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Their Timing Watches, both simple Chronograph and
split second, have received the highest commendation as
keepers and markers by many prominent owners of run
ning trotting horses, to whom, by permission, purchasers are
referred. In addition to the standard and other high-priced
watches, Tiffany & Co. present this season a new line at a
prices, recommended as the best yet produced for the connoisseur.

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MEDIUM " .. 5 SMALL " "

These watches have sound, stem-winding, anchor movement,
cased in 18-kt. gold, in variety of styles, and each is star
with the name of the house, thereby carrying its guarantee.

STUDENTS' TAILORING.

I have received my Spring Cloths, also samples representing the stock of leading import
thurs, 

Thanking the students of the TECH for past favors, I shall endeavor to merit a continu-

of the same.

S. GRANT SMITH,
Formerly SMITH & HOWE, 31 Bromfield Street.

BOSTON, U. S. A
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 feel strongly the necessity of economy of time if the best interests of the paper are to be served, and should it not seem advisable to extend the practice to all classes, it might at least be instituted for the editors of the paper.

"A LONG felt want," whose filling would bring local repute and gratitude semi-annually, is the compiling and publication of the examination papers of the Institute. According to present usage, as the annuals and semis contain, there is great demand for old papers, friends in the higher classes are besought for their or examinations, and there is general search among the superannuated note-books and memorand and one can count himself fortunate who can get several successive papers on one subject.

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

One of our most able lecturers lets it be known that the questions for his new examination are mostly included in past papers; because if a student can answer all the questions formerly given, he must have a good knowledge of the lectures.

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

We are gratified to learn that the Faculty are taking steps to render full justice to the special students of the Institute in the matter of granting certificates, a matter which was discussed in a recent number of The Tech.

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

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 caulked 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 airlock, 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

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Plan of crib at A, fig.

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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 airlock, 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 hawser, 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.

Moonlighting.

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

MOONLIGHTING was to the regular to pedo trade of the oil country what "moon shining" 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 attacke...
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 in-
vested in the till then illegal business was
shown by the appearance of so many competing
torpedo companies springing at once into exist-
ence 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 there-
fore of its great profits.

In 1864, Colonel Roberts obtained a patent cov-
ering 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 per-
suaded 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 tor-
pedo 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 tor-
pedo are cheap, and the manufacture not diffi-
cult; so many men, to avoid the heavy royalty,
became 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 "moon-
lighters."

The professional moonlighter did not acknowl-
edge any wrong-doing in his occupation, but if
convicted posed as a martyr to unjust and cor-
ruppt decisions of the courts. He could not ap-
preciate 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 sur-
face 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 be-
fore some distant court, where, if the offence
was proved, the royalty fees, costs and expen-
sive 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 fin-
ished 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 driest 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 shot would surely be thrown into the air.

A desperate jerk loosened the obstruction, he got the shot to the bottom only a few feet before Roberts's man came in sight.

With stories and dozing the long night on, and at last about two hours after midnight, the sound of wheels was heard, and a man drove up with the nitro-glycerine. He said he had delivered the stuff long before, but been delayed by a "spotter." When a highway, before turning into the road leads off up to the well, he stopped to and from the sounds made out that he was followed. He drove on rapidly, hoping such a distance that he could hide by the side and let the pursuer go by, but first plan would not work. At last he hit a trick to get away. About two miles the road ran through an open country and swung around the base of the hill, and passing through a dense strip of wood crossed by an old wood road that ran be the other side of the hills near to the which he wished to get. He whipped horses, and, arriving at the strip of wood, drove a little way in, hitched his team, an fuming back to the edge of the woods, hid in a clump of bushes. Soon he could make the dim moonlight, the spy hastening over open road. Just as the spy came opposite the place of concealment, he snapped off volley 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 woods, moonlighter had reached the cross road was far away on the back track over the hill.

Now, safely arrived, the square tin can containing the nitro-glycerine were lifted cast out of the wagon, the long tin shells were from their concealment, quickly filled an dered. Everything was done rapidly, but extreme carefulness, and it was with a de feeling of relief that the weight was dro 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.

'S5 "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 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 —6°.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.
The following records made at the spring indoor athletic games this year will be interesting for comparison.

Harvard: running high jump, 5 ft. 8 3/4 in.; standing high jump, 4 ft. 6 in.; running high kick, 9 ft. 2 1/4 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 1/2 in.; standing high jump, 4 ft. 6 1/2 in.; putting the shot, 35 ft. 4 1/2 in.; pole vault, 9 ft. 6 1/2 in.

Yale: running high jump, 5 ft. 6 3/4 in.; standing high jump, 4 ft. 6 in.; running high kick, 8 ft. 4 1/4 in.

The intercollegiate records in these events are: running high jump, 5 ft. 10 3/4 in., University of Pennsylvania; standing high jump, 5 ft. 1 1/4 in., Harvard; running high kick, 9 ft. 2 1/4 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 Kendrick, 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:

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Innings: 1 2 3 4 5 6 7 8 9


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:

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</table>

Innings: 1 2 3 4 5 6 7 8 9

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 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 "Russo-phobe," 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 the 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 Goldsmed. Gen. Goldsmed 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," "Reconnoitering 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 "Reconnoitering 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 Mechanics. 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 always 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 zinching.
- 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.
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."

A toot-ensemble,—The German street band.

A newspaper could not 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.

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.
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 Basar.
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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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Besides the above distinctly professional courses, the Institute offers scientific courses of a less technical character, designed to give students a preparation for business callings. A four years' course in biology, chemistry, and physics has been established, as preparatory to the professional study of medicine.

Modern languages are taught so far as is needed for the ready and accurate reading of scientific works and periodicals, and may be further pursued as a means of general training.

The constitutional and political history of England and the United States, political economy, and international law are taught, in a measure, to the students of all regular courses.

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.

Surveying instruments are provided for field work in civil and topographical engineering. Extensive shops have been fitted up for the use of both hand and machine tools; and a laboratory of steam engineering has been established as a part of the instruction in mechanical engineering. Several steam boilers and steam engines of various types are available for experiments and tests. The department of mining engineering and metallurgy has the use of laboratories in which the milling and smelting of lead, copper, silver, and other ores, in economic quantities, are regularly performed by the students themselves. The classes in architecture supplement the work of the drawing and designing rooms by the examination of structures completed or in course of erection, and by practical experiment in the laboratory of applied mechanics, testing the strength of materials and working out problems in construction. The Kidder Chemical Laboratories, just completed, contain desks for four hundred and twenty-six students, and afford the best modern facilities for the study of general, analytical, and organic chemistry. The Rogers Physical Laboratory has been greatly extended in every department during the past year, especially in respect to facilities for instruction and research in electrical science.

On the successful completion of any one of the four-year courses of the Institute, a degree of bachelor of science will be conferred. The Institute is also empowered to confer the degree of doctor of science. Special students are allowed to enter special divisions of any of the courses, on giving evidence that they are prepared to pursue with advantage the studies selected.

The Institute of Technology, as a recipient of a portion of the United States grant to colleges of agriculture and the mechanic arts, gives instruction in military tactics.

The fee for tuition of students taking the full course is $200 a year. Besides this, $25 or $30 are needed for books and instruments. There are no separate laboratory fees. Only payment of articles broken is required.

Attached to the Institute are also two special schools; viz., the "School of Mechanic Arts," and the "Lowell School of Industrial Design." The former gives a training in the use of tools, together with elementary mathematics and drawing. English, French, and geography are also taught in this school. The fees for tuition are $150 a year. The Lowell School teaches the making of designs for prints, carpets, wall-papers, laces, ginghams, and other woven goods. A weaving department with a variety of looms is connected with this school. No charge for instruction is made.

FRANCIS A. WALKER, President.
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.

The very large teaching force at Chauncy Hall enables students intended for the Institute, for college, and for business, to be specially trained in separate classes. Particular oversight of the "Institute class" is held by the Junior Principal, Mr. M. Grant Daniell. In Geography and Grammar, this class is under the charge of Mr. O. F. Bryant, Associate Principal, who has been connected with the school over twenty years; in Mathematics, it is taught by Mr. R. F. Curtis, head of the mathematical department; in History and Literature, by Mrs. A. F. Harris, head of the literary department; and in French, by Monsieur A. H. Soliel.

In thus receiving instruction from different teachers, each a specialist of long experience, an earnest pupil may be sure of sound and symmetrical training. This method of dividing the work of preparation for the Institute has been satisfactorily practised at Chauncy Hall for years.

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