

The Tech.

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VOL. I.

THE TECH.

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NOW that the Institute year is drawing to a close, it seems to us that it would be most wise to devise some plan, if possible, before our long vacation, for the furtherance of the interest taken this year in foot-ball.

Why can we not form a league among the New England colleges outside of Yale and Harvard; each college to play one game with every other, and the one winning the greatest number of matches to be champion for the year?

We say outside of Yale and Harvard, because the advantage they possess in being able to pick their teams from a number of candidates greatly in excess of any of the other colleges, added to several years of experience, at present practically precludes the possibility of others competing with them, with any chance for suc-

cess. Besides, these two colleges already belong to an organization containing, with some exceptions, the finest players in the country; and, while we have no doubt both Harvard and Yale would return a courteous reply, were an invitation to join such a league as we propose extended them, it seems to us such an invitation, considering all circumstances, would be rather absurd and might be justly so considered by them.

With Amherst, Bowdoin, Brown, Dartmouth, Wesleyan, Williams, and the Institute in the league next fall, the interest in that manly game would be greatly increased, and we most earnestly hope, for the sake of athletics, that this idea may be acted upon and put through.

THE following table, compiled from the catalogue's list of graduates, will be interesting to our readers. The Institute has graduates for fourteen years:—

Course.	Largest number in any one class, and date.	Total for the fourteen years.
I.....	13 in '73.....	100
II.....	8 in '76.....	49
III.....	8 in '77.....	55
IV.....	4 in '77.....	14
V.....	8 in '81.....	37
VI.....	1 in '70.....	1
VII.....	2 in '76.....	4
VIII.....	3 in '76.....	5
IX.....	2 in '81.....	2
X.....	1 in '80.....	1
Phil.....		2
Sci. and Lit.		10
Total		280

The smallest class ever graduating was 5 in '69; the largest 42 in '76. Course I. is represented in all 14 years; courses II. and III. in all but one year, '80 and '69 respectively. Course V. is represented in all but two years.

Contributions.

Stained Glass.

III. — ITS USE IN WINDOWS (CONTINUED).

STAINED or painted glass windows may be divided into two classes, — pattern and subject windows. In the pattern window, a decorative effect is obtained by a variation of the lead lines to form a geometrical pattern, and a harmonious arrangement of the various colored glasses used. The pattern windows may be divided again into three kinds: the "quarry"; the geometrical pattern, combined with the use of enamels to produce either an outline or filled-in pattern in the individual panes; and the gressaille window. In the quarry window, the lead lines are merely run in two parallel series diagonally across the opening, so as to form lozenge or diamond shaped panes, as shown in Fig. 1. In the second kind of pattern windows, all sorts of motives may

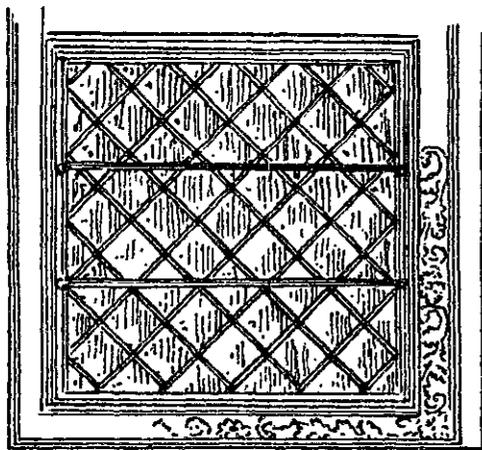


FIG. 1.

and have been employed, from the simplest to the most intricate: The cut shows a little modern light, which is in the collection of the architectural department. The glass is ordinary machine-rolled, and the general creamish tone is produced by the use of various cathedral tints in the different panes. In some places, a little geometrical pattern is produced by staining. The gressaille is simply a window of the second kind, only executed in plain white glass; and the pattern, which is produced in the last case by the yellow stain, is now hatched in lines with a black enamel, giving a grayish tone to the whole window.

The most famous gressaille in the world is the great triple window in St. Mark's Library at Venice. In the Temple Church, in London, there are also some excellent windows of this kind. They have a very agreeable tone, although it is cold, owing to their lack of color. Oftentimes, however, this style of work is used in conjunction with colored work, as in the windows of the north transept of the First Church.

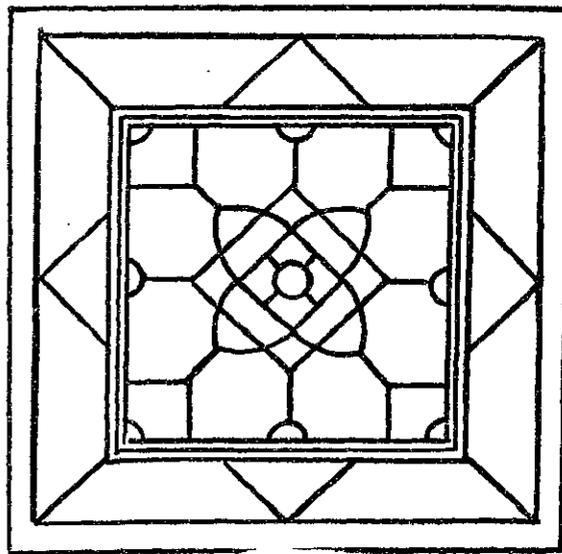


FIG. 2.

When we turn to the subject windows we find several varieties, only one of which, however, can properly be termed a subject window; *i. e.*, where the whole window is given up to the picture, and where no geometrical pattern enters into the composition, save a small border of some kind. Medallion, canopy, and Jesse windows, however, are usually all classed under the head subject. In the medallion win-



FIG. 3.

dow the principal feature of the design is the human figure, either full length or simply the head enclosed within a circle, and the whole

surrounded with some ornamental motive. Simply the medallion containing a figure or head is often used in the composition of the other styles of windows, as in the head of canopies, etc. Fig. 3 represents one from one of the windows in Chartres Cathedral. The true subject window explains itself, and is too familiar to all to need any particular comment. Canopy comes next in order: these windows usually contain the figure of some saint, or



FIG. 4.

church dignitary, surmounted by a kind of canopy composed of a conventional architectural motive. The canopy shown in the drawing is one of the clerestory windows from the Cathedral of Auxerre, and was taken from Viollet-le-Duc's Dictionary of Architecture. The figure seems to stand upon an altar, and the canopy is no doubt meant for a conventional representation of the church. Canopies usually occur in the clerestory, and on account of their distance from the eye their treatment is of a

necessity very bold, and the figures to counteract the effects of vertical perspective are always made about eight diameters high. Jesse windows are comparatively rare, and all of mediæval work. In the lowest section lies Jesse, and from his loins springs his family tree. This grows up through the various sections of the window, and on its branches repose the different members of the Root of Jesse; and the whole is surmounted by a figure of our Saviour on the throne of glory. The most celebrated of these Jesses is the large one in the Cathedral of Chartres. I am sorry I could not give a representation of this; but the whole window would be too large, and a section fails to convey any idea of the general composition.

If now we view glass painting from another standpoint (the manufactures), it rearranges itself under three different heads,—English glass, Continental glass, and enamelled glass. In the English glass, pot-metal colors are used, and the subject treated like a mosaic, with little or no enamelling, all the effects being produced by the use of different shades, tints, or tones of



FIG. 5.

glass in pieces of various sizes, joined together by the leading. A window of this kind is known as a mosaic window. As the lead lines are one of the principal features of this style of glass composition, I cannot do better perhaps than treat of it here. The primary use, of course, of leading is to join the separate pieces together; but besides this, it serves to make a sharp line of demarcation between the colors, and prevent irradiation. When two colors impinge, they seem to lap over one another and produce a combination of the two. This phenomenon is known as irradiation, and in any decoration is very offensive. In an ordinary oil painting the effect is not so noticeable, on account of the comparatively small amount the eye receives. With a stained-glass window,

however, this is not the case; and if it were not for the lead lines, the irradiation would be very apparent. The section of the lead is shown in Fig. 5. The two pieces of glass are put in on each side, and the lead pinched down to hold them firmly.

You will often see, in parts of a window, what might seem like useless leading, as where one large piece of glass has apparently been cut up into a number of small pieces, and then leaded together again. There are two reasons for this: First, to make these large pieces flexible. The windows in a building are always subjected to considerable variations of temperature, and are therefore liable to expand and contract. If, now, this expansion and contrac-



FIG. 6.

tion be not uniform throughout, the glass will crack, especially a large piece, which may be hampered in its movements by the very fact of its own excessive size. Second, in order to preserve unanimity of treatment. For instance, we may have an intricate piece of leading, as in the different parts of a plant, coming against a wide expanse of sky. It is necessary, not to have the treatment of the foliage look weak and of the sky coarse and brutal, to have several lead lines running through the firmament. In the Continental glass, the structure is more even throughout than the English. This is more of a defect than an advantage; for it would allow

the observer to look through, rather than at, the window. In order to remedy this, they scumble their glass all over with some brown or other neutral enamel, to give it texture. This remedies the first difficulty, but introduces another: it detracts very much from the brilliancy of the window, and gives the appearance of a painted cloth transparency. There is some of this Continental glass in a French cathedral at Burlington, Vermont, near Lake Champlain, and the effect is far from satisfactory. The third manufacturers' division, enamelled glass, is not much used; and when it is, the result is pretty poor. It consists of a large piece of monochromous glass with the whole subject enamelled on it, mosaic work being discarded entirely. The whole effect is like a sort of intensified Continental glass, only more dull and uninteresting. Even in English mosaic windows it is impossible to do away entirely with the use of enamels, as in the treatment of the human face and the folds of the draperies. The figure shows how crudely the faces in a design have to be executed in order to counteract the effect of irradiation. Just how much or how little paint to use is a much-disputed question among artists, some affirming that the moment you put any paint on the window you detract from its brilliancy. The other side then reply, "Yes, but you lose the pictorial effect if you do not model your figures with paint," which is equally true. The only rule, therefore, open to you is to decide which is of most importance in the case before you, the brilliancy or the pictorial effect, and act accordingly.

G. T. S.

The Comstock Silver Mines.

THE magnitude of the deep silver mines of the Comstock lode, at Virginia City, Nevada, and the expense and difficulty of working them are not generally known.

The lode itself is about three miles wide, and varies from three hundred to four hundred feet in thickness. The croppings begin to show about half a mile above Virginia City, on Mount Davidson, and from there the lode dips at an

angle of 45° in an easterly direction. The dip of the mountain varies from 55° to 60° ; thus the mines situated farthest from the croppings have to sink the deepest before striking the lode. The lode itself is well defined, lying between strata of hard rock, and consists mostly of porphyry, in which there is a large per cent of lime. This lime, when slaked by the water from numerous springs, generates a great deal of heat, so that in some drifts the miners can work but for a short time. Tons of ice are used daily in each mine; without it the men could not stand the heat. Most of the mines — the Sierra Nevada, Union Con., C. and C., Gould & Curry, Ophir, Chollar, Con. Virginia, etc — are about equal as regards the depth of the lode, and strike it at about 1,800 feet; while others farther down, as the Yellow Jacket and combination shafts, strike it at about 2,200 and 2,600 feet.

Each mine generally has three shafts, one for pumping and two for hoisting purposes. Some, such as the Ophir, have a fourth, through which the incline is worked. The incline proper starts where the vertical shaft meets the lode, and follows it in its downward dip of 45° . The incline car, or "giraffe," as it is called, is worked by a separate hoisting engine at the surface.

Owing to the secluded situation, each mine has to depend on itself as regards repairs, timbering, etc., and they therefore maintain very extensive works. As an example, I will take the Union Con. hoisting works; the others are similar.

These works consist of, 1st, the hoisting works proper, in which the shafts and hoisting machinery are situated; 2d, the pumping-house, which contains a vertical compound beam pumping engine of 1,500 horse-power, and also a large Burleigh air compressor; 3d, the machine-shop, containing lathes, planers, bolt-cutting machines, drill presses, etc.; 4th, the timbering shop, which resembles a very large sawmill, and in which all the timbers are cut, fitted, and numbered before going into the mine; 5th, the boiler-house, containing ten furnaces, with a

double set of 50-inch boilers in each, also two Burleigh air compressors; 6th, the blacksmith-shop, in which all the tools are sharpened; 7th, the ore-house, consisting of large bins from which the ore can be loaded on cars by the use of shoots. There are also several storehouses, offices, etc.

The large hoisting engine is a double, horizontal, direct-acting engine, 28-inch bore, 96-inch stroke, and runs about fifty revolutions per minute. The main shaft, 23 inches in diameter, carries two large iron reels, each capable of winding up 3,000 feet of wire cable three eighths of an inch thick and five inches wide; these reels are loose on the shaft and worked by clutches. The engine never has to lower the cages, this being done by brakes worked by hydraulic pressure. Each engine is provided with a device by which the engineer can tell within half an inch where the floor of the cage is; this is a necessity, as the cars have to be rolled on to the cage from the tunnels at different levels.

The pumping engine is a vertical, compound beam engine, the initial cylinder 60 inches diameter, the expansion cylinder 100 inches, air-pump 62 inches. The beam weighs seventy tons, and is connected to a cylinder at each end. The fly-wheel is connected to one end of the beam and weighs one hundred and ten tons, turning on a shaft of 28 inches diameter. At the other end of the beam is the pump rod, made of 18-inch square timber, and 2,200 feet in length. The sticks of timber used in these rods are from seventy to ninety feet in length, and are put together with large iron straps and hard-wood wedges. By the use of long pieces, wedged together, there is very little lost motion in the rod. To the rod are attached eight 18-inch plunger pumps in pairs, at distances of two hundred feet apart. The lower set take the water at the bottom of the mine, and force it up two hundred feet into tanks from which the next pair are fed, and so on up to the 1,400-foot level, where it is led into the Suro tunnel and carried off some twenty miles. Before the

Sutro tunnel was completed the water had to be pumped to the surface, a distance in some cases of 3,000 feet. The pump rod is balanced every two hundred feet by balance bobs loaded with railway iron, which take all the weight of the rod off the engine.

E. C. H.

How Bicycles are Made at Hartford.

ONE of the interesting places visited by the S. M. E. Society on their trip last winter was the Weed Sewing-Machine Works, at Hartford, Conn. The company long ago acquired a reputation for sewing-machines and metallic screws, but recently the buildings have been enlarged until they cover five acres, and a new interest has centred in the largest bicycle factory in the world, which it has become under the auspices of the Pope Manufacturing Company.

The "Columbia," constructed after the English model of the "Duplex Excelsior," was the first machine turned out four years ago, and at once met with success. In 1880 the lighter "Special Columbia" appeared, and now the new "Expert" presents still further improvements, especially in the front wheel and its driving mechanism.

Perhaps the most interesting department of the works is the forge-shop, since so many parts of the bicycle are drop-forgings, made of different qualities of steel to resist the different strains of bending or breaking to which they may be subjected. There are a dozen drop-forges besides power hammers of different sizes. In England the anvil is still used; but here the wheel flanges of soft steel, as well as the cranks, head, handle bar, and all other forgings, are made in steel dies, some of which are very large and costly. For instance, in the forging of the open head, four or five sets of dies are used, one of which costs \$500. These forges and dies are said to be the largest in the country. By this means the forgings have a fine finish and homogeneity of metal is secured. The backbone and forks are drawn from weldless steel tube in the "Expert," the former having a circular and the

latter an elliptical section. Experience has shown that these forms are most rigid and best calculated to resist lateral and torsional strains. In another room the forks are welded to the arms extending downward from the head; and the rear forks are also welded in like manner. The rims of the wheels are forged with rollers and welded with dies U-shaped so as to hold the tire firmly.

Passing on, we saw the turning and milling of the cylindrical parts, to which afterwards emery wheels impart the polish. Our attention was called to the steering head of the "Expert." After the invention of the centre-steering open head came the cylindrical head with conical bearings, and finally, in this new machine this is still further improved by making the spindle longer and the bearings hemispherical. The accuracy and sphericity of the balls for the "Columbia" ball bearing are insured by grinding them, after case-hardening, in grooves between two horizontal disks, one of which is driven by power. In the wheel-room, the wheels are set up and trued by tightening or loosening the spokes. The latest improvement here is the using of three sizes of wire for the spokes, which are "direct acting" and are "upset" in the felloes. The machine for drilling the holes in the latter at the proper angle is ingenious. The rubber tires are made in moulds and are baked after being stretched and cemented on the rims.

In the assembly-room the wheels, forks, and backbones are put together and marked. Then the various parts are inspected and tested and all imperfect pieces rejected. They next go to the painting or nickelling rooms, according as the machine is to be painted or plated. If the former, they receive several coats and stripes and are left for a considerable time in the drying-room. The pieces to be nickelled are first cleaned and coated with copper, and then a thick plate of nickel is deposited by the electricity during an hour. The tank can receive the largest rims as well as the smallest nuts. Finally, the completed machines pass to the store-

room, where they remain until called to the salesrooms in Boston and elsewhere.

One of the chief features in the American system of machine manufacture is the interchangeability of parts. This appears to great advantage in bicycle making, for the actual number of pieces in a bicycle is about three hundred; but by this system any pieces lost or broken can be quickly replaced at a comparatively small cost. The capacity of the works is one thousand two hundred bicycles per month, and it is difficult to keep abreast with the orders. A corps of designers and experts are constantly devoting their energies to the improvement of the bicycle and tricycle, of which latter none have yet been made in America, though it is very popular in England, it being more comfortable and less dangerous than its fleetier rival.

A. L. R.

Institute Dining Hall.

EDITORS OF THE TECH: I wish to call attention to the condition of the Institute restaurant. The proprietor of this restaurant has a considerable advantage over all competitors in that he has his rent and gas gratis; and, being in one of the Institute buildings, the students would naturally go there in preference to going elsewhere.

Now, under these circumstances, why cannot he furnish patrons with well-cooked, substantial meals at a fair price? At the beginning of the year a large number went there regularly, but these have dropped off until now only one remains. Nevertheless, it is unnecessary to say that the restaurant properly managed would be a great convenience to a large number of students.

Something should be done, so that next fall the restaurant may be opened promptly with a capable proprietor who will endeavor to please his patrons, and thus benefit both himself and the students.

B.

Fragment of a feminine conversation:—
"And you know that awfully cute Freshman from Cincinnati — the one with the old-gold bangs."

Department of Architecture.

MR. KIDDER has sufficiently recovered to resume his work again in the Department. He delivered his first lecture on the 22d.

The two problems on hand at present are, for the Seniors a chateau d'eau, and for the Juniors the grand staircase.

Cobb and his bride are at present stopping with his father in Longwood. The club-house is getting on nicely, and we were told the other evening that the fifteen original houses has now increased to fifty.

Prof. Clarke's Tuesday and Thursday morning lectures have of late been on contracts and the laws of building. These are two subjects of the most practical importance to architects, and Prof. Clarke's large range of experience in superintendence amply fits him to treat of them. Make an effort, brothers, to rise earlier in the morning and don't miss a good opportunity.

The following is a list of the drawings required of the regular Seniors for their theses: One elevation, section, and perspective to scale of eight feet to the inch plan, and two sketch elevations sixteen feet to the inch. Either the principal elevation or the perspective to be fully rendered in color.

The series of lectures to be delivered by outsiders was inaugurated on Thursday, the 13th, Mr. Cummins delivering the first of his course of three lectures on Interiors. He began by consideration of the interiors of Greek temples, and referred incidentally to some of the Egyptian and Assyrian rock cut tombs. In his second lecture on Thursday, the 20th, he treated of Baths and Basilicas. The lectures were well attended by members of the department, and also by some of our brothers and sisters from the Art School.

"Are you sick again, Tom?" Laconic Tom:
"Sic sum." — *Ex.*

Mechanical Engineering.

THE shops will close on the twentieth, giving opportunity for making up work during the examination weeks.

An article on "Petroleum as Fuel," in a recent *Railroad Gazette*, will be found of interest to those of the mechanicals who visited the petroleum furnace some weeks since. The conclusion is as follows: "Notwithstanding these advantages, it is evident that at present prices the excess of cost of heat-producing power of petroleum is so great, that all efforts to substitute the liquid for the solid fuel must almost inevitably result in financial disaster."

The *Mechanical Engineer*, in speaking of Webb's new compound locomotive, says: "But one of these engines has been made as yet, and, in so far as it has been tried, it was found economical of fuel as compared with ordinary locomotives: that is to say, it burned about twenty per cent less coal for the same distance; but whether this is economy or not depends mainly upon how much the repairs cost."

The smallest locomotive in the world is one constructed by Henry Case, of Jamestown, New York, the best part of eight years having been spent in its construction. The engine measures in length eight and one half inches, with tender twelve inches; height three and one half inches; drivers one and three eighths in diameter; cylinder five sixteenths by one half stroke. The engine is complete in all respects, and has whistle, gong, glass water-gauge, lamp in cab and headlight, safety and pop valves in dome. The pumps throw one drop of water per stroke. It weighs one and one half pounds.

Exchange of Mechanical Engineer.

The smallest taps ever cut in a lathe are those made by the American Watch Tool Company, of Waltham, Mass. They are only one one-hundredth of an inch in diameter, and have three hundred and fifty threads to the inch.

A shell race — the oysters. — *Ex.*

In General.

THE TECH supper takes place next Saturday evening at the Brunswick.

The annuals begin Thursday, May 12.

The first year Laboratories close May 12.

The '82 civils have just commenced on their theses.

The miners and chemists of '84 are busy calibrating burettes.

Already some of the '82s are assured of good situations.

The Institute can now boast a professional tug-of-war team.

Vacation begins on May 29 for the survivors of the annuals.

It is rumored that Prof. Ordway will sail for Europe June 3.

Isn't it about time to have something cool and refreshing on tap in the hall?

This question oft arises to those taking building materials: What hasn't Prof. O — done?

A Freshman was heard to inquire at the supply-room for a "masher," — he wanted a mortar.

The Junior miners and chemists recently spent a very pleasant evening at the residence of Prof. Richards, Jamaica Plain.

Tufts College seems to be greatly disappointed over the non-appearance of our base-ball team on the 22d.

Prof. Richards ran a level in the Institute grounds the other morning while the miners smoked their cigarettes.

The officers of the battalion had a group photograph taken a short time since. The proofs are quite good.

We've just learned that the Institute has been visited by rather an important personage. It is no other than that ever-welcome, cunning, little youngster — Cupid. Whom has he hit?

We understand that the near approach of the annuals has caused several Techs to have their beds taken out of their rooms, as they have no further use for them.

There are many rumors afloat in regard to a fishing trip and also a bicycling excursion, both of which were enjoyed by several members of the Institute a little over a week ago.

One afternoon a short time ago a stream of water scarcely large enough to see was all the quantitative laboratory could draw. Matters were explained when it was told that the "confounded mechanicals" were running the engine and condenser.

Two consecutive flunks in first-year French now condemn a man to suspension from recitations for the rest of the term. The result of this will simply be that when a man does n't have his lesson he will cut the recitation.

We congratulate Major Alexander upon his receiving second medal for the best man in Company D, 1st Regiment. We also take pride in noticing that Capt. Damon was awarded the medal for the best enlisted man at inspection in the Concord Artillery.

The "Marriage Probability Sheet" of the '82 III.s and V.s now bids fair to be completed. This curious and momentous sheet was inaugurated by the quantitative laboratory class of '81. It now seems as if some of their predictions were coming true, though from rather an unexpected corner.

Many complaints have been heard concerning the damp air and poor accommodations of the zoölogical laboratory in the Natural History Building. This is a matter that should be attended to at once by the Faculty of the Institute, as it involves not only the comfort but also the health of a portion of our students.

Any sceptical member of the Board of Government, or any one who is backward in the new building project, should have visited the mining laboratory April 20, when the sulphide of lead bricks were smelted. If he would not have thought that the imp of darkness had

lifted the lid off from his bottomless pit we are greatly mistaken.

We agree with the Boston reporter of the *New York Clipper* in his account of the last games of the Union, that the action of some was wholly despicable and uncalled for, so far as their confusing Simpson was concerned. His objecting, however, to the applause Sturgis received shows him to be a novice at games; and if by "institution" he intends to intimate that those balkers were members of the Institute, we flatly contradict him by saying they were not.

A spring meeting, to be held probably at Beacon Park, will be given by the Athletic Club on May 27. The events will be as follows: 100-yard and 440-yard runs; running high and running broad jumps; putting the shot; standing high jump; pole vault; mile run; three-legged race; throwing the hammer; throwing baseball; tennis; and one-mile bicycle race. The man making the greatest number of points in the first five events will be awarded a gold medal; a gold medal will also be given to any man breaking any collegiate best on record.

The report of the directors of THE TECH shows the financial condition of the paper to be very satisfactory. It was voted to elect the new board this term, and to have them enter upon their duties two days after the date of the last number of the present volume. Class secretaries should immediately call meetings, in order that the new directors may be elected as soon as possible. It was considerably decided to devote a portion of the surplus funds to a supper to be given the editors and directors.

The Proceedings of the Society of Arts of the Institute for 1879-80 and 1880-81 are published in pamphlet form, and are on sale at A. Williams & Co's.

The Massachusetts Institute of Technology, of Boston, has decided to proceed immediately to the erection of a building for workshop purposes. This is one of the best institutions for instruction in the mechanic arts in the United States. — *American Machinist*.

Exchanges.

WITH No. 1 of Vol. XX. the *Boston Journal of Commerce* appears in a new form. It now becomes a sixteen-page journal of a size somewhat larger than the *Machinist*. Its many readers will find the change a great improvement in ease of handling the paper, and it leaves very little in its appearance which could be bettered. As to its always valuable contents and the prospect for the new volume it speaks for itself: "We prefer, as we have frequently stated, to be judged by our actions, and this week the paper will show for itself that we mean to keep in the front rank." In this number begins a series of articles on the "Balanced Slide-Valve," of special interest to Junior mechanicals just at this time, as are also the continued Indicator articles.

The *Atlantic* for May contains Prof. Fiske's article "The Arrival of Man in Europe," the first chapters of a new serial, "Two on a Tower," making three serials now running in the magazine. The two continued papers, "Studies in the South," Part III., and "Progress in Agriculture," Part II., will be found of special interest; and, as peculiarly fitting in the magazine which contained in its first number a poem by Henry W. Longfellow, we find in this number the last poem of the poet, "Mad River," written but a short time before his death.

No exchange editor seems to consider his task completed until he has expressed his thorough liking for and appreciation of the *Williams Argo*, whose good taste, witty contents, and general fine appearance are fast raising it to the standard by which all other college publication will be gauged. We can only add our word of commendation, and hope to see its welcome face for a long time to come.

Within a week after the burning of Walker Hall, at Amherst, enough money had been pledged to replace it. It is hoped that the new building will be ready for occupancy at the beginning of the winter term.

The *Herald* hopes that Harvard will soon see its way to adopt the plan recently introduced at the University of Michigan, at Bowdoin, and other colleges of admitting students upon the presentation of a diploma from any duly approved preparatory school, which has been found very successful and satisfactory in its workings.

Oberlin is waxing excited over base-ball. Each class has organized a team, and a series of games will be played for the championship of the college.

A petition is being circulated at Harvard to the end that the Freshman chemistry examination, which is held on the same day as the Inter-Collegiate games at New York, may be changed to some other date. Last year a number were obliged to miss the examination on account of the interference, and were conditioned in consequence.

Amherst has voted to send representatives to the Inter-Collegiate contest. Were no men sent this year, the college would lose its membership in the Association.

The richest university in the world is that of Leyden, in Holland. Its real estate alone is worth over four millions of dollars. — *Ex.*

Harvard class races are set for May 13th.

Columbia is the richest college in this country. Its available and prospective funds are \$5,000,000. It leads Harvard by over \$1,000,000.

The tug-of-war is to be added to the Inter-Collegiate games, to be held in New York on the polo grounds.

The "American College Song Book" will be published about June 1. For all orders sent in before May 1 the price will be \$1, after that date the price will be raised.

Young Ladies' Seminary, — Examination in history. Teacher: "Mary, did Martin Luther die a natural death?" Mary: "No, he was excommunicated by a bull." — *Ex.*

Mary had a lamp
Filled full of kerosene;
One day she tried to light it up,
And ne'er has since benzine. — *Ex.*

The Tech Supplement.

BOSTON, MAY 3, 1882.

Lawn Tennis.

PRINCIPALLY through the enterprise of a well-known member of the Institute, the petition lately circulated among the students, asking permission to use the ground between the shops and the gymnasium for lawn tennis, under proper rules and restrictions, has been granted by the Faculty, and the space secured. In a general meeting of the students to consider the formation of a Tennis Association, a committee of five was appointed to draw up a constitution, and to proceed immediately to have the grounds put in as good condition as possible. At a later meeting the committee reported, and the constitution proposed was adopted. According to the articles of membership, any member of the Institute may join the club by payment of an initiation fee of three dollars. Mr. Tompkins, '83, was elected temporary treasurer to receive membership fees until the formal organization of the club.

The grounds have already been put in very fair order, and for the remainder of the term playing will be regularly established.

During the summer the courts will be levelled and sodded, and by fall we may hope to have at least four good courts and ample opportunity for playing this most fascinating of out-door games.

The amount to be expended will of course depend upon the number of students joining the club. The intention of the organizers was to so frame the constitution that all men thoroughly interested in the game and willing to abide by the necessary rules should become members, while those of a disposition not calculated to follow the restrictions imposed by the Faculty or the regulations necessary for the maintenance of the lawn and materials in good order, should not be attracted, and it is the hope of the committee that this will be accom-

plished. All enthusiastic tennis-players are invited to join the club at once, that the treasury may be put in condition to carry out the above plans.

H. S. C.

The Annual Ball.

THE Seniors' Annual Ball given by the students of the three lower years to the graduating class, and held in Odd Fellows' Hall on the evening of Friday, April 21, was a complete success socially, although financially the committee have been obliged to have recourse to subscription lists to balance the receipts and expenses. The deficit is not large, though too much of a burden to be shouldered by the committee alone, as in past years its members have very unjustly been compelled to do, and the amount it is hoped will be quickly raised. Certainly every one who attended the party will regard the chance of assisting the committee on such an enjoyable occasion as a pleasure if not a privilege.

About two hundred and fifty ladies and gentlemen comfortably filled the hall, the commodious floor being amply sufficient to permit the dancing of the whole company at once, if so desired, without the disadvantage of overcrowding, which has been excessive on some former occasions.

A number of columns might be filled with the details of the affair, but space forbids, though we cannot forbear to praise the supper, both as to the viands and efficient serving. The proceedings during the intermission appeared to be thoroughly enjoyed by all, perhaps especially by the honored fourth year, who apparently were determined to leave a class reputation behind them.

Taking everything into consideration, '82 may well be congratulated on the occasion of its last appearance as a class upon a ball-room

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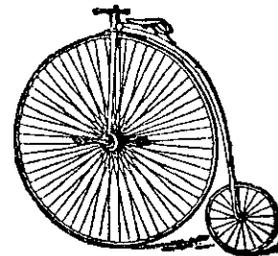
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