

# The Tech.

No. 12.

BOSTON, APRIL 19, 1882.

VOL. I.

## THE TECH.

Published on alternate Wednesdays, during the school year, by the students of the Massachusetts Institute of Technology.

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Subscription, \$2.00 per year in advance.

Single copies, fifteen cents each.

Communications requested on matters of general interest.

Copies for sale by A. WILLIAMS & Co.

ALFRED MUDGE & SON, PRINTERS, 34 SCHOOL STREET, BOSTON.

THE board of directors of THE TECH have been considering the manner of electing the next management of the paper. The following is their view of the matter:—

The term of office for which the present board of directors, and also the editors, were elected, expires with the present school year. It seems necessary, therefore, that some arrangement should be made in order to insure the successful starting of the paper at the beginning of the following term. As the present arrangement of a board of directors, appointed by the several classes, and invested with power to choose editors, seems to have been a successful one, it will probably continue in nearly the same form hereafter. The following plan is suggested as a desirable one for the appointment of the new staff: Let the three lower

classes call meetings, before the end of this term, and choose their directors, just as before, who will represent the three upper classes respectively next year. Then let the new board meet and organize, appointing their editor in chief and class editors. At the end of the term the new board of directors will meet the old board and arrange money matters, etc. The new directors and editors will have no duties to perform this year, but will be able to begin next year without any difficulties at the start. The entering class can appoint their director soon after the beginning of the term, and an editor or editors can be chosen from them without causing any serious delay.

THE recent action of the drill authorities in reducing a sergeant to the ranks is to be regretted. So far as his associates in the battalion could discover, the sergeant in question performed his duties at least as well as the majority of the cadets, and such a degradation, to have been just, should have been general. The sentiment of the corps was expressed by a petition signed almost without exception by the cadets, and praying for a reconsideration of the matter.

FRIDAY evening of this week will be the occasion of the "Annual Ball" given to the Senior Class by the three lower classes. As is well known to our students, it has been customary for some years past to give this complimentary ball during the latter part of April, some weeks before the final examinations. This year the date, April 21, was chosen by the committee as the most convenient for the students, leaving at least three weeks before the beginning of the "annuals." As the ball is given in honor of the graduating class, and has become an estab-

lished custom, its success should be a matter of interest to every student, and we shall hope to see a goodly number from the Institute on the floor that evening. The committee has worked faithfully; and with the assistance of all interested, we can feel assured that '82's ball will be as successful as any of past years.

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## Contributions.

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### Comets.

THE phenomena attending the occasional visits of these "pilgrims of the skies" have always excited a lively interest; but the nature of these phenomena is so remarkable, and so subject to change, that its true import has but recently been recognized. To Aristotle and to most of the ancients, comets were merely transitory meteors, — a sort of gigantic will-o'-the-wisp. Aristotle divided the atmosphere into three strata, the upper one being the region of fire. Comets, according to this philosophy, were gases or exhalations rising from the earth. When they entered this upper stratum, they took fire, and burned as long as any combustible matter remained. Seneca and a few of his contemporaries appear to have held ideas which were rude approximations to our own.

Be that as it may, however, the idea that comets were portents and presages was all but universal. Rulers and states trembled alike when one of these dire harbingers appeared: it was a direct precursor of the gods' approaching wrath. Naturally we find, in the accounts of the old historians, numberless curious but often only apparent coincidences between the apparition of a comet and the approach of some national misfortune. Thus, according to Josephus, a great comet hung above Jerusalem during the year 69, and announced the city's fall. Shortly after the death of Cæsar, a comet appeared, and was, to the Romans, the soul of their great emperor transported to the skies. A long list might be given of the kings and emperors whose demise was immediately preceded by the advent of one of these "fatal stars." Con-

stantine, Charlemagne, Valentinian, Mahomet, were all considerably notified of their approaching dissolution. To a man of the Middle Ages, the comets of 1881 and the death of President Garfield would have been in close relation.

Not only were comets looked upon as auguries of ill: they were often regarded as active agents in the dispensation of evil. Ambrose Peré describes a comet which was seen in 1528, and which "was so horrible, so frightful, and which produced such great terror in the vulgar, that some died of fright, and others fell sick." Such was the influence of one of those bugbears of ignorance, which, in the light of modern science, become objects of beauty and ennobling research.

These crude ideas prevailed until almost the time of Newton. Milton only expressed the general superstition when he wrote of the comet, which

"from its horrid hair  
Shakes pestilence and war."

As scientific observations multiplied, however, men began to free themselves from the pernicious influence of Aristotle; and it was not long before the discoveries of Kepler, Newton, and Halley had forced upon them the facts regarding cometary orbits, and the place of these stars in the heavens. Newton proved that comets, like the other heavenly bodies, are obedient to the law of gravitation, and he then deduced the nature of their paths. Later, Edmund Halley, by comparison and study of the comets of 1531, 1607, and 1682, decided that they were successive apparitions of the same comet, which therefore had a period of about seventy-six years. He predicted its return in 1758; and the comet, since known as Halley's, was true to the prediction. This happy result naturally gave a powerful impetus to the study of cometary astronomy, and discoveries began to accumulate.

Before we go further, let us consider the chief points of difference between a comet and the other heavenly bodies. The tail would probably be first suggested, but it is by no means the

most characteristic difference. Comets without tails are probably as numerous as those which boast that appendage. The true way of distinguishing a comet is to note its path in the heavens. That any perceptible motion exists at all, of course removes the body in question from the number of the fixed stars; it only remains to see if the stranger's path is that of a planet.

The planetary orbits, without exception, are slightly eccentric or lengthened ellipses, which have but a small inclination to the plane of the ecliptic, the apparent path of the sun. The motion of a planet also is always direct. Now, the orbits of comets are, when ellipses, always of marked, sometimes of enormous eccentricity; they are occasionally parabolic, and frequently hyperbolas. Moreover, they exhibit every possible degree of inclination to the plane of the ecliptic; so that comets, unlike planets, may be seen in any part of the sky. We have said that the motion of the planets is always direct; that of comets, on the contrary, is either retrograde or direct, — as often one as the other.

Comets are visible during only a portion of their revolution. This happens partly because they recede to such vast distances from us, and partly because of the faintness of their light. The length of the period of visibility varies in different comets from a few days to seventeen months, which was the length of time the comet of 1811 was seen.

Another and striking difference between comets and planets is found in their physical and chemical constitution. The planets have a well-defined and stable form, while comets appear often to be mere nebulosities, or, as one of the old astronomers called them, "wandering clouds." In the centre of this cloud-like vapor, or nebula, which is called the coma, or hair, is generally a much more highly condensed portion of matter. This condensed matter is known as the nucleus. The coma and nucleus together form the head of the comet.

As the comet approaches that part of its

orbit nearest the sun, the head generally undergoes a series of remarkable changes. The condensation at the centre becomes more marked; the brightness of the comet increases, and the coma seems to prolong itself into the faint, vaporous trace which forms the tail. The tail is almost always in a direction opposite to the sun, and sometimes attains to enormous dimensions. That of the comet of 1858 had a length, as calculated, of nearly 55,000,000 miles. Most frequently but one tail is formed, but comets with multiple tails are not uncommon; the year 1774 was made memorable by a great comet which showed six tails, spread, like a fan, across the sky. Most frequently the tail is straight, but it often exhibits a marked curvature.

That part of cometary astronomy which relates to the theories of comets' tails is by no means in a settled condition. The most commonly received theory is, that as the comet approaches the sun a part of the matter in the head is strongly attracted to that luminary; but that meeting with a powerful repulsive force, also emanating from the sun, this matter rises but a short distance before, under the influence of this repulsion, it is made to stream backward beyond the nucleus, like the smoke from a railroad train. This repulsive force is supposed to be electrical in character, and may arise from the heated condition of the sun's surface.

Many other theories have been proposed, but all are open to grave objection. Among these theories is a very beautiful one by Prof. Tyn-dall. He discovered that if a mixture of air and certain vapors filled a tube, the mixture would, under ordinary circumstances, show no change; but that if a beam of light were sent through a lens and into the tube, a decomposition of the matter inside took place, and the tube was filled with a luminous cloud. Now, according to the distinguished physicist, comets are composed of vapors which are readily decomposed by the sun's rays, and these rays shining through the vapors cause the luminous cloud, in this case the tail of the comet, to be manifested.

After the comet has made its perihelion passage, — that is, after it has gone by that part of its orbit nearest the sun, — the tail begins to disappear and the light of the comet to wane. It may be now that the comet is moving in an ellipse, and that it will return to us again, or it may be that the comet is describing some other curve, and has left our sight forever.

The light of comets is at times of distinct color; blood-red, blue, white, and yellow comets have been mentioned. By the aid of the spectroscope and the polariscope, astronomers have been enabled to determine much about the chemical constitution and the light of comets. The spectroscope has revealed that these curious bodies are formed of highly rarefied vapor, and that this vapor consists principally of carbon. According to some astronomers the carbon is united with hydrogen, forming marsh-gas; according to others it exists as carbonic acid. The polariscope tells us that most of the light of comets is reflected from the sun, but that a portion of it is probably their own.

The amount of matter in comets, or their mass, has been variously estimated. Some have reasoned, from the fact that Lexell's comet passed in 1779 among the satellites of Jupiter without apparently in the least disturbing them, although sensibly affected itself, that the mass of comets is hardly worth consideration. The mass of this comet, however, was over two hundred times smaller than that of the least of Jupiter's satellites, and it was improbable that any perturbations caused by the comet would have been visible to us. Calculations by Prof. Harkness in a government report show that so small a comet as Encke's has probably a mass equal to that of a sphere of lead over one hundred miles in diameter. We should remember, however, in viewing these figures, that so rare a gas as atmospheric air weighs about six million tons to the cubic mile. If a comet were to strike the earth, it is not likely that any serious results would follow. Indeed, it is quite probable that the earth passed through the tail of a comet in

June, 1861. Absolutely no ill effects were experienced.

The number of comets is vastly greater than is popularly supposed, and according to trustworthy calculations must amount to many millions. To repeat an oft-quoted remark of Kepler: "Comets are as numerous in the heavens as fishes are in the sea." Among the many celebrated comets are found Encke's, which returns every three and three tenths years; Biela's, which astonished us by dividing itself in two; and Halley's, before mentioned.

Of late years an intimate relation has been traced between comets and shooting stars. It has been found that the collections of meteors follow a definite track in space, and that this track is always that of some known comet. Various other facts tend to prove at least a community of origin for these two classes of bodies. The limits of this article forbid an extension of this part of the subject. In this connection, however, I may say that the German geologist, Dr. Hahn, claims to have made a wonderfully suggestive discovery, — a discovery which purports to be none other than that of the existence of whole series of organic remains in these meteoric stones, which come from far beyond our atmosphere. The authenticity of this discovery is doubtful, however, as it is probable that these "remains" are merely bronzite, or something similar, in radiate forms.

A. D. L.

#### The Alumni Association.

THE first active steps towards the establishment of the Institute were taken, as is well known, in 1863-64; the first class graduated in 1868. These facts render perfectly clear the reason why the alumni have, as yet, taken no conspicuous part in the board of government of the school. The direct influence of those graduates who are members of the Faculty has been and is important, and, with that of the one alumnus who is a member of the corporation, forms the only direct channel through which the influence of the alumni can be brought to

bear in the affairs of the school. But the Alumni Association, as a body, entertains and wishes to foster the liveliest interest in the welfare of the Institute. It may contribute to this result if those who are upon the high road to membership in this organization can become acquainted with its history and doings.

After various informal consultations upon the subject, a circular was sent out in October, 1874, by a committee of the class of '73, of which Mr. W. A. Kimball was chairman, with the object of obtaining an expression of opinion upon the feasibility of forming an association of the alumni. As a result of this a meeting was called on Jan. 29, 1875, at which twenty-seven of the alumni, then numbering eighty in all, were present. At this and a meeting held on March 17, the organization was completed and a constitution adopted. Prof. R. H. Richards was elected president, and Prof. Charles R. Cross secretary. The official organization consists further of a vice-president and an executive committee, including the incumbents of the three offices already named, and two other alumni. None but graduates of the school are entitled to membership, although others are welcomed at the social meetings.

It is thus largely to the efforts of the class of '73 that the establishment of the association was due; but those who were connected with the first development of the plan recognize warmly the active coöperation and encouragement given by Prof. Runkle, then president of the Institute. Without the aid of the interest which he manifested, it is doubtful whether the scheme would have been carried to success at that time.

The original aim of the association seems clearly to have been to promote the interest of alumni in each other and the Institute; and in the latter connection to take all proper steps to keep itself informed as to what would promote the welfare of the school, aiding, as far as it might have power, towards that end. This feeling is not less strong now than at that time; and it is safe to predict that with the increasing

experience of its members, the association will occupy an important position in relation to the government of the institution.

The first official publication of the association was a pamphlet of thirty-five pages, printed in 1876, and containing a brief biography of the members up to that date. Since that time a list of members with addresses and occupations has been issued yearly; that of 1881 showing a list of two hundred and fifty members, which will be increased by last year's class to two hundred and seventy-eight.

Two meetings are held each year. Of these, the first is the annual meeting, and occurs regularly on the third Thursday in January. At this a business meeting is held, followed by a dinner. The second is a social reception given to the graduating class. This is the outcome of a generally expressed feeling that some opportunity should be afforded those men about to leave the school to meet, in an informal, social way, the members of the Faculty and of the Corporation. The first reception, given in May, 1878, upon the responsibility of the executive committee, was so successful that the plan has been since formally adopted by the association, and is carried out each year.

Of the other active steps taken I need refer only to the appointment of a "Committee on the School," which reports annually or biennially upon the condition of the Institute, and to the recent action in the establishment of a permanent fund for the benefit of the association.

A circular letter sent by an interested member of the Executive Committee in November, 1879, elicited so many replies favorable to the project that resolutions were offered and adopted at the annual meeting of the following year concerning this alumni fund. By these resolutions the members were invited to subscribe, payments to be made annually for five years. The fund thus gradually formed was to be placed with three trustees, and no portion of the principal to be expended except by a two-thirds vote of the members present at a meeting. The sums thus pledged amounted at the time to \$1,000,



and of this two years' subscriptions have been paid in, making with other subscriptions a total of four hundred and seventy-one dollars now in the hands of the trustees. The direct object of the fund is that its income may place a larger sum at the disposal of the Executive Committee, which may serve to meet unforeseen or unusual expenses incurred in the interest of the association without having recourse to special assessments. Besides this, the mere existence of the fund will doubtless prove to have not unimportant influence.

At present Mr. James P. Tolman is president of the association, having succeeded Professor Richards, who resigned in 1880. Professor Cross has continued to hold the office of secretary.

S. W. H.

The *Traveller*, under the heading "Proposed Workshop on Trinity Square," has the following:—

"We are informed that the corporation of the Institute of Technology, at a fully attended meeting, unanimously decided to proceed immediately to the erection of a building for workshop purposes on that portion of Trinity Square at the junction of Boylston Street and Huntington Avenue, which was donated to the Institute by the State some years since. . . . The accommodations at the Institute are very much crowded, and more room must be had at once, or at the beginning of the next school year students will have to be turned away. . . . Gen. F. A. Walker, John Cummings, and E. S. Philbrick were appointed a building committee, with full power to proceed at once to the erection of a workshop building so as to have it ready for use in October next."

"There are two boating associations here," wrote a Japanese student home, "called Yale and Harvard. When it rains the members read books." — *Ex.*

We have just read a handkerchief-flirtation code, and now advise all men desiring to avoid breach-of-promise suits to wipe their mouths with their coat-tails. — *Ex.*

## Mining and Chemistry.

THE 26 annual dinner came off at Young's, Tuesday evening, April 11.

Recently a horse-car was run in England by means of the Faure accumulator and a dynamo machine, connected by cog wheels and gearing to the wheels. The distance traversed was about  $2\frac{1}{2}$  miles; the dead weight of the car was  $5\frac{1}{4}$  tons; the speed reached, 7 miles an hour, although the car was not of the most advantageous build for the purposes of the experiment. The experiment was successful, stopping and starting the car being effected with great promptitude. — *Engineering and Mining Journal*. Another journal, speaking of the same experiment, says that by this method cars can be run at about one half the cost of running by means of horses; and that the principal defect noticed was a grating of the pinions, which could easily be remedied.

The *Mining Gazette* publishes an interesting extract from a paper by Dr. Egleston in the *Columbia School of Mines Quarterly*. The extract relates to the losses involved in the methods of separating the precious metals from their ores, and the causes of these losses. In crushing, the ore may be made either too coarse or too fine: if too coarse, all the gold and silver will not amalgamate; if too fine, float is produced, and the precious metals are apt to be put in a condition in which they will not amalgamate. Holes in the castings of stamps and pans sometimes produce loss, the amalgam carrying the gold and silver penetrating thus into the metal. Too thorough cleaning of the plates is another source of loss, new plates not acting as well as old. Too slow a current of water leaves the plates covered with sand; too rapid a current prevents the gold from being caught. These and many other causes produce immense losses; much greater than is usually supposed, as they are only shown by systematic assays of the tailings, while as a general rule such assays are not made.

## Science Notes.

THE *Geological Magazine* cites some curious instances of meteorites which have been found intensely cold on falling.

An instrument closely resembling the telephone is said to have been invented in the seventeenth century by a soldier in the service of the Bishop of Strasburg. — *Journal of Science, London*.

An English daily paper speaks of the sodium of calcium as a dangerous compound.

A new violet coloring matter is formed by exposing starch paste to the vapors of acetic acid.

The average lung capacity of boys is 65 cc. per kilo of weight of body, and 57 cc. for girls.

A Russian naval officer has invented a sounding apparatus for deep-sea measurements which requires no line. Its essential parts are a heavy block of lead, a small float, and a wheel attached to a register. The wheel revolves as the machine descends. On reaching bottom the lead is detached, and the float brings the apparatus to the surface, where the register is read.

Movements of the ground appear to be going on in the Jura Mountains. Villages invisible to each other only thirty or forty years ago are now plainly in sight.

A new comet has been discovered, and is likely to become a conspicuous object before its perihelion, which, according to the first rough calculations, occurs in June.

An Englishman, Col. Burnaby, crossed the British Channel in a balloon. This is the first time that the feat has been accomplished.

Recent experiments show that filings of lead under pressure of 2,000 atmospheres are converted to a solid block, while at 5,000 atmospheres the lead "becomes like a liquid." At this latter pressure powders of zinc and bismuth become solid crystalline blocks, and red phosphorus is changed to the black variety.

## Sporting Notes.

ON April 4th, at the games of the Union Athletic Club in Music Hall, E. T. Sturgis, M. I. T. A. C., won the pole vault at 9 ft. 4 in.; Simpson, U. A. C., 2d, at 9 ft. 3 in. Putnam, M. I. T. A. C., also took third place in the parallel bars. The tug of war between Harvard '82 and our middle-weight team did not take place, owing to Mr. Ferris's refusal to receive the entries on the 3d, although from his manner at our games on the 1st we were led to believe the contrary would be the case.

Everything, so far as the tugs of war were concerned, in the games given by a post of the G. A. R. at Lynn on the 5th, reflected great credit on the ingenuity of the Lynn Light Infantry in its endeavors to take first place. The ribbon marking the centre of the rope was about three inches broad, the rope itself not much larger in diameter than an ordinary top cord, and generously furnished with a weak splice on the side of the opposing team. Every one, presumably the judge too, was thoroughly imbued with the idea that the Lynn Light Infantry must win. The Lynn men stepped forth with the consciousness of victory shining from their countenances; and were applauded to the echo. "Heave" was given, and our men got them on the drop; however, the splice gave enough to give about three quarters of an inch of the ribbon to the Lynns, and though our men had the rest of the three inches of ribbon from the mark on the floor, the judge gave the tug to the Lynn Light Infantry team. The Jamaica's, seeing the cordial preparations awaiting them, decided not to pull, and had our men been wiser they would have done the same. After all, though, a little experience is a good thing; and while the *esprit de corps* runs as high as it does in the Lynn Light Infantry, we would advise members of athletic clubs outside of Lynn to keep away from its games.

A scholar once wrote on his tea-chest, "*Tu doces*," — thou teachest!

## In General.

**I**T is time to be looking forward to the annual examinations.

The dumb-bell class is falling off.

Fast Day was the last holiday of the term.

The lectures in mining are now treating of pumping machinery.

Our base-ball team was practising on Ross field last Saturday.

The prize drill will come off on the afternoon of the 29th.

Contrary to expectations, Mr. Ross will smelt his lead ore (galena) from Colorado.

Our adjutant is on the sick list, having sprained his ankle by a fall from a bicycle.

The gold ore from near Lyman, N. H., yielded \$4.95 for 2,390 lbs. (dry) crushed.

The battalion has received an invitation to take part in the parade on Decoration Day.

Mr. Jones, formerly proprietor of the "Institute Dining Hall," is head waiter at the Vendome.

The manufacture of bricks, by hand, and without straw, has been introduced into the mining laboratory.

The men from '85, on the ball committee, are Messrs. Harding, Richards, and J. L. Kimball. Freshmen can obtain tickets from them.

A brilliant student of the Harvard Medical School informed a Tech the other day that tincture of iodine is made by soaking the *root* in alcohol!

"Sir," said the belle to an antiquated individual, who was trying to flatter himself into her affections, "you shouldn't talk to me in this way: such remarks are bad-in-age."

A Hancock Inspirator has been put on the distilled water boiler in the mining laboratory. It is the prayer of Jack that none will be so inspired as to fool with the cocks.

The quantitative laboratory closes May 6. This is a week earlier than last year, and it is

the unanimous opinion of the students therein interested that it is just seven days too early.

The following notice has for some time past graced the bulletin board: "To let, with board, part of a large room handsomely furnished for one gentleman on the back bay where there are few other boarders."

The learned physicist of '82 desires that the name of one of the thermometers mentioned last week should be correctly spelled; viz., "Alvergnyat," not "Alverquist." He also states that after another heating, the zero-point has risen to 22°.

A crisis is imminent for the V.'s and III.'s, '82. C. D. J. and C. A. F. are getting huffy. Two can't visit the same house many nights in the week without one or the other getting riled. We'll bet on C. A. F.

Mr. Lund, '81, has resigned his position as second assistant in the quantitative laboratory, to take a more remunerative one in Philadelphia. His loss will be felt by all in chemistry and mining. His successor is Mr. Allen, '79.

Fond mother (about to start for Europe): "Now, George, you must promise me not to drink anything while I am gone." George does n't see the necessity. "Well, you won't drink anything stronger than *milk punch*, — will you, dear?" George promises with alacrity.

In the writings of an old-time prohibitionist we find the following: "Call things by their right names. 'Glass of brandy and water.' That is the current but not the appropriate name. Ask for a glass of liquid fire and distilled damnation." Rather rough, that, on the water!

The chief of the Signal Service has sent to President Walker a circular setting forth the desire of the department for young men of scientific tastes and training. The service is on a military basis, enlistments being for five years. The salary is said to be good, while the position places one in the way of military advancement.



The following is what the '82 miners have done in the forge shop: Welding of two pieces of square iron and two pieces of round together; welding of iron on steel; welding and making an eye-bolt; making and tempering a cold-chisel, a stone-drill, and a small hammer. The course ought to be five weeks instead of three.

The Golden Rule of the Faculty seems to be to reject all petitions. In accordance with a time-honored custom, a petition praying for the portion of the week after Fast Day was sent in to the Profs., in council assembled, and was by them tenderly laid aside until the time when the autographs of its two hundred and fifty signers can be sold for enough to warrant the erection of the new building.

The following occurs in "Rutley":—

"Felstone (eurite, hälleflinta, petrosilex) consists of felsitic matter (viz.: an intimate granula-crystalline, micro-crystalline, or crypto-crystalline, admixture of orthoclase and quartz, in which crystalline granules of plagioclastic feldspars not unfrequently occur). In this felsitic base, which, typically, constitutes the matrix of all felstones, feldspar crystals, commonly orthoclase, are often developed; and like those in porphyritic granites, are frequently twinned on the Carlsbad type. Such rocks are termed feldspar porphyries."

At a meeting of the members of the base-ball nine, Haines, '84, was unanimously elected captain, after the positive refusal of Chase, '83, to accept the position. The men practise every afternoon on Ross field, and are in hopes to play a match game with some college nine every Saturday until vacation.

The notices in Sunday's papers, on the 2d, about "great interest being felt in the tug between Harvard and the Institute, etc.," seemed to be somewhat on a par with the posters which announced that Myers would give an exhibition run, and the 7th Regiment team would, in all probability, pull in the Union's games at the Mechanics' Building, when both Meyers and the 7th Regiment were absent. The Union cer-

tainly has a unique if not altogether truthful way of creating a paying interest in its games.

The class supper of '84, held at Young's on the 5th inst., was a great success, there being thirty-six members of the class present. Messrs. Hall & Whipple set forth a banquet which in no way detracted from their high reputation in that line. Speeches were made by the president, secretary, and treasurer, and president *ex officio*. The class then toasted the Institute, its president, ex-presidents, and professors, the Athletic Club, the middle-weight tug-of-war team, the 9 ft. 4 in. pole vault, and lastly the 2 G, M. E., and Σ. X. societies. Mr. Cheney favored those present with a song, Mr. Chandler playing the accompaniment, and all joining in the chorus. Several other members gave musical selections, and the time was pleasantly spent until eleven o'clock, when the party broke up.

Since our last issue, members of the Sheffield Scientific School, the Stevens Institute of Technology, and the Worcester Institute of Technology have visited the Institute.

Daniel Pratt has over one hundred feet of manuscript. He has presented us with nineteen inches, which we have laid up against the time of need.

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## College News.

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THE Memorial Hall difficulties at Harvard have finally been settled, the steward having accepted the terms offered him; consequently the board is below \$4.25, and the bill of fare not so varied as formerly, though the quality remains about the same.

About \$700 was cleared by the Athletic Association from the sale of tickets for the four winter meetings. It is estimated that there were 1,100 persons present at the first, 1,200 at the second, 1,500 at the third, and 700 at the extra meeting.

The Harvard-Yale boat race will probably be rowed this year on Friday, June 30, the date

that Harvard desires, on condition that Yale names the dates in '83 and '84, either the Thursday or Friday immediately following Commencement day.

The '82 tug-of-war team will probably engage in a private, friendly tug with the Technology team soon, just to settle that question of supremacy. — *Herald*. Having eight inches of rope pulled through their hands does n't appear to be satisfactory to '82.

Over \$5,000 has been raised for the fund for the support of the family of the late Ko-Kun-Hua. The fund will be invested here, and the income sent to China.

Dr. Sargent, in comparing the value of different sports, placed foot-ball at the head of the list.

Messrs. Thomas and Henry Sloan, of New York, are to build a \$50,000 laboratory for Yale, and present it to the college as a memorial of their father, William Sloan.

The average costs of a four-years course at Yale is estimated at \$3,825.

On March 24 was published the first number of the *Yale Critic*, a four-page review.

Yale men get reduced rates to go home on.

For the last three of four years, the first game of the Harvard-Yale Freshman series has been played at New Haven, and the *Herald* strongly urges that this year it be played in Cambridge.

A disgraceful and brutal hazing affair happened recently at Trinity, the cause being the publication of the annual edition of *Ye Jug*, a small sheet containing lampoons on the Faculty and members of the Senior Class. The sheet is a Sophomore production, and the men hazed were its three editors; the hazers being thirteen Seniors, who composed what is called the "Grand Tribunal." The Sophomores were conveyed to a secluded place and there branded with the letters G. T. on the back of each hand, burned in with nitrate of silver. After this they were left to walk back to the

college, a distance of six miles; one of them being left blindfolded in a swamp. The Sophomores, it is said, have instituted proceedings against three of the Seniors. — *Echo*.

The executive committee of the National Association of Amateur Athletes has decided to hold the championship games on June 10, and award the usual number of medals.

There are about 150 college journals of various kinds published in the country.

A move is being made in the direction of the formation of an intercollegiate temperance society.

Columbia and Harvard will both have strong lacrosse teams this year.

Columbia has 1,494 students, the largest number in any American college. — *Echo*.

Dartmouth is in a great deal of trouble, financially and otherwise.

A student's excursion starts June 15, 1882, from Indianapolis. For \$300 the student can make a tour of England, Belgium, Germany, Switzerland, Italy, and France.

The University of Berlin has now over 4,000 students.

Washington Territory is said to have two colleges.

At Williams, thirteen Freshmen were recently suspended for "surreptitious procurement" of some examination papers.

Williams Freshmen are going to wear mortarboards. — *Herald*.

The ladies, as well as gentlemen, wear the mortar-board at the University of Wisconsin.

Cornell's Freshman crew are very desirous of being admitted as a third competitor in the race between Harvard and Columbia.

The nines of Racine, Northwestern University, and the Universities of Michigan and Wisconsin, which compose the Western College Base-Ball Association, have arranged a series of twelve games for the championship of the West. The series will begin about May 2.

# The Tech Supplement.

BOSTON, APRIL 19, 1882.

## Stained Glass.

### II. — ITS HISTORY (*continued*).

WHATEVER glass existed in windows in the dark ages has since perished; and probably the oldest window in existence is in a church at Neuwiller, in Alsace, representing St. Timothy. Although the drawing is crude, the glass-work is good, and bears witness to a certain skill in the artificer. The only specimens extant of twelfth-century glass are some windows in the Church of St. Denis, near Paris. It is known that the abbot Suger presented his church with some glass windows at this period; and that these windows were the ones seems to be borne out by a portrait of him which one of them contains. During the thirteenth century, glass-work shared the general revival in the arts, and much attention was paid to the windows of churches; the object of these windows being not so much decoration, but acting more as a medium through which to make the people familiar with biblical subjects. From this time down to the Reformation were the palmiest days of what is technically known as "glass-painting." But as a discussion of the different styles and kinds of windows prevalent in various countries during the different centuries belongs more properly under the next head, "Its Use in Windows," I will not treat of them now. The use of glass in windows during the Middle Ages was almost entirely confined to churches and the houses of the wealthier class; and it was not until as late as the seventeenth or even eighteenth century that it came into common use, and then in very small and uneven panes. During an age when it was the exception rather than the rule to find a man, even among the upper classes, who could read, much less who had any knowledge of the natural sciences, it is not strange that numerous stories of a fabulous nature sprung into exist-

ence to account for the various processes of a manufacture which was vested with such great secrecy, and which converted two such opaque materials as alkaline earth and sand into a transparent and vitreous substance. One of the most prominent of these myths was the property accorded the furnace of producing the monster termed the salamander. His fiery Majesty was supposed to lie coiled in his bed of white hot coals, occasionally stretching forth his claws to capture any unwary workman who might venture into too close proximity to the furnace door. It was in this manner that the disappearance of workmen who had departed suddenly and in secret for foreign lands was always accounted for. The garb of skins of wild beasts and huge goggle eyes, which the men wore to protect themselves from the intense heat while setting the pots, was always a source of great terror in the neighborhood if they chanced to show themselves, and furnished the foundation for all kinds of most horrible *diablerie*. Certain goblets manufactured under certain circumstances were supposed to fly to pieces if they were filled with a poisonous liquid, while others were supposed to possess the remarkable property of allowing a real diamond to pass directly through the bottom. These, with many other fables of a like nature, tended to make the art very famous, and to accord wonderful powers to those who practised it. At the time of the Reformation, when austerity reigned supreme, and any color decoration or richness of vestments alike were considered an abomination of the papists, the art again went under a cloud; and much of the fine old painted glass of the Continent and England, together with encaustic tile pavements and the like, were thrown aside as so much rubbish. The manufacture lay in a comparatively dormant state until the great Interna-

tional Exposition in London in 1857 gave it a new start, and from that time the stained-glass interest has been steadily on the increase.

G. T. S.

Thirteen Seniors have been suspended at Trinity, for hazing.

Walker Hall, lately burned at Amherst, will be rebuilt, sufficient funds having already been procured.

The New England Cotton Manufacturers' Association will hold a meeting in the Institute building, April 26.

It is rumored with much plausibility that the Institute is to have a commodious new building erected by next fall. We have been unable to obtain any definite information regarding the matter.

The '82 chemists have appeared with their new pin or badge. It is in the form of the potash bulbs used in combustion, and makes quite a pretty thing, only it is not original. '82 as a class is quite original, and the V's should have kept the standard up.

Theses, accompanied by abstracts, are to be presented on or before May 10.

The new condenser for the laboratory engine has been placed in position, and experiments will soon begin.

At the judgment on the Art Museum problem, the first mention was awarded to Mr. Prentice and the second to Mr. Hale.

The officers of the Athletic Club have given notice that the next meeting of the club, the out-of-door games, will probably be held in Beacon Park the latter part of May.

The cry of the college press: "Help us, cash us, or we sink." — *Ex.*

Ask a woman how old she is if you want her to show her rage. — *Ex.*

President Seelye, of Amherst, is spoken of as a possible candidate for governor of Massachusetts.

## THE PHOTOPHONE.

He would indeed be rash who should dare to limit the possibilities of modern science. The merest tyro in the scientific knowledge of to-day has the power of producing startling manifestations, which but a century ago would have doomed him to death for witchcraft. Of those discoveries which make the nineteenth century mark a new epoch in the history of mankind, the Photophone of Prof. Bell is perhaps the most remarkable. By its aid we may yet hope to hear the thunders of the storms which rage within the solar atmosphere, and the same instrument may make a reality of the fabled music of the spheres. It is, however, in the department of medicine that the lamp of genius is shining brightest. But one short week ago, upon a bed within a darkened chamber lay the wasted form of a young man whose days were all but numbered; the family doctor had called for the last time, and had gone away with tears in his gray eyes. Seated by the fire, reading the personals in the *New York Herald*, in a vain attempt to smother her emotion, was his fair young bride. Suddenly she uttered a glad cry, and fell forward senseless. Her eye had lighted on a full-page advertisement of the *Great German Remedy, St. Schacobs Oil*. The nurses saw it and rushed to the corner grocery. As they entered the sick-room with the *Great Restorer*, the man was sinking; his breath was almost gone. They forced the reviving fluid between his pallid lips. The first drop reached his palate, and his strength returned; he sat up in bed, and with his new-found voice called loudly for Parker House rolls and steak. The pungent aroma from the *Great Remedy* slowly filled the room. It reached the prostrate wife and brought her to herself and to her husband. Let us, however, over the joy attending her awaking, let fall a veil. For sale by all druggists.

Mrs. Smythe, of Honolulu, New Mexico, writes:—

"How can I bless you? You came to me in my poverty and saved me from disgrace. In my youth that terrible malady, scarlet fever, robbed me of my hair, and thus driven by necessity to resort to artifice, I have worn for the last sixteen years a wig. While lighting the fire last week, my head covering fell into the flames, and when rescued the hair was almost totally destroyed. In my poverty I knew not what to do until I read your advertisement. I purchased a bottle of your Oil, wrapped the wig in a towel which I kept wet with your great discovery. In six hours the hair had begun to sprout, and in two days was over four feet long, soft, and of a beautiful chestnut color. To-day the wig is worth double what I paid for it sixteen years ago."

A. D. L.

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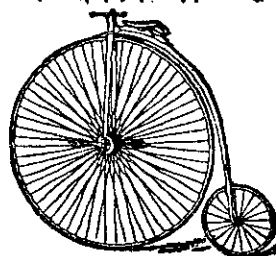
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