welcomed the guests, alluding to the friendly relations already existing between those present, and the absence at the Institute of all those feelings of hostility between professor and student, which are too often found elsewhere. The programmes of the evening's entertainment were then distributed; these had been papyrographed, in a manner true to life, by the committee of arrangements, and were accepted as a matter of course by the class, though causing considerable amusement among the guests.

The first event of the evening was the playing of an overture by the class quintette, an organization of considerable local renown. This was followed by a paper on "Moonlighting," by Mr. F. H. Newell, and by vocal music by Mr. H. J. Williams. Refreshments were then served, and conversation glided on smoothly. Later, the assembly listened to a flute solo by Mr. E. B. Homer, and a minuet by the orchestra, shortly after which the guests began to take their leave, and the class was left alone, to express its pent-up feelings of gratification in a ringing cheer.

All present seemed well satisfied with the success of the undertaking, and several of the

professors expressed themselves as very much in favor of a continuance of this plan by future classes. It is the only way by which a large number of students and instructors can become satisfactorily acquainted, and if regularly adopted, would make more certain the condition of affairs so often spoken of by our professors, when they and their pupils shall consider themselves as friends interested in each other's work, in its successful carrying on and satisfactory results.

'88 Class Dinner.

THE first annual dinner of the class of '88 took place at Young's Hotel on Thursday evening, April 16. Out of the one hundred and thirty-eight men who took part in the theoretical part of the proceedings at the previous class meeting, when the matter of wine was discussed, eighty-two sat down to participate in the practical enjoyment of the dinner. Of the meal itself, there is no need for comment, for the reputation of Young's dinners has spread far and wide. At each plate, beside the *menu*, was placed a tasty dinner card illustrated by hand, and bearing the Institute seal and colors. A copy of the class song, "The Faculty Knows it All," the words of which were written especially for the occasion by the class poet, Mr. F. W. Hoadley, was also provided for each member of the class present.

The dinner having been discussed, and cigars lighted, President Blair introduced Mr. G. C. Dempsey as the toast-master of the evening. Mr. Dempsey's remarks explaining the origin of the custom of toasting proved very interesting, and were well received by the boys. The various sentiments proposed by him, and responded to, were as follows:—

The M. I. T., F. O. Stetson. The Faculty, C. E. Claflin. The Class, D. M. Blair. Our Girls, F. W. Hoadley. The Battalion, L. A. Ferguson. Athletics, W. L. Dearborn. The Special, H. O. Poor. Our Instructors, H. J. Horn. The "Annuals," J. V. Wright. Chemistry, F. L. V. Hoppin. THE TECH, E. O. Jordon. '88 "Alumni," A. S. Cushman.

The musical part of the evening's entertainment consisted of the singing of the class song by Mr. H. C. Moore, the entire class joining in the chorus; banjo solos by Mr. Sidney Warren; a flute solo by Mr. R. H. Vose; violin solo by Mr. A. W. Jones; and singing by a quartet, composed of Messrs. Moore, Underhill, Moore and Vose, Mr. Ralph Tay accompanying them on the piano. The prize for the champion gastronomer (a wooden spoon) was awarded by a unanimous vote to Mr. Oliver Cromwell, who received it amid prolonged applause. A vote of thanks was awarded to Mr. F. L. V. Hoppin and Mr. F. W. Hoadley for generous services in preparation of the supper cards. The remainder of the evening was taken up with story-telling, and at a little past one the meeting *quietly* adjourned.

The supper committee consisted of Messrs. Blair, Dempsey, Hoadley, Sabine, and Wright, to whom are due much credit for its success.

The Month of March on Blue Hill.

MARCH was everywhere, in this region, an unusually cold month. At Blue Hill the mean temperature was 23°.9, or 4° below the mean for Boston, as reported by the Signal Service, which is exactly the same difference noted for February. The highest temperature was 54°.9, and the lowest —0°.6, being respectively 4° and 3°.3 lower than the corresponding temperature at Boston. The mean barometer reduced to sea level, and the mean relative humidity were each slightly higher than Boston's.

In the matter of wind, Blue Hill continues to show the same high average. The mean hourly velocity for the month was 21 3 miles, almost exactly the same as for February. The total movement was 15,852 miles, —5,585 miles more than at Boston. The maximum velocity for one hour was fifty-seven miles, and velocities of forty miles or more occurred on seven days.

The precipitation continues surprisingly small, the total amount of rain and melted snow for March having been only 0.78 inch, or 0.37 inch less than at the Boston station.

The Cold Wave Flag was displayed three times during the month. Two of the displays were followed by a marked fall of temperature, but once the flag was hoisted too late to give sufficient warning of the cold wave. A. L. R.

J. Fred Batchelder, '79, deputy quartermaster's office, Washington, D. C.

Samuel T. Braley, '79, draughtsman, Howe Scale Company, Rutland, Vt.

John W. Cabot, '79, assistant superintendent of open-hearth department, Cambria Iron Company, Johnstown, Pa.

H. H. Campbell, '79, foreman open-hearth department, Pennsylvania Steel Company, Steelton, Pa.

Geo. W. Fabens, '79, Chicago, Burlington and Quincy Railroad, Burlington, Iowa.

Ernest G. Hartwell, '79, Hartwell & Richardson, architects, Boston, Mass.

Horace J. Howe, '79, in construction department of N. P R R., St. Paul. Minn.

Frank G. Stantial, '79, ammonia works of Cochrane Chemical Company, East Cambridge, Mass.

Arthur M. Waitt, '79, general foreman, car department, Eastern Railroad, Salem, Mass.

H. A. Boardman, '84, chemist, Silver Spring Bleaching and Dyeing Company, Providence, R. I.

Alice I. Brown, '84, teacher of Natural Science, Bradford Academy, Bradford, Mass.

W. Frank Carr, '84, instructor in civil engineering, University of Minnesota, Minneapolis, Minn.

C. J. Carven, '84, office city engineer, City Hall, Boston.

S. S. Dearborn, '84, with Nonantum Worsted Company, Newton, Mass.

J. P. Harding, '84, with T. M. Walker, interior decorater, Springfield, Mass.

Geo. F. Knapp, '84, manager's assistant, in charge of the blast-furnace work, Bird Coleman Furnaces, Cornwall, Pa.

W. J. Luther, '84, civil engineer, Attleboro, Mass.

W. L. O'Brien, '84, civil engineer department of city of Cincinnati, O

Nahum Ward, '84, with N. Ward & Company, Boston.

Athletics.

The Spring Games.

The following records made at the spring indoor athletic games this year will be interesting for comparison.

Harvard: running high jump, 5 ft. $8\frac{3}{4}$ in.; standing high jump, 4 ft. 6 in.; running high kick, 9 ft. $2\frac{3}{4}$ in.; putting the shot, 33 ft. 6 in.

M. I. T.: running high jump, 5 ft. 6 in.; standing high jump, 4 ft. 10 in.; running high kick, 8 ft. 7 in.; putting the shot, 34 ft. 10 in.

Princeton: running high jump, 5 ft. $4\frac{1}{2}$ in.; standing high jump, 4 ft. $6\frac{1}{2}$ in.; putting the shot, 35 ft. $4\frac{3}{4}$ in.; pole vault, 9 ft. $6\frac{1}{2}$ in.

Yale: running high jump, 5 ft. $0\frac{3}{4}$ in.; standing high jump, 4 ft. 6 in.; running high kick, 8 ft. $4\frac{1}{2}$ in.

The intercollegiate records in these events are: running high jump, 5 ft. $10\frac{1}{2}$ in, University of Pennsylvania; standing high jump, 5 ft. $1\frac{1}{4}$ in., Harvard; running high kick, 9 ft. $2\frac{3}{4}$ in., Harvard; putting the shot, 37 ft. 10 in., McGill; pole vault, 10 ft. 1 in., Princeton.

Base Ball.

Considerable enthusiasm has been shown in base ball at the Institute this year, some thirty-five men having trained for the nine. After some practice the following men were selected to constitute the nine: —

Twombley, '87; Devens, '88; Douglas, '87, (captain); Thomas, '87; Sturges, '87; Bush, S. M. A.; Kirkham, '87; Carlton, '87; Clement, '88. Substitutes: Fletcher, S. S., and Kendricken, S. M. A.

HARVARD, 11; M. I T, 4.

The first game was played with Harvard, in Cambridge, Saturday, April 11. The weather was raw and cold, and good playing on either side was almost impossible. Harvard showed up in better form than the Techs, who had not had sufficient practice, this being the first time that they had played together. Most of Harvard's runs were made by errors of the outfield, and of Bush, one of whose fingers was disabled by the first ball pitched. In the fourth inning Clement went in to catch, and after this the work of the battery was very good, Thomas' pitching being very effective. Sturges played an excellent first base. The score: —

	B.H.	T.B.	E.
Harvards,	11	16	12
Techs,	6	9	26

Innings: —	1	2	3	4	5	6	7	8	9
Harvards,	3	1	3	1	1	0	0	2	0—11
Techs,	2	0	0	1	0	0	0	0	1—4

Earned runs: Harvards, 2. Two-base hits: Wiestling, Tilden, Kendricken. Three-base hit: Clement. Home run: Nichols. First base on balls: Harvards, 2, Techs, 4. First base on errors: Harvards, 9, Techs, 7. Struck out, Harvards, 12, Techs, 9. Double play: Clement, Douglass. Passed balls: Jones, 1, Bush, 8, Clement, 3. Wild pitches: Palmer, 2, Thomas, 1. Time — 2h. 15m. Umpire — Donovan.

DARTMOUTH, 17; M. I. T., 3.

UNION GROUNDS, WEDNESDAY, April 15.

The game was a long and tedious one, loosely played, and abounding in errors. It was won by Dartmouth's heavy batting. The score: —

	B.H.	T.B.	E.
Dartmouths,	16	19	20
Techs,	4	6	25

Innings: —	1	2	3	4	5	6	7	8	9
Dartmouth,	0	0	2	4	2	1	0	6	2 — 17
Techs,	0	0	1	0	0	1	0	0	1 — 3

Earned runs, 0. Two-base hits: McCarthy, Gove, Viau, Douglass and Thomas. First base on balls: By Dillon, 5; by Thomas, 3. First base on errors: Dartmouth, 8; M. I. T., 8. Struck out: Dartmouth, 11; M. I. T., 17. Double play: Kirkham, Carleton and Clement. Passed balls: Artz, 3; Clement, 3. Wild pitches: Dillon, 2; Thomas, 2. Time — 2h. 46m. Umpire — F. E. Sands.

Noticeable Articles.

THE English magazines for April have but just arrived, and I can only notice this week the articles they contain which bear on the exciting question of the day, — the threatened Anglo-Russian war. The *Nineteenth Century* contains a paper entitled "Russian Advance in Central Asia" by Major-Gen. Sir Henry Rawlinson, who has long been the highest English authority on Central Asian geography. His volume of papers on the subject is full of instructive matter. Unfortunately he is an extreme "Russophobist," and he has the credit of being the adviser who led Disraeli and his incompetent governor-general of India, Lord Lytton, into their terrible Afghan difficulties.

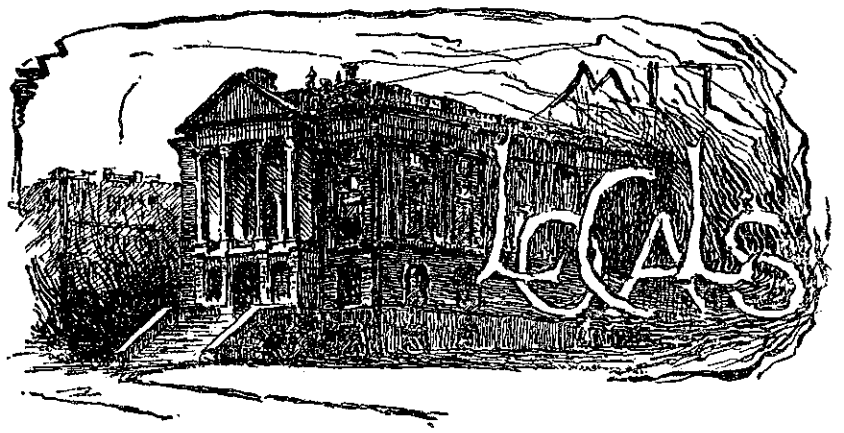
The same number contains an argument *pro* and *con* for an Anglo-Turkish alliance, the affirmative being taken by Hobart Pasha, and the negative by Col. Picton Warlow. Hobart Pasha is an Englishman, in the service of he Sultan, and the only foreigner who has ever been made a marshal of the Turkish empire.

The *Fortnightly* contains two papers on England's fighting strength, the pessimist side being taken by Capt. A. M. Hozier, the optimist by "a field officer." Capt. Hozier is a well-known writer on military subjects, and is author of a book on the Franco-Prussian war. The *Contemporary* contains a paper on Russia and the Afghan Frontier by Major-Gen. Sir Frederick Goldsmid. Gen. Goldsmid has seen much service in the East, and is author of an interesting book entitled "Telegraph and Travel, a Narrative of the Form and Development of Telegraphic Communication between England and India.'

The little book just published by Scribner, entitled "The Russians at the Gates of Herat," though written in hot haste, is by a writer, Charles Marvin, who is thoroughly acquainted with the subject and with all that has been written on it, not only in English but in Russian. He has already written several books about the Central-Asian Question, "Merv, the Queen of the World," "Reconnoitring Central Asia," "The Russian Advance towards India," "The Russians at Merv and Herat," "The Region of Eternal Fire"; the last, an account of the great Caspian petroleum district, which is now in process of being opened up, chiefly by American capital. Mr. Marvin's books are all interesting, and most of them are illustrated. Very exciting too are the volumes describing the adventures of the daring newspaper correspondents, McGahan and O'Donovan, and the "Ride to Khiva" by Capt. Burnaby, recently killed in Egypt; these, together with accounts by other explorers, are summarized in Marvin's "Reconnoitring Central Asia."

It is difficult to get a trustworthy map of this little-known region. The best is said to be that in Stieler's great German atlas. This is published in parts, and the part containing it may be had separately. W. P. A.

Outing for May is as entertaining as usual. Interesting articles in it are: The America's Cup; Whist, and Mr. Proctor's game; Across America on a Bicycle; and many others.



Have you commenced to study for the annuals?

Mr. David Rice, '86, has left the Institute and gone South.

It is rumored that Prof. Atkinson has evolved an original joke on Turkey.

The Glee Club is rehearsing for its next concert, which will take place May 5.

Prof. Atkinson recently gave his Sophomore classes a synopsis of the Eastern question.

A Soph says that optics dazed him completely, but that electricity is what makes the hair rise!

All the Senior mechanicals put in an appearance at the Senior Ball, for whole or part of the evening.

President Walker, accompanied by his daughter, is to sail for Europe, May 9, to take a short vacation.

Why cannot the New Building be provided with a supply-room? It would be a great convenience to the students there.

The Base Ball nine this year is neatly uniformed in white suits and red stockings, together with red and white striped sweaters.

An afternoon party occurs at the English High School drill hall to-morrow (Friday). Techs are invited. Tickets fifty cents.

From appearances at the Senior Ball we should say that it was fashionable for low-necked dresses to become still low-*nakeder*. (Positively anonymous.)

The third-year Miners were invited to tea at Mrs. Prof. Richards', on Tuesday, April 14. A very enjoyable evening was passed by all who were present.

The Hammer and Tongs held their monthly dinner at Young's on Saturday.

"You see our charge is becoming dissipated," said the lecturer in electricity; and a very sleepy looking Soph, who had just come in twenty minutes late, started up and glared at him.

Thursday, April 9, Prof. Lanza gave a reception at his house to the third-year Miners and Mechanicals. A very pleasant evening was enjoyed by all, and upon leaving, a hearty cheer was given for Prof. Lanza.

Mr. Thomas Doane lectured to the third and fourth year Civils, Thursday, April 16, on the alignement of the Hoosac Tunnel, describing the methods employed in transferring the line from above to below the ground.

The Freshman battalion gave an exhibition drill at the Soldiers' Home Carnival, Saturday, April 11, which seemed to be highly appreciated by the visitors. The young ladies attending to the booths were especially struck by their appearance, and gave special rates to students.

Examinations for entrance to the Institute will be held June 4 and 5, in the following cities: Boston, New York, Philadelphia, Chicago, St. Louis, Cincinnati, San Francisco, New Orleans, Washington, Nashville, St Paul, Atlanta, and Denver. For further information address the Secretary of the Institute.

The Portfolio Club met at Young's Hotel on the 8th inst. After the business meeting, during which officers for the club supper, to occur in May, were elected, the members listened to interesting papers by Messrs. Howard and Atkinson, and vocal music by Mr. Wakefield. The remainder of the evening was spent in a social manner.

An anxious Soph wants to know if all that electricity which the professor wipes off of his instruments at every lecture remains on his person, and if it is at all likely to pass into the examination papers and make them "attractive." No, we think more probably it would cause them to "positively electrify" the examiner, and "negatively electrify" his folks; that is, when the CPF's come in.

The elegant stand of colors at the Soldiers' Home Carnival, to be given to the most popular military organization in the State, was won by the Techs. The vote stood: Techs, 1358; Post 5, G. A. R., 1042. These flags will be carried in future by all M. I. T. battalions.

A horse attached to an empty coal wagon ran away near the Institute, last week, and dashed over the grass lawn between the Rogers and Natural History buildings, until it looked as if a party of freshman civils had attempted to lay out a railroad curve the morning after a class dinner. It is understood that the mad career of the animal was stopped by his rushing against the massive trunk of the '85 class tree, thereby disabling himself and breaking the wheels off the cart.

The '86 Miners and Chemists amused themselves during their enforced leisure, by playing a match game of base ball, last Friday, on the Union grounds The game was very exciting throughout, and was won by the Miners in the last inning; score: 14 to 13. The batting was heavy, and so was the list of errors. At the close of the game, it was noticed that a large number of the players had their hands tied up in handkerchiefs, but the out-fielders, who alway carefully got out of the way of the ball, were in as good a condition as ever.

The Editors are thankful, —

That Dartmouth Street viaduct, Huntington Avenue and the Public Garden are now less suggestive of Arctic regions.

That the Freshman drawing-rooms and the chemical laboratories are not twice as high up, and the shops twice as far off.

That this term's agony is almost over.

That there is no compulsory eight-o'clock chapel at the M. I. T.

That students are not forbidden to use the gymnasium, though they have no instruction in gymnastic exercises.

That more recitations and lectures don't take place from twelve to one o'clock.

That there is, at least, a curbstone, back of the new building, to walk on in muddy weather.

So say we all of us.

Messrs. S. R. Bartlett, '86, H. Souther and F. D. Carney, '87, have been elected members of the 2G, and were initiated last evening. The annual dinner of the society will be held at Young's Hotel, Friday, May 8.

Thesis work in the mining laboratory has been completed by most of the fourth-year men. Subjects worked upon during the last fortnight are:

Baker, Chloridizing and pan-amalgamation of silver ores.

Goodrich, Leaching copper ores.

MacRae, Copper refining.

Morss, Resilverizing argentiferous lead bullion by zincing.

Randall, Pan-amalgamation of silver ores.

Robinson, Chlorinating gold ores.

Stantial, Leaching silver ores.

Vanier, Effect of electricity in preventing stains on amalgamating plates.

Glee Club Reception.

The annual Glee Club reception, which took place last week, was intrinsically the most enjoyable gathering of the year. Although the little dancing hall at the Vendome was hardly large enough for the number present, and the music by a trio of Germanias lacked variety of style, yet the singing by the club was uniformly meritorious, being executed with a strength and vivacity showing a noticeable improvement since their last concert. The lunch was unexceptionable in quality and serving.

Twelve dances were given, interspersed with the following vocal selections, all of which were heartily applauded: First, "The Bold Fisherman," "Crambambuli," Institute Sophs' Song; second, Song of the Chemist, "Moustache"; third, "Hullee! Hullo!" Selection, Pot-pourri. The assembly broke up promptly at twelve, after a parting song, of which a few members rashly started the third or O K verse, but were promptly frowned down.

Mr. F. L. Locke. '86, acted as floor-manager, assisted by Messrs. Cushing, Sprague, Shortall and Stewart. C.

The College World.

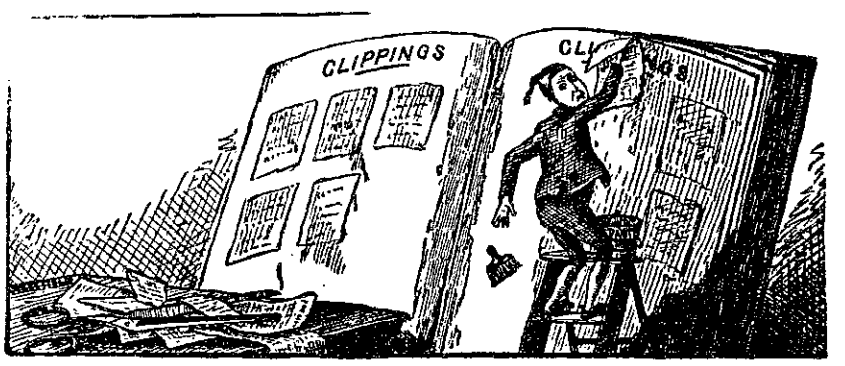
HARVARD. — The crews have been rowing on the river for some time. — Cricket bids fair to become a recognized part of Harvard athletics, under the present management. Practice grounds have been secured, an eleven has been selected, and practice will be begun immediately. H. L. Clark, '87, is captain of the eleven. The club has joined the Intercollegiate Cricket Association, which consists of the University of Pennsylvania, Columbia, Yale, and Haverford. — Mr. Wendell, an instructor in English, is the author of a new and very successful novel. — The spring meeting of the H. A. A. is to take place May 16. — The Hasty Pudding Club had a very successful trip to New York during the vacation, and their two performances were much praised by the New York papers

COLUMBIA. — Eighty-seven has paid the $347.31 owed for their boat. — The average weight of the University crew this year will be between one hundred and fifty-five and one hundred and sixty pounds. A former member of the Oxford (Eng.) University crew has for some time been coaching the candidates. — Class base-ball nines have been formed by all classes except the Senior. — A Columbia man has lately, in practice, several times jumped five feet ten inches in the running high jump.

YALE. — The bicycle club will hold a tournament May 30. The Pope Manufacturing Company has offered as a prize for the twenty-mile race, a $1,500 cup, which must be won three times in succession to become the property of the winner.

PRINCETON. — The late Prof. Joseph Henry, of the Smithsonian Institution, and formerly of Princeton, is to have a memorial tablet in the Marquand Chapel. — The *Princetonian* will be published hereafter three times a week, and will resemble the Harvard *Crimson* in form.

Hereafter THE TECH will post items of college news, which are too long for the "College World" column, upon the bulletin-board in Rogers building.



Misunderstood.

In a pause between the dances,
  Suddenly she turned to me,
And her blue eyes looked reproachful,
  Pursed her red lips poutingly;
"Tom, in all the time I've known you,
  Just four years," said she, "this spring,
How is it you never told me
  You could sing?"

"Sing!" exclaimed I in amazement,
  "I, know one note from another,
Who said that?" She, — nodding sagely, —
  "Oh, I heard it from my brother.
He was talking to a classmate,
  And, by chance, I overheard,
So I know — because he called you
  Quite a bird."

Yale Courant.

A toot-ensemble, — The German street band.

IN CHEMISTRY — *Professor:* "What is the commercial name of arsenious anhydride?"

Bright student: "Rough on rats, sir."

Stevens Indicator.

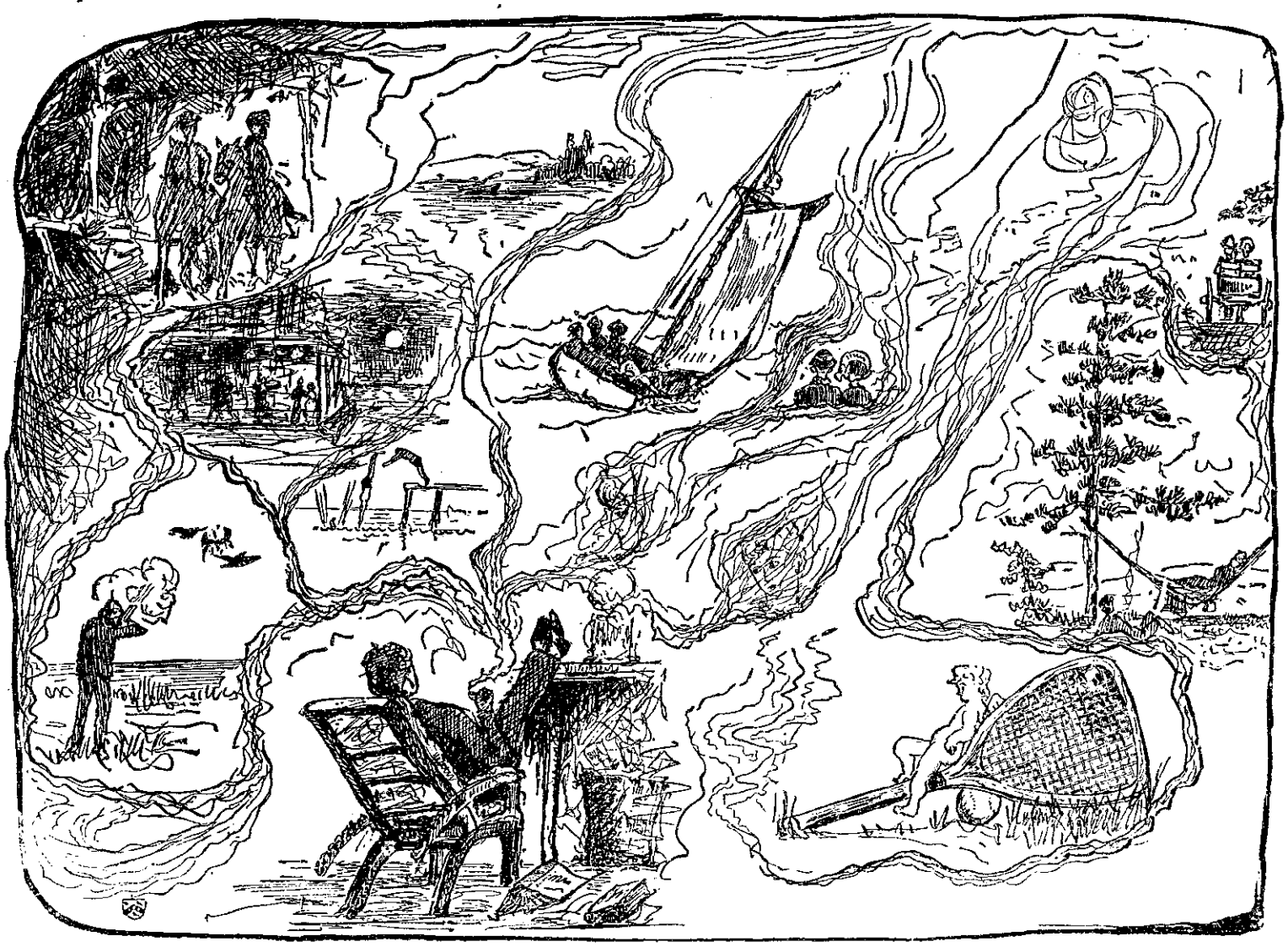
"Pat, what time is it?"

"Oi don't know, Mike, but let 's guess at it; and then, begorra, the man as comes furthest off can go out to the kitchen and look."—*Life.*

"Dear me!" exclaimed Mrs. Partington, "the newspapers could n't be satisfied with chaffing Mr. Simpkins about always being behindhand, but now that he 's dead they go and disperse his memory by calling him 'the late' Mr. Simpkins."

AFTER CHURCH.

Small daughter: "O ma, I have heard such a splendid minister. He stamped and pounded, and got mad and shook his fist at the folks, and there was n't anybody dared go up and fight him." — *Life.*



A DREAM OF VACATION.

THE EVENING AFTER THE REUNION.

Miss Ethel (*innocently*) : "Why, Mr. Browne, how *sober* you are to-night."

The Rev. Browne (*in some alarm, absent-mindedly*) : "To-night, yes ; but" — *recovering himself and with much dignity* — "have you ever seen me otherwise, Miss Ethel ?" — *Life.*

A Scotchman in London was at the bedside of his dying wife, who had originally come from the Highlands, and had always retained a strong affection for the land of her birth. "Promise me, Angus," she said, "that ye 'll bury me in the Hielands ; I could never rest quiet down here." "Weel," replied the prudent Angus, "I 'll just see. If I find that ye canna rest quiet here, I 'll hae ye removed to the Hielands." — *Ex.*

A BRIGHT BOY.

While teaching in a large school in Pennsylvania Miss Crayon had sole charge of a not particularly bright little fellow whose education had just begun. During the reading lesson one day Georgie stumbled and came to a dead stop at the word "mat."

"Spell it, Georgie," said the teacher.

"M-a-t," read the boy.

"Well, what is it ? "

"Don't know."

"Oh, yes, you do," said Miss Crayon, encouragingly. "Come, now, Georgie, what do you wipe your feet on ? "

"Oh," cried the little fellow, with a long-drawn sigh of relief, "M-a-t, *towel !* " — *Harper's Bazar.*

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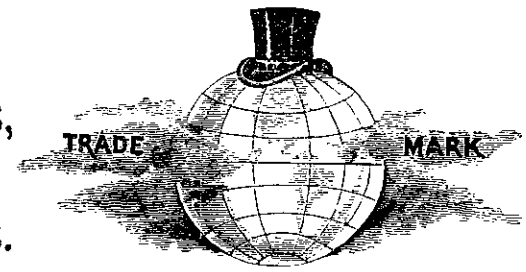

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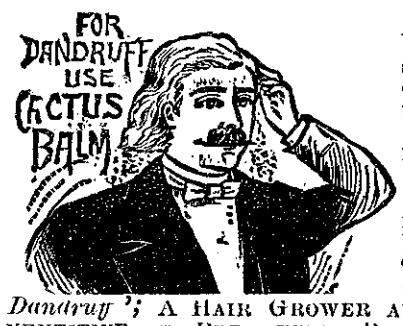

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"A Tin Soldier," by Charles Hoyt, passes to the second week of its production at the Bijou Theatre. The crowded houses that have greeted each performance is the best test of its unmeasured success. It will be played until further notice.

Haverly's United American-European Minstrels furnish entertainment at the Boston Theatre this week. The company has been newly organized, and is personally managed by Mr. Haverly. It is said to be the best of the many excellent companies that he has managed.

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Applicants for admission to the Institute are examined in English grammar, geography, French, arithmetic, algebra, and geometry. A fuller statement of the requirements for admission will be found in the catalogue, which will be sent without charge on application.

A clear admission paper from any college of recognized character will be accepted as evidence of preparation, in place of an examination.

Graduates of colleges conferring degrees are presumed to have the necessary qualifications for entering the third-year class in any of the regular courses of the Institute, and will be so admitted provisionally, on the presentation of their diplomas.

The feature of instruction which has been most largely developed in the school is laboratory training shop-work and field practice, to supplement, to illustrate, and to emphasize the instruction of the recitation and lecture room.

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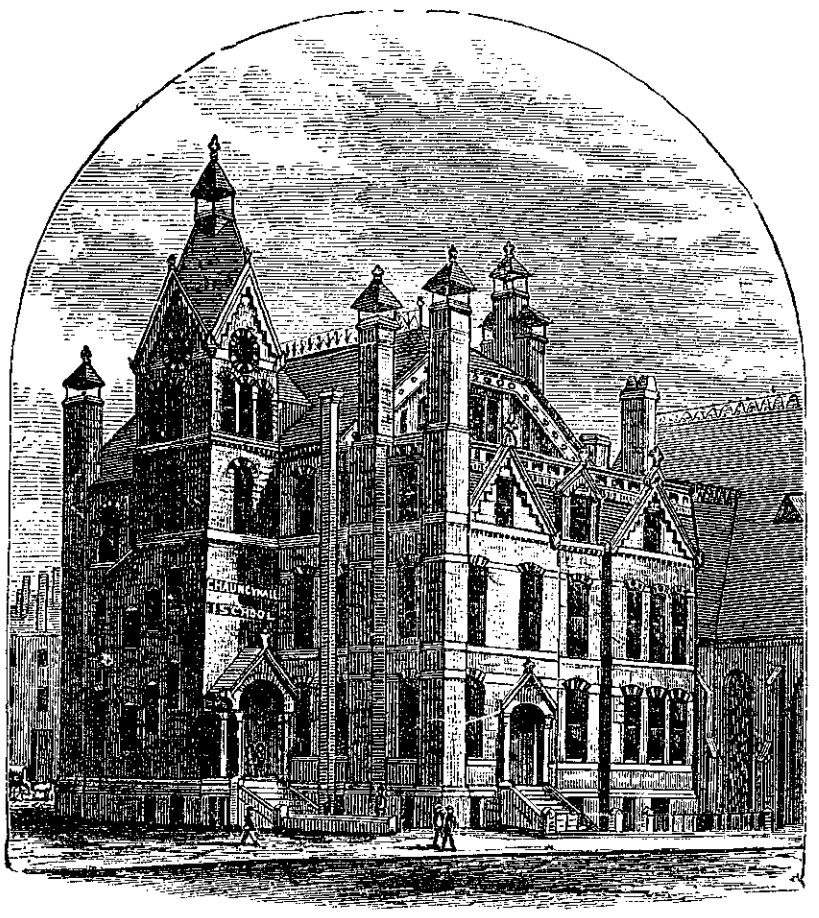

The last catalogue of the Institute (page 59) lays due stress on the importance of students' entering fully prepared. **Chauncy-Hall School** has long fitted pupils for the Institute, and for the last ten years has made thorough preparation a specialty. For the standing of its candidates, **reference is made to the President and Faculty.**

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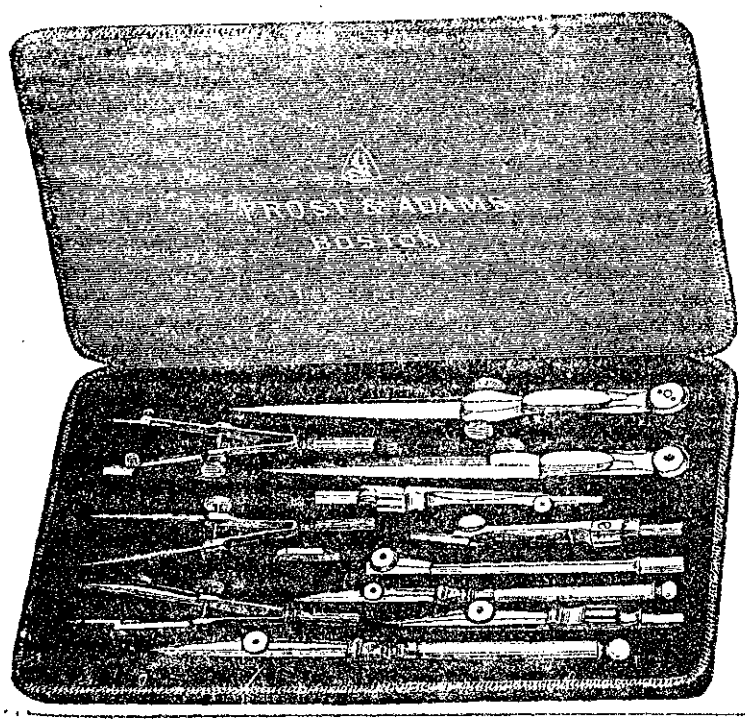

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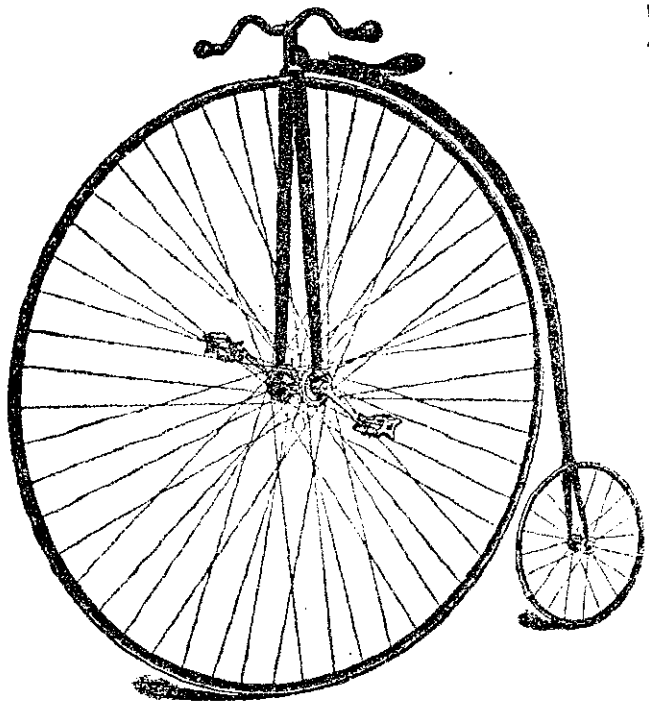

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