

OCT. 31,  
1883.  
Vol. III. No. 2.

# D. TOY . . . TAILOR,

## 11 CHARLES STREET,

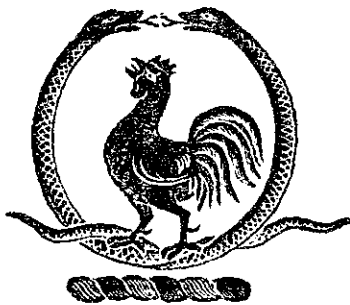
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# The Tech.

VOL. III.

BOSTON, OCT. 31, 1883.

No. 2.

## THE TECH.

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

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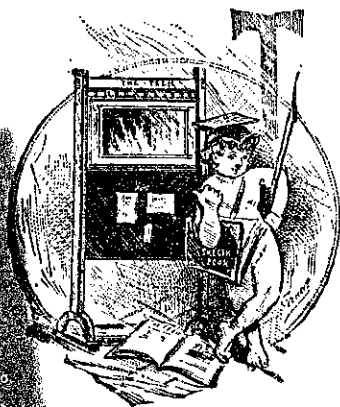
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Subscription, \$2.00 per year in advance. Single copies, 15 cents each.

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



THE TECH has at considerable expense placed a fine bulletin board in the entrance of the old building. The upper portion of the board will be reserved for the use of the paper, and will contain its official notices; the

lower portion is for the benefit of students of the school, and any notices placed upon it will be carefully looked after by the directors.

THE numerous disadvantages attending the old system of delivering THE TECH and the complaints which have arisen from time to time have forced the directors to adopt a new system of delivery, which will be inaugurated with the present issue. Each subscriber who is to call for his paper will have a number placed against his name on the subscription list, and will then receive a small book containing coupons numbered from one to sixteen, and good for the corresponding numbers of THE TECH. The subscriber's number will also appear in red ink upon

each coupon in his book, but upon no others. As soon as THE TECH is published, the subscriber has only to present his coupon to receive his copy of the paper; or, he can give the coupon to any friend, who can then get the paper for him. Should any subscriber, therefore, claim that he had not received his paper, he can of course produce his coupon; while if he has received it, the coupon will be in the hands of the directors, and equivalent to a receipt. In case a book or coupon is lost, the subscriber should notify the secretary of the directors, when delivery upon that number will be stopped and the subscriber will receive a new book and number. This change in the delivery system will of course not affect those subscribers receiving their papers by mail.

THE railway companies throughout the United States and Canada have decided to adopt certain standards of time, based on meridians of longitude west of Greenwich, each marking the difference of one hour. They are as follows:—

Intercolonial 60° west.

Eastern 75° west, Philadelphia standard.

Changes to Central standard made at Detroit, Buffalo, Pittsburg, Charlotte, and Augusta.

Central, 90° west. Changes to Mountain standard made at Bismarck, North Platte, Wallace, and Coolidge.

Mountain, 105° west. Changes to Pacific standard made at Ogden and Yuma.

Pacific, 120° west.

Boston lies in the region which is to take Philadelphia time as the standard, and this is 15 minutes 44.5 seconds later than Boston mean time and exactly five hours later than that of Greenwich. The same hour will be used in the Canadian provinces of Quebec and Ontario, in New England, in the Middle

States (except Western Pennsylvania), and in the Southern States of Maryland, Virginia, West Virginia, and North and South Carolina. The change is to go into effect Nov. 18, on which day at the new noon the Boston time ball will be dropped at 12 hours 15 minutes 44 5 seconds of Boston time, and the city bells and clocks will be regulated accordingly.

There has been much opposition in the newspapers and elsewhere to this change, and various objections have been urged against it. But it seems to us that a standard time is becoming more and more necessary, with the increase of our railroad system. Practically, the towns along any important railroad adopt the railroad time without suffering any serious inconvenience arising from the difference between it and the local time. Now, if all the railroads in a certain section of the country use the same standard, the traveller will be saved much confusion and annoyance. For example, at present in going South from Boston to Providence, Boston time is the standard by which trains are run; from Providence to New London, Providence time is used; from New London to New York, New York time; from New York to Baltimore, Philadelphia time, and from Baltimore to Washington, Washington time, making five different standards in going a distance of five hundred miles. The new arrangement will do away with all this without in any case producing a disagreement of much more than half an hour between the time in use at any place and its local time. In Boston indeed the difference will only be about fifteen minutes. In Great Britain, where the standard time of the meridian of Greenwich has long been the accepted time, there is a difference in some places of forty minutes, and no trouble has resulted; while the convenience to travellers has often been remarked. With a standard time there can be no mistakes regarding the hour for appointments and meetings, as may be the case where the local differs from the railroad time. Perhaps the most forcible objection to the system is the confusion which may result at cities when

the change of standard is authorized. This may not affect the traveller; but in a place like Detroit there may be some dispute whether the public clocks shall indicate Philadelphia or Detroit time. This objection, however, does not apply to Boston; and it may be asserted that by the new system no city will be more inconvenienced than the whole country is at present.

**M**ANY Institute students will no doubt avail themselves of the new gymnasium in the Young Men's Christian Association Building. It will be fitted up with every convenience, and the apparatus will be new. An elevated running track and hydraulic rowing machines are to be among the prominent features, while there will be a shower-bath and ample accommodations for tub and sponge bathing. Each member will have a dressing-case to himself, well heated and ventilated. Prof. Roberts, who has been very successful in bringing up to the mark the physique of those practising under him, will, as he has done for some time, have charge of the instruction of classes, and will, besides, give personal attention to those who desire it. The proximity of this excellent gymnasium to the Institute is an advantage not to be overlooked. It will be opened probably about the middle of November. The annual fee for membership is \$8.

**W**E regret to announce the resignation of Mr. Heyward Cochran as editor from '85. His successor, as well as an editor from '87, will soon be elected, and the members of those classes are invited to compete for the positions.

**W**E must warn all contributors to THE TECH that the paper takes no notice of anonymous communications. Matter intended for publication should be written plainly on only one side of the sheet, and must in all cases be accompanied by the writer's name, which will then be kept secret if desired.

### The Legend of Moll.

BEING A GRAVE STORY, BY J. GLUNN, UNDERTAKER.

**M**ANY, many years ago, when Boston could still be said to be in her youth, when she clustered lovingly about her three hills, and even yet retained part of her water-front free from the turmoil of commerce, when the Back Bay was simply broad, flat marches, daily inundated by the tides; when there were plenty of Revolutionary heroes to tell their own heroic deeds, — in short, in the good old times which our grandfathers may never hope to see again, and the like of which they assure us we may never hope to see at all, — in those good old times Copp's Hill was aristocratic. When one goes down there of an afternoon for a walk along its degenerated and noisy streets, and comes upon so many of the scenes of the activity of our country's heroes, it seems as if all that Boston ever produced of pre-eminent worth had been connected with this dirty labyrinth.

The old houses, I warrant you, were whilom witnesses of many a deed of sturdy valor in the years around the Revolution. Here you will see the homes of the men who were participants in the Boston Tea Party. There is the house from which stole Robert Newman to hang the light in the Old North Tower, that Paul Revere might warn the men of Middlesex. Many of these stones could tell of the shock of the battle of Bunker Hill, and more than one tombstone still bears the marks of the British soldiers' bullets.

After the war there came many years of quiet, and the children who had played of yore around the tombstones came again and played, till they grew up and other children took their place. Many a pretty tale, I wist, could these gray slabs relate of childish glee, of love, of age supported over the rolling ground by loving, filial hands; and they would tell you, if you but had the ear to listen and to understand, of the weary travellers from far-off lands who have rested upon the soft hillside. They would tell you of one who often came to rest her tired limbs upon the grateful turf; how she would lean upon one of

the tombstones and talk to herself for hours. Poor Moll was a strange creature, who talked to herself because she could get no other listener, except, sometimes, the children who came to play around her. The children grew to be fond of having her near them, and would, when they were wearied, come and sit by her and listen in wonder to her strange talk. She seemed to them to be in another world than theirs, to talk of things of which they heard, to be sure, in their own homes and at church on Sundays, but which they never could understand. Poor, crazy Moll was confident that she was soon to be bodily released from her earthly ills and rise to everlasting bliss without the intervention of the dark grave. She never formulated her belief like this, and she would often wander in her uncertain brain to other thoughts; but she would always return to this as the key-note of her song.

The cemetery on Copp's Hill was Moll's favorite haunt, and here she was wont often to pass the night, lying on the bare ground, sheltered only by some kindly tomb. She would wander from hamlet to hamlet, and from town to town, and then return to this, her resting place, as if she were afraid to go too far from it. One day in early fall she had been seen many miles from Boston, hurrying along the road in the direction of the city. She seemed to have more purpose than was usual with her, for she could scarcely stay to answer the questions of those she met as to whither she went so hurriedly. She mumbled some sort of answer, however, to all, — one heard only the word "deliverance," another only "woe," and then turned and shook his head after the fast-disappearing figure. Moll reached the city at nightfall. After she had eaten a crust of bread for her supper, her purpose, whatever it might have been, seemed to leave her, and she wandered about the city in her old aimless way.

As the night closed in a wind sprang up that enveloped the sky in clouds. Fitful gusts came round the corners of the streets like great, soft, tangible substances, warm, yet with chilling

effect. The moon came now and then from behind her pall of clouds, brightening all the world; then the black shadows of the clouds would again rush up the streets like a dark courser over a shining plain, and everything was again annihilated in blackness. It was one of those terrible nights when one feels depressed even in the brightest company, when he feels impelled to go forth into the night, yet when its chilling, ghoulish breath strikes through him he turns back and endures the dullness of indoors rather than the gloom of the open air.

On this night a band of students had been upon a pleasure excursion into the city. The hours had passed in various occupations; each had in turn tried to induce a little mirth in his friends, and each in turn had failed. All agreed that they had never passed a more frightfully wretched evening. As a last resort, and with the indomitable courage of students when in pursuit of pleasure, they resolved to finish the night by wandering around the streets and doing their utmost to make night hideous, since nature herself had not found that task beneath her. 'T was the dead of night when they started out. For a few streets their outcry occasionally caused the opening of a shutter and the muttering of an oath at these students' tricks; but one by one the voices died away, and the band walked on in silence. In their desultory course they came to an enclosure within which could be faintly seen the outlines of monuments and grave-stones. One of the students then spoke out, —

"Come, friends, let's wake the dead! Let's in, and joining hands around a tomb, see if there's any truth in goblin stories!"

All was dark, silent, anything would have been seized upon at that moment to break the oppressiveness of the silence. Upon one point all were agreed, — they'd wake the dead. A warm and sickly puff of wind saluted them as they scaled the wall. They stumbled rather than walked to the very centre of the cemetery, with many a half-uttered imprecation at the darkness. When they reached the tomb that

seemed tacitly to have been chosen for the purpose, the whole band joined hands, and, while one counted in an undertone, perfect silence was maintained. As the number three was told they burst simultaneously into the cry, —

"Arise, ye dead! Ye dead, arise!" The sounds had hardly died upon the air and were about to be renewed, when, from the very tomb itself, came the reply, in weak but confiding, joyful tones, —

"Yes, Lord! I'm coming! I'm coming!" And in the midst of the terror-stricken crowd rose a dark and shadowy figure. Surprise and consternation overcame the students, and they rushed in disorder to the street. Just as they reached the wall, the moon shone out in all her magnificence and disclosed the disturbers of the dead to the awakened sleeper.

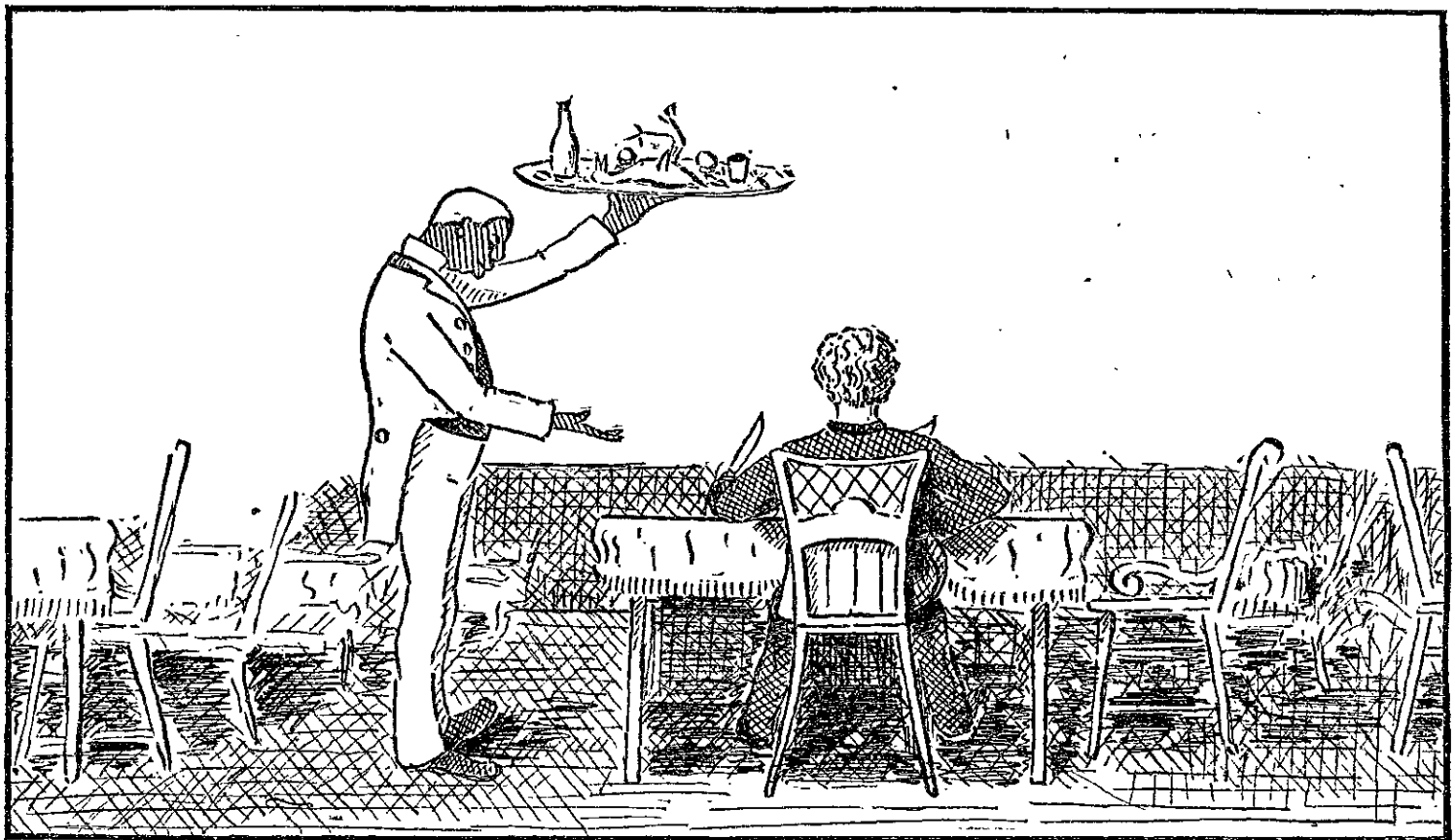
In the morning, when the school-children came to play in the accustomed place, they found upon the tomb, in the centre of the burial ground, the lifeless figure of their old playmate, Crazy Moll. J. G.

#### The Rogers Memorial.

THE treasurer of the Rogers Memorial Committee desires to state that up to the time of writing he has not received a single subscription to liquidate the debt of \$61, mentioned in the last number of THE TECH as incurred by him. Knowing the inevitable result of such debts at the Institute, he desires to place the amount contributed by the class of '84 at \$134, instead of \$73, as previously reported.

#### Harvard vs. M. I. T.

THE foot-ball team played its first game this fall, last Wednesday, with Harvard. Play began at four o'clock, and the ball was immediately forced towards Harvard's goal, where a safety touch-down was scored for the Institute. After this, the playing was forced by Harvard, who obtained two touch-downs and two safeties in the first half-hour. In the last half, Harvard



HOTEL MODERN. — NO FEE, NO DINNER.

again worked the ball across the lines, and scored one touch-down and a goal. The playing was very good considering the amount of practice which our team has had.

### Mining and Geological Excursion to Virginia and West Virginia.

#### II.

**S**UNDAY, June 17. We did not go to church because the hotel fare was not of a character to arouse pious sentiments. Some one said the initials E. L. & B. S. R. R., displayed on a car before the door, meant "Eat Little and Be Satisfied." The first part only was easily accomplished.

Early Monday morning the well-known editor of the *Virginias* and celebrated geologist, Major Jed Hotchkiss, appeared and conducted the party into the "Iron Gate," where we received a lecture on geology long to be remembered. The gate is a break in the mountain, through which the Jackson River passes, about three hundred yards wide at the bottom, with bare, almost perpendicular rocky walls rising to

about one thousand feet above the river, the strata of the rocks bent from end to end in magnificent rainbow arches. The gorge makes a grand lecture-room for geology. Here are exposed the formations III. to VIII., inclusive, Rogers classification, or as we should say, all the Upper Silurian and part of the Devonian rocks.

June 19 was spent at Low Moor. Under the guidance of Major Goodwin we inspected a one hundred and twenty-five ton iron furnace, after which, under the charge of the mine superintendent, Mr. Brainard, we saw where the ore came from.

The great event of the day was the exploration of a newly opened cave in the limestone quarry which supplies the flux for the furnace. To enter, we scrambled up about thirty feet of perpendicular rock, holding on to ropes which gave indications of weakness. Squeezing through a narrow opening, we entered a realm of mud and darkness. Half an hour's groping, with the aid of a few candles, put us in possession of some magnificent limonite and arragonite

stalactites and transformed us into the mud-diast crowd ever beheld. We enjoyed ourselves that night at the "White Sulphur." The waters smell strongly of H S, and remind us too much of the laboratory to be palatable.

June 20. Quinnimount was reached at noon. Here the iron furnace, coke ovens, and coal mine were examined and the party hospitably entertained by Mr. Lewis, the manager.

June 21. Pushed on to Blacksburg, W. Va., where we made our headquarters till the 26th. Excursions were made to each of the various points of interest in the neighborhood. A trip down the Kanawha gave us a chance to examine the government system of locks and dams.

The same day we visited the Mercer coal mine and enjoyed the collation furnished by the managers.

East Bank mine, belonging to Mr. S. L. Buck, absorbed our attention one forenoon, while at a party given in our honor by Mrs. Buck in the afternoon, we became aware that West Virginia produces charming young ladies as well as "splint coal."

Starting from Charleston, eighteen miles distant, we took a twenty-mile horseback ride, ostensibly to visit the "black band" iron ore deposits at Davis Creek, but really for the sake of the ride. We saw the ore, but many of us concluded that night that horseback riding over rough roads was more romantic than comfortable.

The last day of our stay in West Virginia we visited the Kanawha salt works and bromine factory at Malden. The latter turns out seventy-five pounds of bromine per day.

The evening of June 27 we reached Luray and visited the famous cave. The next day three of the party went south and the remainder reached Washington, where they scattered.

During our short visit we found that naturally Virginia is a State remarkably adapted to the manufacture of pig iron. With her coal, ore, and limestone in close proximity to each other,

she requires but capital, science, and enterprise to make her a rival of Pennsylvania.

Western and Southwestern Virginia are splendidly adapted to stock raising, while the forests of that section abound in the choicest lumber. Already saw-mills are making havoc, and if preservative measures are not taken the hills will soon lose their most valued treasures and greatest attractions.

D. W., '83.

#### The Luray Caverns of Virginia.

SINCE many of our students have had occasion to visit the Luray caverns in the course of the summer vacation, perhaps a description of them may not be out of place here.

These caverns were discovered in the year 1878 by two natives of Luray named Cambell, who, from the nature of the ground, believed a cave existed in that quarter.

It is said that the discovery was kept secret until the land which was at that time offered at a bankrupt sale had been secured and the deeds passed over, when, with less than usual sagacity, the purchasers exposed themselves by an ill-timed statement of the facts, exulting over the people with whom they had made so advantageous a bargain. Upon this a suit was brought against them by the former owners of the land, and after considerable litigation the cave passed back to their hands, and was subsequently sold for \$40,000 to the Luray Cave and Hotel Company, connected in interest with the Shenandoah Valley Railroad. It has now been on exhibition for five years, and has been visited by thousands of people, either from scientific interest in the formations, or for the remarkable beauty which the cave displays.

Luray is one of those rare places where the visitor is indifferent to the state of the weather,—hot or cold, rain or shine, it is all one; indeed a wet day may be preferable, as the contrast is the more striking than on brighter days between the gloom outside and the brilliant bejeweled interior with its sparkling crystals of calcite gleaming in the powerful rays of the electric

lights, which have penetrated even these dark recesses in a remote corner of Virginia.

Many of the lights are suspended from the midst of the stalactites hanging from the ceiling, forming with them brilliant jewelled chandeliers, and, doing away with the old pine knot, or, worse, the tallow candle, add much to the comfort of the visitor.

The entrance to the caverns is through a narrow passageway about twenty-five feet in length, leading into a room of moderate size, where the attention of the visitor is arrested by the hundreds of beautiful stalactites and stalagmites around him, forming all sorts of curious shapes. But one soon learns to regard these things as common, and contentedly hurries on with the guide to see some of the wonderful resemblances to the things of the outside world.

Adjoining the grand entrance hall is an apartment called the "fish-market," where the lime has so taken the shape of strings of fish that the resemblance to our own fish-markets is quite apparent, though the writer was at a loss to determine the peculiar species.

Some, however, better versed in the science of zoölogy unhesitatingly pronounce them to be species of bass, perch, shad, mackerel, etc.; at least so says the guide. Winding through various corridors leading into rooms of different dimensions, and passing by gigantic columns and deep gorges,—notably the rift called Pluto's Chasm, seventy-five feet deep and five hundred feet in length, through which we are told the god is supposed to have borne Proserpine to the under-world,—we finally come to the Giant's Hall, which is especially interesting as containing the Organ and the Fallen Column, a huge mass of limestone twenty-five feet in length, the age of which, as estimated by some scientists, is over several millions of years.

This statement may at first seem strange, but after considering the following experiment we no longer doubt the assertion. A glass tumbler was placed beneath some dripping lime water, that the time taken to form an incrustation might be observed, and at the end of five years

a crust not more than one eighth of an inch in thickness was formed under the most favorable conditions. The Organ is composed of stalactites and stalagmites, which have formed continuous columns from ceiling to floor, which not only resemble the pipes of an organ but to some extent give forth actual musical sounds, soft and sweet. The writer regrets to say, however, that Yankee Doodle was the tune whose notes desecrated the sanctified cathedral of the deceased giant.

The Wet Blanket is, however, voted by all the most perfect and interesting phenomenon in the cave. In a dark corner of one of the caverns the lime has the form of a large sheet suspended from the roof. Towards the end of this sheet have been formed, by the precipitation of iron, two red bands about two inches in width, which, with the yellow color given to it by the dripping water, give it the appearance of a veritable wet blanket.

Of especial scientific interest are the Helictites,—rare formations, which project horizontally from the walls of the cave from two to three inches. These, the guide book tells us, are due to slow crystallization taking place on a surface barely moist, from material conveyed to the point of growth by a capillary movement. This view of their formation is not however accepted by Prof. Crosby of our Institute. It is hard to control the desire to pull off these Helictites and other specimens as one passes along. But the exercise of this will-power is helped in a great measure by "the mechanic spirits of this under-world, gnomes and imps" in the shape of little darkies, "who dart from shadow to shadow, behind column and angle, to watch that we do no harm to the marvellous handiwork." There is, moreover, a further inducement to keep one's hands off, in a fine of from five to one hundred dollars for every specimen broken. It is therefore rather an expensive place for over-zealous specimen hunters; but the writer would advise all others who travel South by the beautiful Shenandoah Valley to spend a day at Luray and see for themselves its wonders.

## Department Notes.

The *Iron Age* has recently published a system of steam heating for machine shops by the late Robert Briggs, which is interesting in connection with the problem of heating our own shops.

What a neat habit the civils have of covering their desks with a little brown pall loaded with shot and hemmed all around. You would think they were all married men, from their fear of dust.

Mr. Burchard, director of the mint, in his recently published "Report upon the Statistics of the Production of the Precious Metals," gives \$16,800,000 as the value of the product of gold for the State of California in 1882.

There are six regular fourth-year mechanicals and they are kept hard at work by Prof. Lanza and Messrs. Fisher and Peabody. Some dynamometer tests have been made at the Institute Fair, and some experiments undertaken on the strength of leather belting. The second and third year mechanicals receive instruction from Messrs. Schwamb and Stephens.

Prof. F. W. Clarke, of Cincinnati, lately appointed chemist of the U. S. Geological Survey, intends to take a few bright young chemists to be employed in original research work in inorganic chemistry. These will be rated as "volunteer assistants." The work will constitute a kind of post-graduate course. The researches will be published and each assistant will receive the credit of his work, but no salary will be given, the experience and glory gained being supposed to compensate for their time and labor. Applicants may address the professor at Washington, D. C., care of U. S. Geol. Survey.

We have received a report of the Proceedings of the Society of Arts of the Massachusetts Institute of Technology for 1881-82. It is particularly interesting as containing an account of the introduction of President Walker by the late Prof. Rogers. The latter briefly and clearly described the early days of the Society of Arts, which then constituted the Institute of

Technology, and then the foundation of the school itself. The pamphlet also contains the full reports of Prof. Lanza's tests on the strength of wooden columns and those on the transverse strength of large spruce beams.

The walls of the architectural drawing-room present a fine appearance hung with drawings and casts, carefully arranged so as to have every advantage of light and effect in grouping.

The new class in charcoal drawing from the casts seems to attract a great deal of attention from the men of other departments, especially the first-year men.

After every recitation on Tuesdays and Thursdays the windows of the architectural library opening into the hall are besieged with a crowd of fellows who stand in admiration watching the efforts of the architects to get the dancing faun to dance on paper. Criticism and kindly (?) encouragement is not spared.

Drawing from the cast is a revival, we believe, of a very useful part of the architects' course which has fallen into disuse of late years. It is now the plan to carry the student on, and a life class will be formed early in the winter. The idea is not so much to perfect the student in figure drawing as to render ease and facility in sketching.

Drawing from life is not only the most difficult but it is also the very best method for acquiring a rapid and easy style in sketching.

Mr. Turner will resume his classes in water color at an early date.

Since last year the assaying department has been much improved by the addition of a new set of cupel tongs, muffle scrapers, and other tools, and the limitation of the assays to lead, silver, and gold ores, thus allowing us to become quite familiar with these processes and causing a corresponding rise in the character of the results.

With the Illinois, Col., galena eighty and eighty-one per cent was obtained.

In the shop the second year have begun carpentry, the third year forging, while the fourth year are just finishing chipping and filing. The

Brown engine of forty horse-power has arrived and the counter-shafting is being put up in the machine shop. In the mechanical laboratory, which occupies the place of the old first-year laboratories, an eighty horse-power Porter-Allen engine is to drive the shaft which runs through a tunnel and supplies power for the new building.

The enthusiasm of the young miner is apt to be cooled by the revelation to him of the various abilities required to make a successful engineer. But his enthusiasm, if he is a man of pluck, will only give place to a firm determination to come up to his standard, which is indeed a much better quality. Nevertheless, we do not see how a miner can help being enthusiastic over his choice, for his life among the rocks and minerals, deposited on such a grand scale by Nature, is surely an ideal one. There is nothing of the artificial about it, and the very roughness of his life only serves to quicken his sensibilities.

Most of the classes have had various opportunities for studying the geological formations and structure about Boston, — notably the very marked "dikes" of Winter Hill and West Somerville, and the amygdaloid in the Brighton District.

Some of us had the pleasure of accompanying the Appalachian Mt. Club on its excursion to the "Purgatory" near Worcester; and some very good specimens of beryl were found, much to the surprise of the people about, who had not before known of its existence there.

The need has been felt and expressed of some instruction in mining law, and in the absence of this in our regular course we shall endeavor to publish in THE TECH from time to time short articles on this subject, in the hope that this may in a measure cover the ground.

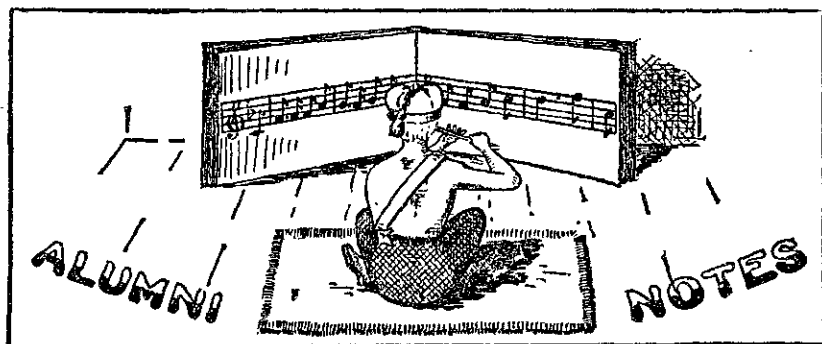
The *Mining Review* says that the distinction between abandonment and forfeiture is one of more practical consequence than is generally supposed. It is mainly a distinction arising from the intention of the owner of the mine. If a man fails to do annual work upon the mine or land

to the value of one hundred dollars, it is liable to relocation, or is "jumpable"; but the property is not forfeited until it is relocated or "jumped," and at any time before such relocation the owner can resume work on the lode, and such resumption of work, in good faith, before another has taken advantage of the default, cures the default, and the performance of one hundred dollars' worth of work for the year of resumption keeps alive the owner's title, no matter how many years have elapsed prior thereto without any work having been done.

But, if the owner abandoned the lode, that is, gave it up absolutely, leaving with the intention of entire abandonment, not intending to return to and to work upon it, or claim it as his property, such abandonment operates instantly as an extinguishment of all ownership on his part and throws the lode back to the unappropriated public domains, and any one may locate on it as if it had never before been claimed.

We notice with a great deal of pleasure that one room in the new building is to be set aside as a parlor and reading-room for the young lady students at the Institute. It will be known as the Margeret Cheney Memorial Room. Miss Cheney was one of the first young ladies who passed through the Institute; since then she has died. Her mother, Mrs. Edna Cheney, wishing to do something for the Institute in memory of her daughter, has decided to fit up this room for the use of the young lady students.

A long-felt want will now be filled; hitherto, the young ladies have had but a corner in the general reading-room where they might study and write between recitations. Of late, they have been as good as crowded from that, for the reading-room is filled from morning till night with more students than chairs, and the ladies' corner does not seem to be recognized as such at all. Mrs. Cheney's kindness could not have taken a more appropriate form, and it will be heartily appreciated by all the students of the Institute.



[This department can be made complete only by continued contributions of items of general interest in connection with the lives and occupations of instructors, alumni, and former members of the Institute. We invite the co-operation of each alumnus, and ask for full and frequent contributions to the column.]

LYMAN SISE, '85. — Murphys, Calaveras Co., Cal. Gold mining.

TENNEY WHITE, '85. — Engineering department, woollen mills, North Andover, Mass.

F. M. KIMBALL, '85. — Assistant electrician, American Electric Light Company, Boston, Mass.

FRANK W. CARR, '84. — In charge of North Carolina exhibit at American Institute Fair, Boston, Mass.

PARKER C. CHOATE, '85. — Howells Smelting and Mining Company, Yavapai Co., Arizona.

T. HOWARD BARNES, '81. — With city engineer, Cambridge, Mass., Waltham, Mass.

AMOS BINNEY, '81. — Walpole, Mass., P. O. Box N.

EDMUND H. BROWN, '81. — Married, secretary Concord Axle Company, Fisherville, N. H.

B. E. BREWSTER. — Cheyenne, Wyoming Territory, manager War Bonnet Live Stock Company.

S. E. TINKHAM, '73. — 225 Federal Street, Boston, Mass., assistant engineer N. Y. & N. E. Railroad.

HOWARD A. CARSON. — C. E., 68 Devonshire Street, Boston, Mass.

CHARLES H. FISHER. — Ponkapog, P. O. Canton, Mass., instructor in M. E. at Mass. Inst. Tech.

H. B. PERKINS. — Appleton, Wis., professor mathematics and astronomy at Lawrence University.

ARTHUR WINSLOW. — Hagletown, Pa., assistant geologist second geological survey of Pennsylvania.

C. C. GILMAN. — Marshalltown, Iowa, chief engineer Wisconsin, Iowa & Nebraska Railway.

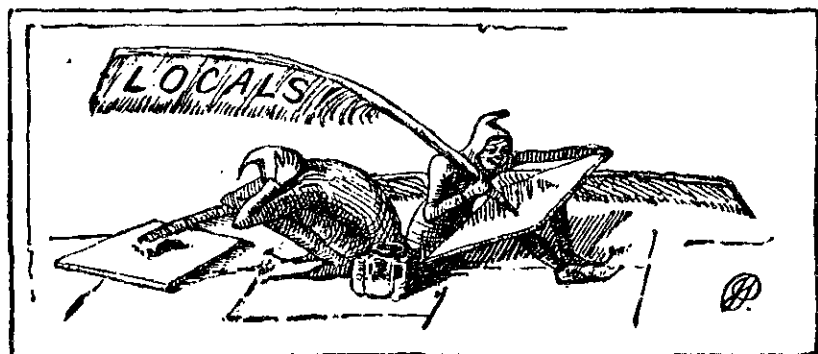
HARVEY S. CHASE, '83. — 178 Lowell Street, Manchester, N. H. Manchester cotton mills.

HORACE B. GALE, '83. — N. E. Weston Electric Light Co., Stanhope Street Station, Boston.

W. E. SPAULDING, '85. — Assistant Cashier First National Bank, Nashua, N. H.

HARRY G. MANNING, '82. — Married Oct. 17, 1883, to Miss Kittie E. Morgan.

L. F. BALDWIN, '74. — Engaged in mining, Quincy, Plumas Co., Cal.



Present your coupon!

The rink opens Nov. 1.

The Freshmen have begun their intermediates.

The Freshmen now number two hundred and eighteen.

The M. I. T. A. C. October assessment of \$1 is now due.

The second-year miners and chemists began work in the new laboratory last Monday.

Class in advanced German is reading Maria Stuart by Schiller.

Advanced German seems coming up in favor. This year Prof. Otis has a class of ten, which is much larger than any of past years.

The boarding-house book in the secretary's office is a new idea, and promises to be quite serviceable to students hunting for rooms.

Quantitative analysis is now commenced at the beginning of the second year instead of at the semi-annuals, as formerly.

We are very glad to announce that the Y. M. C. A. will occupy their new building, just across the street, in a few weeks.

Mr. Woodbury, '86, has two pictures at the Exhibition of Contemporary Art. He has also some charcoal drawings at the Institute Fair Art Gallery.

'86 has elected the following class officers: F. L. Locke, president; G. A. Ricker, vice-president; S. R. Bartlett, secretary; J. P. Lynde, treasurer.

The Institute was visited last week by the Earl of Cork, Mr. Albert Gray, M. P., son of Earl Gray, Sir Lyon Playfair, and other prominent strangers in the city.

A new boiler, sixty horse-power, will be placed in the basement of Rogers this week,

making an aggregate of two hundred horsepower.

Certain wealthy gentlemen of Boston have subscribed \$250,225, to be known as the William Barton Rogers fund, and to be used permanently for the support of the Institute.

The foot-ball association has elected H. F. Baldwin, '84, president; C. F. Spring, '85, vice-president; F. B. Richards, secretary and treasurer.

The new system of keys in the first-year laboratory is much to be commended. The grand rush for keys at the beginning of each afternoon is obviated.

Messrs. Noyes Brothers have taken possession of their new store corner Washington and Summer Streets, adjoining that which they formerly occupied on Summer Street.

Every Institute man should wear THE TECH scarf and handkerchief, which these gentlemen have had made up abroad for us in correct colors.

Several ladies from the Museum Art School graced the lecture in Architectural History the other day. We are all hoping that many more will avail themselves of the privilege and gratify us at the same time.

The Institute's popularity with the graduates of the Boston Latin School seems to be steadily growing. Year before last one came from that school, last year two, and this year there are three Freshmen hailing thence.

The Society of Arts and the Institute of Technology are twin offspring, and the publication of the Proceedings of the Society for the twenty-one years of its existence will be read with interest by the friends of both.

A stranger came into the entrance hall of Rogers the other day, examined the letter-rack and bulletin boards, and then asked a student if "this was a museum." He was informed that it was, but that the animals were not in just then.

For those students who are interested in the course in Natural History, we call attention to the pamphlet on "Natural History, with Special

Reference to the Subsequent Study of Medicine," by President Walker, which can be obtained by applying at the secretary's office.

Herr Hoffman, the distinguished professor of chemistry in the University of Berlin, recently visited the Institute in company with Prof. Cook, of Harvard. Both gentlemen were enthusiastic over the advantages which the Institute presents.

At its class-meeting on Saturday '87 took an informal ballot on the question of giving a Freshman ball. A very small majority were found to be opposed, and the meeting then adjourned without further action. It is probable, however, that the class will give the ball.

The first-year special and second-year regular architects invaded Quincy on Saturday, Oct. 6, in pursuit of knowledge. There were nineteen of them, and as the town was unprepared for their sudden attack it was obliged to surrender at discretion, whereupon the invaders took possession of its treasures, and acquainted themselves with the secret methods of getting out and polishing the beautiful granite of the town.

In the investigation of the Senatorial Committee on Labor and Education, Gen. Walker strongly advocated technical or trade education, and thought that any city or town of 10,000 inhabitants would do well to establish, in connection with its high schools, a department of mechanical arts, where carpentering could be done, and the boys could work at the forge and lathe. From the high school it could be carried down to the lower grades. The matter of expense would be but a trifle in comparison to amount of money spent annually for education in this State. Within ten years he believed every college in the country would be obliged to erect machine shops. In answer to a question, he said, "I strongly favor the introduction of physiology and hygiene into all schools, and instructing children in sanitary matters, so that they may have some ideas regarding the condition of our houses, stores, and factories, and the building of workshops."

## List of Publications, M. I. T.

[In 1882, Professor Nichols compiled his "Publications of the M. I. T. and of its Officers, Students, and Alumni." THE TECH has undertaken to publish from time to time a continuation of this list. In order to make the record as complete as possible, professors, alumni, and students are requested to send us as promptly as possible the titles of any books, pamphlets, or periodical articles which they may publish.]

**Class of '82.**—List of Officers, Class Directory, etc. Pph., 12mo, p. 10. 1883.

**Glover, Marie O.** ('81).—Tincture of Opium (Laudanum). *Am. Jour. Phar.*, October, 1883.

**Minot, Charles Sedgwick** ('72).—Primitive Streak of Vertebrates. *Id.*, II. (1883), 105.

—Balfour's last Researches on Peripatus. *Id.*, II. (1883), 306.

—Histology of Insects. *Id.*, II. (1883), 430-433.

**Nichols, W. R.** ('69).—Walter Supply, mainly from a Chemical and Salutory Standpoint. 1 vol. 8vo, pp. 6+232. New York. J. Wiley & Sons, 1883.

—Introduction to Thomsen's Thermochemische Untersuchungen. Translation. *Pop. Sci. Monthly*, XXIII. (1883), 770.

**Niles, Wm. H.** (Prof.).—Report of the Permanent Meteorological Committee. *Proc. Soc. Arts, M. I. T.*, 1882-83, 113.

**Ordway, J. M.** (Prof.).—Education as Illustrated in the Nuremberg Industrial Exhibition. *Proc. Soc. Arts, M. I. T.*, 1882-83, 89-93.

**Pickering, W. H.** ('79).—Sensitiveness of Photographic Plates. *Proc. Soc. Arts, M. I. T.*, 1882-83, 110.

—Horse Trotting, from a Mathematical Standpoint. *Science*, I. (1883), 355.

—Surface Conditions on other Planets. *Id.*, II. (1883), 10.

**Runkle, J. D.** (Prof.).—Remarks on the late President Rogers. *Proc. Soc. Arts, M. I. T.*, 1882-83, 12-23.

**Sedgwick, W. T.** (Ass't Prof.).—Symbiosis and "Vegetating Animals." *Pop. Sci. Monthly*, October, 1883, 811-818.

**Smith, Chas. A.** ('68).—Experiments with a Steam Engine. Translated from a report by O. Hallauer. *Journ. Assoc. Eng. Societies*, II. (1883), 209-235.

**Tolman, Jas. P.** ('68).—Remarks on the late President Rogers.

*Proc. Soc. Arts, M. I. T.*, 1882-83, 9-11.

**Very, F. W.** ('73.)—An interesting Sun-Spot. *Science*, II. (1883), 266.

**Vose, Geo. L.** (Prof.).—Inspection of Public Works. Also in *Van Nostrand's Engineering Mag.*, Sept., 1883, 204-210.

**Walker, Francis A.** (President).—American Manufactures. *Princeton Review*, March, 1883.

**Wead, C. K.** (Certif.).—Intensity of Sound. *Am. Journ. Sci.*, XXVI. (1883), 177-189.

## Noticeable Articles.

**PRINCETON REVIEW**, September. "A College Fetich," by President Porter, of Yale College. This is a reply to the Phi Beta Kappa Oration of Mr. C. F. Adams, Jr., on the study of the classics.

**THE ENGLISH ILLUSTRATED MAGAZINE**, October. "From the Old Law Courts to the New," illustrated. This is the first number of the new magazine published by Macmillan & Co. It is very neat and wonderfully cheap at fifteen cents. The illustrations are very good, especially the engravings from Dante Rossetti's pictures.

**THE CENTURY**, October. "Out-door Industries of Southern California," illustrated.

**THE ATLANTIC**, October. "Historic Notes of Life and Letters in Massachusetts," from the papers of Mr. Emerson.

**LONGMAN'S**, October. "Cycling as an Intellectual Pursuit," by Dr. B. W. Richardson.

**NORTH AMERICAN REVIEW**, October. "Early Man in America," by Prof. Dawkins.

"Histories of the French Revolution," by Frederic Harrison, a very discriminating account of the best books on the subject.

W. P. A.

**CHEMICAL PHILOSOPHY.**—It will be worth while for the students of chemistry to read a summary by Prof. Barker of the views of Boutlerow and Schützenberger on the possible variability of the law of definite proportions. This summary appears in the July number of the *American Journal of Science* (Vol. XXVI. p. 63); and a paper on the same subject by Prof. Cooke appears in the October number of the same journal (p. 310).

W. R. N.

A valuable article on "Electro-Motors and their Government," by Profs. Ayrton and Perry, will be found in the *Journal of the Society of Telegraph Engineers*, Vol. XII., No. 49.

A translation has appeared of Vol. I. of Mascart and Joubert's "Treatise on Electricity and Magnetism." The work is an extensive and valuable one. Vol. I. is devoted to the theory of electricity. Vol. II., which has not yet been published even in the original, will be largely devoted to experimental electricity.

A new and enlarged edition of Wiedemann's classical work is in process of publication under a new title, "Die Lehre von der Elektrizität." This is the most complete work in existence upon the facts of electrical science.

A very valuable series of handbooks relating to the technical applications of electricity is the "Elektro-technische Bibliothek," published by Hartleben, of Vienna, two volumes of which have already been noticed in this column. Seventeen volumes have been received, discussing a very wide range of subjects.

C. R. C.

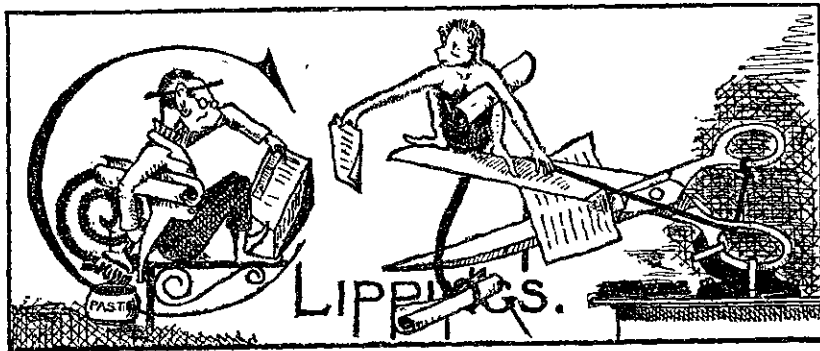
## The College World.

**HARVARD.** — The *Harvard Herald* and *Harvard Crimson* have united, and now form the *Daily Herald-Crimson*. Harvard, touchdown; University, Pennsylvania, two safeties. — It is rumored that a polo club is to be formed. — A serious accident happened at the boathouse on Saturday, the 20th, in the giving way of the balconies on which were gathered a large number of students to see the "scratch" races. Seven students were severely injured, and many others suffered more or less. Mr. Fred S. Mead, whose condition at first was very precarious, is now likely to recover. "Scratch" races indefinitely postponed. — Bicycle club is in a flourishing condition. — The Lee prizes for reading, amounting to \$130, have been distributed among the successful of the last contest. — Princeton is said to be most feared by the eleven. — Harvard has not won a game at football from Yale since 1875. — A gentleman of the Junior class, better known for his social success than for academic proficiency, recently eloped with a young and beautiful girl of Charlestown.

**YALE.** — A short-hand class has been organized. — Post-graduate department will embrace this year a course of study on railroads and their growth, shipping and international trade, stocks, and the effect of speculation on the money market. — Freshmen won the rush. — Tompkins was elected president of the intercollegiate football convention, held in New York. — A vacancy exists in the department of civil engineering, caused by the death of Prof. Norton. — Yale enters one hundred and seventy-five men in the academic department and eighty in the S. S. S.

**COLUMBIA.** — The rushes have been fought, and the right of Freshmen to carry canes is decided. — Glee club in a promising condition. — Many have joined School of Political Science. — Poetry all the rage.

**ELSEWHERE.** — Cornell has two lecturers in political economy, — one in favor of free trade, and the other advocates the protective policy. — The *Princetonian* is having trouble with the faculty, who charge it with becoming a nuisance, and with overstepping the bounds of its position as a college journal. — Princeton enters one hundred and fifty Freshmen; Rutgers, forty; Colby, thirty-five; Dartmouth, seventy-six; Cornell, one hundred and forty; Williams, eighty-four — Williams has abandoned evening prayer at last. To offset this, perhaps, Sanskrit has been added to the course of electives. — University of Toronto has a new president. — Cornell is advocating the exclusive study of science. — The *Vassar Miscellany* says, "The *Yale Record* and *Courant* as well as the *Argo* have begun the year with the usual amount of slang and interesting facts concerning bass-ball.



TAKEN FROM "LIFE."

Descriptive Definitions.

Locus — Hoodlum.

Crocus — Rooster.

Caucus — Crow.

Focus — Enemy.

Hard pressed — Cider apples.

Sure pop — Good champagne.

"By the way, Brown, did I ever show you this?" said Jenks, as he fumbled in the inner breast pocket of his coat for something or other.

"I don't know," replied Brown, turning a shade paler, "but if it's your tintype taken out at Bar Harbor, with a racket in your hand, please don't; I can't stand any more of that sort.

A newspaper says Boston has a colored man named Yale College. When he shall have a large family, imagine Mrs. College standing on the front porch and yelling to her offspring: "Now, see heah, Dartmouf, how many times mus' yo' po' mudder tell you to frow dat baseball 'way an' stay in de house an' larn your A B C's? Cornell, quit dabblin' in dat watah, an' come heah dis instant. An' you, Vassar, yo' de wose nigger in de pack. Take dat chewin' gum out ob yo' mouf, or I'll choke yo' till yo' 're brack in de face. — *Ex.*

A young mother consults one of her friends upon the profession she ought to give to her son. "The child troubles me; he is of a dreamy nature, and taken with the ideal." "Make him an architect, my dear madam," replies her friend. "He will then be able to build castles in Spain." — *From the French.*

An ambitious pupil recently proved to the professor of mathematics, that a dead man was equal to a live man, by the following statement of the proposition: —

$$\frac{1}{2} \text{ dead} = \frac{1}{2} \text{ alive}$$

$$\text{twice } \frac{1}{2} \text{ dead} = \text{twice } \frac{1}{2} \text{ alive}$$

$$\text{twice } \frac{1}{2} \text{ dead} = 1 \text{ dead} = \text{twice } \frac{1}{2} \text{ alive} = 1 \text{ alive.}$$

*Ex.*

*Toney McSorley:* Phwat is the fare to Charleston?

*Ticket Agent:* Charleston, N. C., or Charleston, S. C.

*Toney McSorley:* Phwat is the fare, I say?

*Ticket Agent:* Four dollars to Charleston, N. C., five dollars to Charleston, S. C.

*Toney McSorley:* Bedad, d' yer take me fur a millionaire? I'll take the chapest, of course! *Spectator.*



NOT SO BAD, AFTER ALL.

*Teacher.* — “DAVID SLEW GOLIAH”: JOHNNY, WHAT PART OF SPEECH IS “SLEW”?

*Johnny.* — PREPOSITION, MUM.

*Teacher.* — WHY, WHAT IS A PREPOSITION?

*Johnny.* — “PREPOSITION IS A WORD SHOWING THE RELATION BETWEEN A NOUN AND SOME OTHER WORD OR WORDS.”

*Teacher.* — WELL, WHAT RELATION DOES “SLEW” SHOW BETWEEN DAVID AND GOLIAH?

*Johnny.* — AN UNFRIENDLY RELATION, MUM.

We will anticipate the daily press by saying that unless we have more cold weather the season's ice crop will be a failure.

At a recent amateur minstrel show it was announced that the end men all wore their natural mouths, with the exception of one, who had to use a glove-stretcher.

We may talk of the cruelty of the Chinese mother, who drowns her feminine infant in a tub of water; but here is a man in the enlightened State of Massachusetts, in this year of grace eighteen hundred and eighty-three, who advertises in the *Boston Transcript* for

**A** COMPETENT nursery woman, one accustomed to bottle babies with references.

### Rot.

BY A NEAR-SIGHTED MAN.

It was yesterday we met,  
But her smile seemed cold to me  
She whom I had dreamed most constant,  
Could her mood so changeful be?

There was something in her eye,  
That gave rise to cruel pain.  
What could thus have grown between us;  
Would she be the same again?

But her silken lashes drooped,  
When I asked the reason why,  
And I saw a tear-drop glisten  
When she said she had a sty.

Types of ancient beauty — Daguerrotypes.

# NOYES BROTHERS,

WASHINGTON, Cor. SUMMER STREET, BOSTON, U. S. A.

Full Evening Dress Shirts, in the late English fashion, constantly on hand and made to special measure for any occasion. Always correct in style.

French Flannel and Cheviot, Pajamas, Scotch Shawls and long Flannel Night Shirts for "steamer and railway travelling."

All grades of English underwear and hosiery in silk and merino wool.

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*Latest Styles,*

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GLOVES,  
CANES, ETC.,

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Washington Street.

It is to be regretted that the Institute fair closes so early in the term, leaving the mechanicals and electricals little time to take advantage of the excellent opportunity for comparative study of machinery which the management have so generously offered. These yearly exhibitions are progressive; the one which is soon to close having as a special feature extensive displays of several of the Southern States and transcontinental railroads. The State of North Carolina occupies a prominent position in the centre of the building, and is represented by Mr. Kerr, '83. Mr. Richards, '85, does the honors for the State of Tennessee, and Winsor, '86, has had charge of the Westinghouse Air Brake exhibit. Among our advertisers who are represented are: Stall & Burt, Ritz & Hastings, A. J. Wilkinson, Thomas Hall, and Henry H. Tuttle.

## PREPARATION

FOR THE

Mass. Institute of Technology

Is a specialty at CHAUNCY-HALL SCHOOL, Boston, Mass., and its remarkable success can be ascertained from the Chairman and Secretary of the Faculty of the Institute.

It aims to fit its candidates so thoroughly that they will not be weighted by "conditions" to be made up after entering, when all their powers are needed for their regular work.

The School is within two minutes' walk of the Institute, affording to the teachers, who are preparing the candidates, unequalled opportunities for consulting the professors.

Successful preparation is made also for College and for Business. Chauncy Hall is the *oldest and largest* private school in Boston.

# COLLINS & FAIRBANKS,

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Silk Hats,

Felt and Cloth Hats.

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THIS school of industrial science was opened in February, 1865. The first class graduated in 1868. The school is devoted to the teaching of science as applied to the various engineering professions: viz., civil, mechanical, and mining engineering, as well as to architecture, chemistry, and natural history, physics and electrical engineering, and metallurgy.

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 for 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 STYLOGRAPHIC PEN.



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The only Reliable and Standard Brands of Pure Cigarettes and Tobaccos.

PIONEER CIGARETTE MANUFACTURERS OF AMERICA.

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CAPORAL, CAPORAL 1/2, SWEET CAPORAL, AMBASSADOR, ST. JAMES, ST. JAMES 1/2, etc. Pure Tobacco and Pure Rice Paper. SWEET CAPORAL. — *Cork Mouthpiece.* — Unsurpassed for cleanliness, economy, and convenience. The soft feeling of the cork between the teeth makes this the most desirable and pleasant mouthpiece, besides absorbing the nicotine, and rendering a cooling sensation to the smoke. Same tobacco as the renowned Sweet Caporal Cigarettes, — *absolutely pure.* The Caporal, Caporal 1/2, and Veteran Cork Mouthpiece Cigarettes are also highly recommended. STRAIGHT-CUT CIGARETTES. — This Reliable Brand is made from extra fine, selected, prime, mild, Golden Virginia Leaf, and is the Finest Cigarette as to quality, flavor and workmanship ever offered for sale. Ask for Kinney Bros. Straight Cuts. Sold by dealers throughout the world.

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Manufacturer and Importer of

Electric, Optical, Philosophical

AND

Chemical Instruments and Apparatus.

Six Catalogues on Various Subjects.

Students and all others interested invited to call or send for catalogue.

For the benefit of posterity we would say that the windows in the new building have been washed. The records regarding the old building have been lost.

THE Lowell free courses of lectures will include the following: Elements of Calculus, Prof. Runkle; Elementary Lithology, Prof. Crosby; General Biology, Prof. Sedgwick; Lectures and Readings in French on the 19th Century, by Prof. Luquiens; Studies in Middle High German, Prof. Otis; Thermometry, Calorimetry and Thermo-chemistry, Profs. Nichols and Holman; Spherical Trigonometry with applications, Prof Wells.

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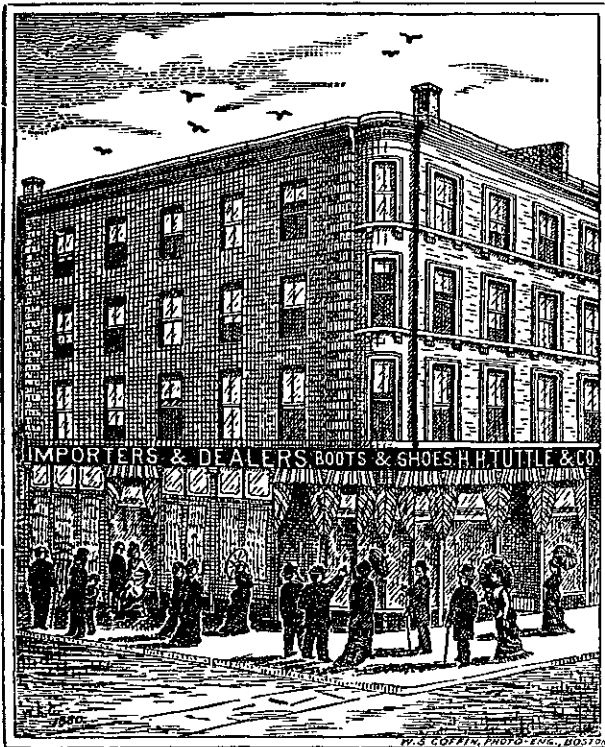
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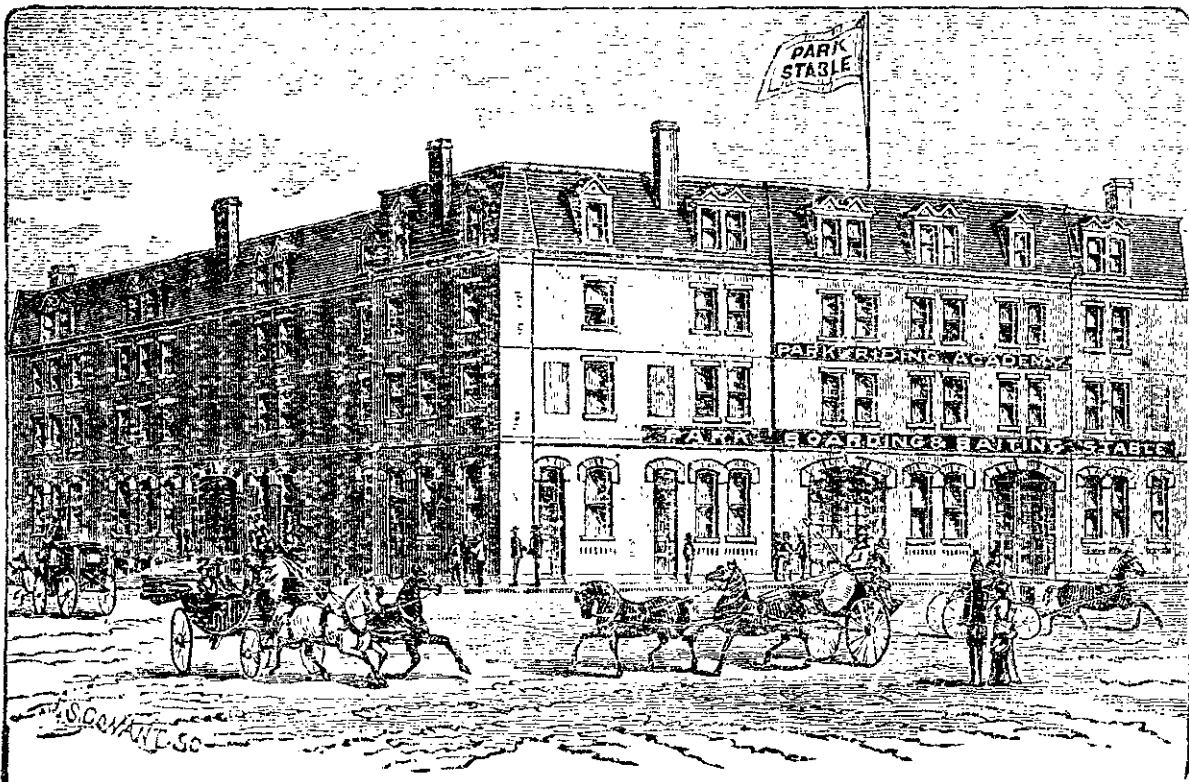
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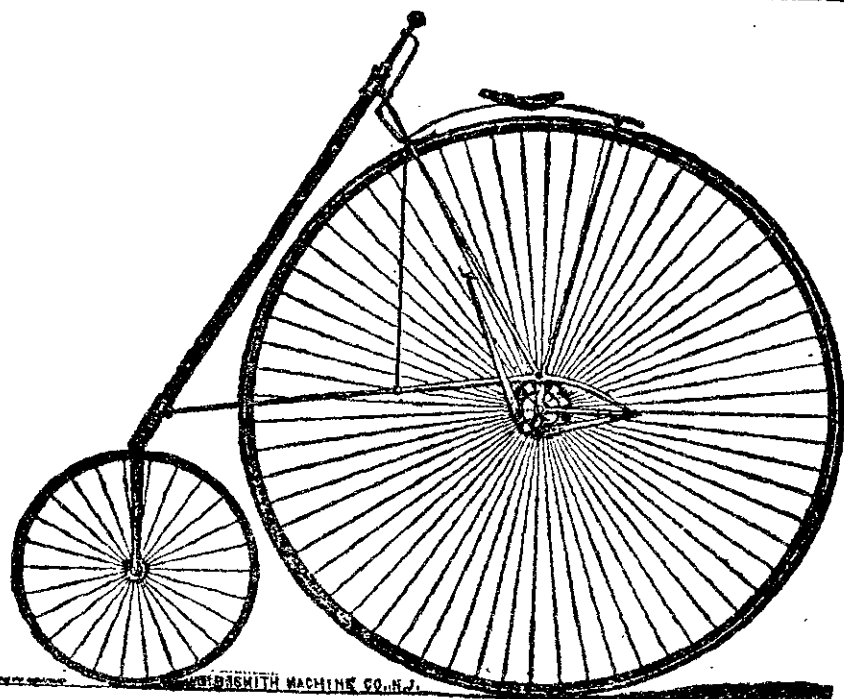
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