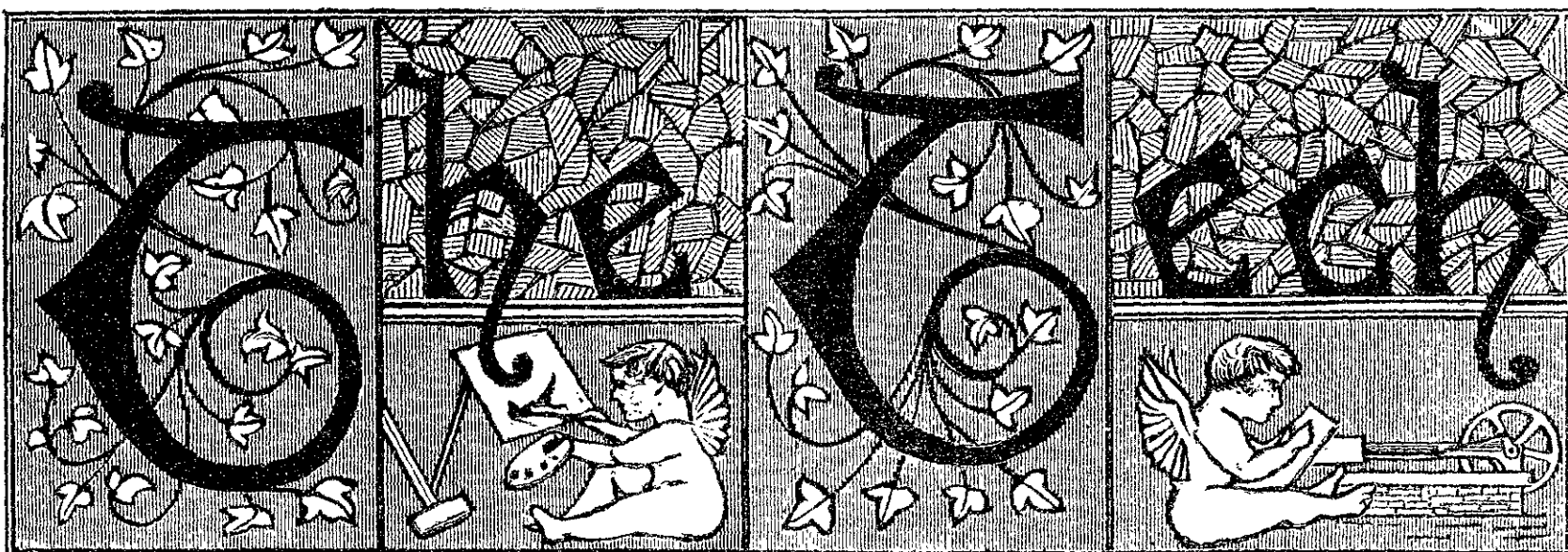
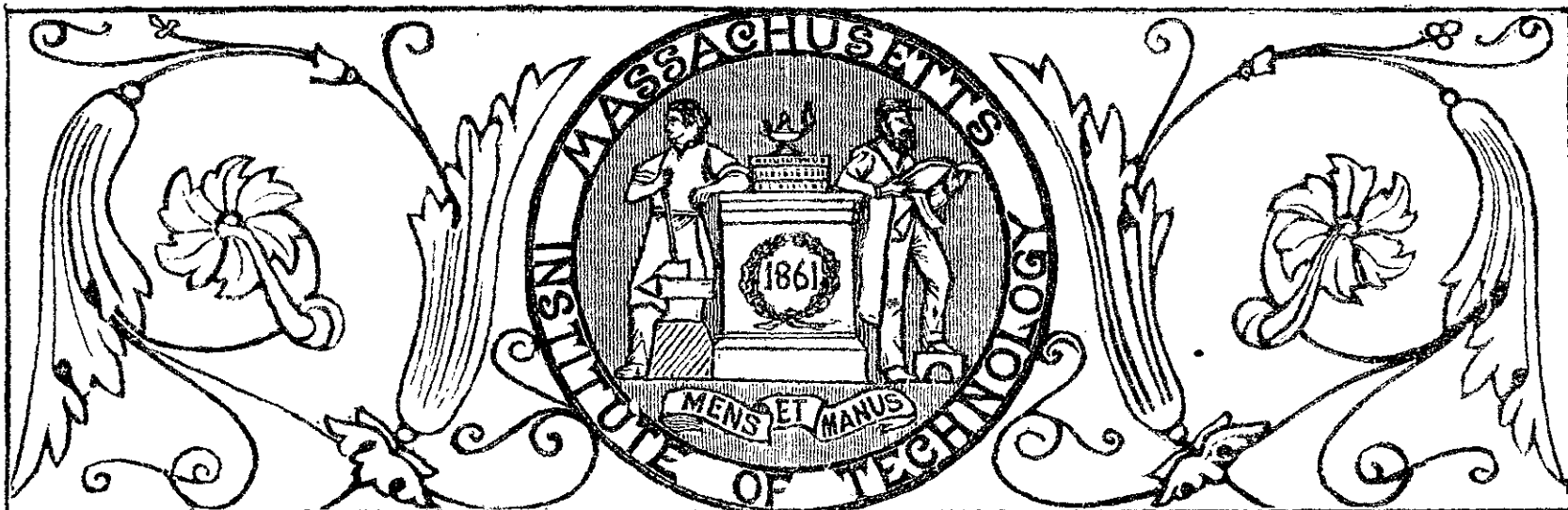




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The Tech.

VOL. III.

BOSTON, NOV. 14, 1883.

No. 3.

THE TECH.

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

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THE present condition of the subscription list of THE TECH is far from satisfactory. With the first number of the paper, which was sent to each alumnus, a circular was mailed defining the position of the paper in the school and calling for

his subscription and support. The number of responses so far received is ridiculously small, and not only causes the suspicion that the M. I. T. alumnus has little regard for the doings of his Alma Mater, but points to a future for THE TECH that is not encouraging. With a little aid from the alumni the paper could be made especially interesting to them and the column of *Alumni Notes* would become a leading feature.

This same spirit of apathy is found in a less marked degree in the two lower classes in the

Institute, and especially among the Freshmen. Every Institute man who can afford it should consider it a duty to subscribe. The paper is published in the interests of no particular clique, its editors and directors have no financial interest in it; it is for the benefit of each and every student of the school, and should not have to ask twice for their support.

THE action of '87 regarding the Freshman ball is to be regretted for many reasons. The class was so evenly divided and so much money had been raised, that a ball which would have been a credit to '87 and a pleasure to all concerned could have been given with little additional trouble. The Institute is sadly lacking in those features which make ordinary college life attractive and so long remembered. There is scarcely anything to bring the students together outside of the class-rooms, and the Freshman ball was one of the best promoters of kindly feeling and mutual acquaintance between us as individuals and classes.

SINCE the days of Jones, the caterer in our old gymnasium, — and perhaps even then, — has there existed in the neighborhood of the Institute the need of a good restaurant, where our hard-working students could satisfy their hunger at the hour of noon without serious detriment to their finances, and we hail with joy a rumor that the establishment of such a restaurant is in contemplation.

We hear the management of the Young Men's Christian Association have decided to let a portion of the new building on the corner of Berkeley and Boylston Streets for such a purpose, and we have no doubt with the custom offered by the Institute and by the Harvard Medical College, together with the

Art Museum and Chauncy Hall, that the enterprise will be successful. We think that the Institute could promise at least one hundred and fifty patrons, the Medical School probably half as many more, and we hope for a speedy consummation of the plans now in embryo.

THE chorus of the second-year architects is: "Where are our lectures on the History of Ornament? Where those on Greek and Roman Architectural History? Where those on Heating and Ventilating?" The empty echo answers, "Where?" We have new rooms, new tables, new stools, new problems; we want some new ideas. At present instruction in the artistic side of our course, in the study and criticism of what has been done in architecture, in the theory of proportion and composition, is entirely lacking. We are also cut off without the much-valued lectures by Mr. Woodbridge on heating and ventilating, through some unfortunate shifting of the course, so as to fit next year, but to leave this year out in the cold, to shiver in unheated, unventilated rooms all our lives, because, forsooth, we were born a year too late.

Ah, happy architects who are now entering, who are to receive all that is promised you, the sooner we shuffle off the stage to give you room the better, for competition with you, fully developed, full-coursed youths, will be of no avail.

THE subject of examinations as a means of gauging a man's ability or fitness for a position has been discussed a good deal, especially of late, owing to the fact that by its means vacancies in the civil service are filled. The system commends itself to almost every one as being a great improvement over the old methods or spoils system, in politics, but it also has its defects, and minorities have rights which should be regarded in all calculations. Doubtless many a student after an examination feels that he has not done himself justice, although he may have worked honestly and steadily, but has been unable to call up, inside a specified time and

under distracting circumstances, the knowledge of the subject and the thorough discussion of it which he would be able to give it if at his own study table.

Now, practical experience has shown that in a great majority of cases he is called on in emergencies, with no previous warning, when he will either be competent to deal with the problem or will be found wanting, and it is then that his habits of study will be tested, and it is only that which he has absorbed, which he has made a part of himself, which he can depend on.

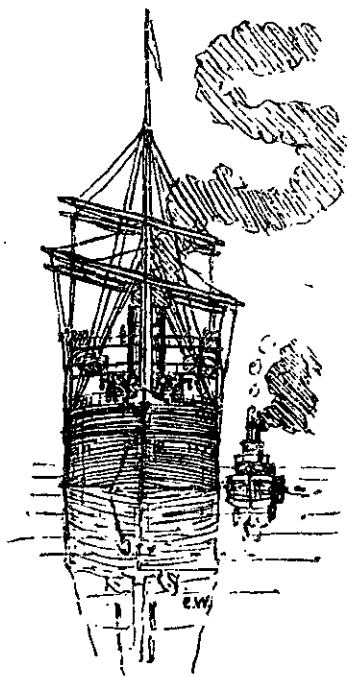
A great part, not all, of course, of the knowledge obtained by "cramming" slips away from a man after the crisis has been passed. Parts of it he would not care to remember, but much that is good he will lose as well, because he failed to impress his mind with it thoroughly. The prime trouble is, we think, that a man attempts to cover too much ground, and the result is apt to be that he knows nothing thoroughly. Thoroughness is only to be attained by good, solid, conscientious work, and it is usually the man who does least of it who complains of the unfairness of examinations.

The student who keeps up with his lectures and his regular work, and instead of a "cram" at the end puts in a "systematic review," need scarcely dread an examination, for although he may not do as well as one who has spent less time on the subject but is more brilliant, he has a firmer grip on his knowledge, and such work is usually appreciated by his instructor, who very soon gets to know the men who work and those who don't.

MR. CHARLES S. SPRING, of '85, has been elected to fill one of the vacancies existing in the board of editors, and begins his duties with this number of the paper. The editorship to which '87 is entitled is still vacant, and members of that class are invited to contribute articles or drawings.

A FINE full-page heliotype of the Rogers Memorial Tablet will be given with the next number of THE TECH.

The Speed of Modern Steamships.



SEVERAL articles having appeared in recent numbers of *THE TECH* on fast railroad trains, perhaps a few words will be interesting in regard to the speed of ocean steamships.

Although there are hundreds of fine and fast steamships running from England to all parts of the civilized world, doubtless the finest are those which are constantly crossing and re-crossing the Atlantic between England and America.

The first steamer to cross the Atlantic was the *Savannah*, a vessel of three hundred and fifty tons, which, in 1819, steamed from Savannah to Liverpool in twenty-two days. Thirty years ago sixteen days were considered a good passage between England and New York. Gradually this time was reduced until eleven days were reached. Then began a rivalry between the White Star and Inman lines of steamers, resulting in a gradual increase of speed. This proved a good advertisement for these two lines as their larger passenger lists showed. In 1871 twenty-four voyages of these lines averaged eight days and fifteen hours.

In 1877 the *City of Berlin* of the Inman line made an eastward trip in seven days, fourteen hours and twelve minutes, and the same year the White Star steamer *Brittanic* made a westward trip three hours and eighteen minutes quicker. The westward passages are generally longer than the eastward on account of the prevailing westerly winds.

The *Brittanic's* time remained the fastest until 1880, when the *Arizona* of the Guion line, built in the preceding year, made an eastward passage in seven days, ten hours and forty-seven minutes, which she afterwards reduced to seven days, seven hours and sixteen minutes on a westward passage.

Then a new rival appeared in the Alaska, also of the Guion line. After a number of astonishing runs, in August, 1882, she arrived at Queenstown, having come across in six days, fifteen hours and nineteen minutes, and one year later made a westward trip in six days and twenty-one hours. These times are still the fastest on record. Occasional quick voyages have been made by the *Servia* of the Cunard line and the *City of Rome* of the Inman, but their times will average much more than the Alaska's.

The Guion line has a new ship, the *Oregon*, which made its first passage less than a month ago. She made good time and in one twenty-four hours accomplished four hundred and fifty-six miles. The Alaska's best day's work was four hundred and thirty-six miles. The Alaska is of 7000 tons register, five hundred and twenty feet long, and 11,000 horse-power. The *Oregon* is of 7,500 tons, five hundred and twenty feet long, and 13,000 horse-power. She burns three hundred tons of coal a day. It is expected she will cross the ocean in six days and ten hours or quicker. Whether it will be done or not remains to be seen.

A. R.

The Volcano of Kilauea, Hawaiian Islands.

TO the tourist who visits the Hawaiian Islands the volcano of Kilauea is the point of most absorbing interest. It is situated on Hawaii, the largest island of the group, and at a distance of nearly a three days' journey by steamer and on horseback from Honolulu, the capital and port of entry for the Hawaiian kingdom.

In company with a former student of the Institute, a member of the class of '76, the writer visited the famous volcano in the fall of 1881.

The first part of the journey we made in the inter-island steamer "*Likeli*." Leaving Honolulu at 4 P. M., we crossed the first channel and coasted along the lee side of the island of Molokai. At 1 o'clock the next morning we

stopped at Lahaina, on the island of Maui, and at 4 o'clock at Maalaea Bay, on the same island. Both these places are pretty when seen by daylight. Then we crossed the Hawaiian Channel, and at 2 P. M. stopped at Mahukona, Hawaii, one of the most desolate places in that country, nothing but barren rocks and sand being visible from the steamer.

There was much freight to be landed there, and we were delayed for several hours. That night we coasted along the windward side of Hawaii. When daylight appeared we found the coast to be very precipitous, rising vertically from the water's edge to a height varying from fifty to several hundred feet. Numerous streams fell over these cliffs, forming very picturesque waterfalls. In other places deep, narrow gulches had been cut by larger streams down to the sea level.

As we approached Hilo, which is the landing-place for visitors to the volcano, the cliffs decrease in size till at the town there is a long, low, sandy beach.

This little town, as seen from the steamer, is an attractive spot, being thickly shaded by palms of various kinds and various other trees.

In the background are the mountains Mauna Kea and Mauna Loa, each nearly 14,000 feet in height. The top of the former is commonly covered with snow, whence its name, which means White Mountain. From the latter burst forth on Nov. 5, 1880, at a height of 10,000 feet above the sea, a large mass of molten lava, which slowly made its way down the side of the mountain, finally stopping in August, 1881, when within a mile of the town of Hilo, having flowed a distance of about forty-five miles. As seen from the bay in front of Hilo it appears like a huge black snake, curling along down the mountain-side.

The distance from Hilo to the volcano is thirty miles. For the first five miles the road passes through the outskirts of the village and the cane-fields of the Waiakea Sugar Plantation. The next three miles are through one of the most beautiful tropical forests. Ferns of all sizes grow

there in luxuriance, from the delicate maiden's hair to the tree-ferns, which are often fifteen and twenty feet in height, and under which the traveller rides as under shade trees. The bird's-nest ferns growing in the branches of the trees are peculiar objects. The trees are mostly *ohia*, which grow to a height of forty to sixty feet. These are often enveloped in the folds of the *ieie* vine which falls from their limbs in long pendent loops.

Leaving this very picturesque forest the road, which is but a mere trail, winds up a very gentle slope over fields of lava on which grow a few scattering trees and ferns.

At the native village of Olaa we rested a few minutes at what is known as the Half-way House. The village consists of only a few straggling grass houses, with the exception of the one mentioned, which is of wood.

At seven miles distance from Kilauea we again entered the forest, which, however, is not so thick as that lower down. As we approached the volcano we found the earth full of cracks, from many of which steam was issuing. These gave us a strong feeling of insecurity. We arrived at the Volcano House, which stands within a few feet of the edge of the crater, just at dusk, and standing in its doorway we could see the reflection from the burning lakes below.

The next day we spent in exploring the crater, which is about nine miles in circumference and six hundred feet in depth. The walls are nearly or quite vertical in most places, but at the point of descent they are broken into several terraces, down which the path zigzags sharply.

The floor of the crater is composed entirely of fresh lava, which is very black, appearing like a field of coal. In some places it is quite level, and in others it is piled up in huge masses and twisted and contorted in many curious shapes. Everywhere it is traversed by cracks and fissures, in many of which we could see the red-hot lava only a very little way below our feet. Thrusting our walking-sticks down into these cracks they would often take fire within a foot of the surface. After a walk of nearly two



THE SIX-COLUMN PROBLEM. — ARCHITECTS WILL APPRECIATE.

miles across the floor we came to the burning lake, which is called the New Lake, as it has been formed within a few years, while there is another about a half-mile distant known as Hale-mau-mau, the house of everlasting fire. The New Lake is a mass of molten lava, perhaps one thousand feet long by six hundred feet broad, and is from thirty to fifty feet below the top of the surrounding walls.

At times this molten lake becomes covered with a thin, black crust, with no appearance of fire except around the edges. It remains in this condition for some little space of time when suddenly cracks shoot across it in various directions, and up through each of these rises a line of red-hot liquid lava. Then soon fountains of the fiery material begin to play to a height of

thirty feet. I counted nineteen of these fountains of fire in action at one time. When seen at night these form the most gorgeous fire-works ever witnessed. As the winds, which always blow here very strongly, strike them they draw out portions of the melted mass in long, fine threads, which are called Pele's Hair. The cliffs on the side toward which the winds blow are always covered with large accumulations of this peculiar formation.

After the fountains have been active for a few minutes large sheets of the crust move slowly toward them, then turning on edge sink below the surface with a swirl that is indescribable. These various movements continue for perhaps an hour when they gradually cease, and the crust once more forms over the surface of the

fiery lake and quiet reigns for a short time, but only to be soon again broken and the same operations repeated. So enchanting is the spectacle furnished by these phenomena that one can sit for hours to watch them, and even then only leave them with reluctance. As seen by night they produce a far stronger impression than when seen by day.

Hale-mau-mau is about the same size as the New Lake, but is surrounded by higher walls and heaped-up masses of broken lava.

At the north end of the crater are large deposits of sulphur where we found many very fine crystals of sulphur, but all so brittle that we could not preserve them.

There are many other objects of interest in that neighborhood, but they would require too extended a description for this article.

G. H. B.

Prospecting under Difficulties.

NOT many years ago two young mining engineers, just fledged from a well-known institution for scientific training, looked about inquiringly for a promising field for future success in the practice of their profession. Hearing of the richness of West Virginia, in zinc, coal and iron deposits, they thought the chances would be better in a place where the divining-rod — a forked peach-tree limb — was still regarded as the best means of discovering hidden treasures.

Armed with the weapons of science and rendered cautious by long experience of the uncertainty of chemical reactions, they argued that the first step should be a "prospecting" tour, though they were confident of being able to cope with the uncouth "moonshiners" of that little-known mountainous region.

This point decided, they at once negotiated with a railroad ticket scalper for round-trip tickets at reduced rates through the *terra incognita*, thus securing a safe retreat in case of meeting with disappointment.

One, possessing more than ordinary financial ability, naturally became treasurer of the exhi-

bition, and was intrusted with the precious coupons that smooth the path of the dusty traveller by rail when accosted by troublesome conductors, and with the spare cash that was to lubricate the hands of the sour-visaged conjurer of hash. He, also, was intrusted with the *taschenuhr* that was to indicate the times of gastronomic devotions.

Arriving upon the field of exploration, they divided into parties of one for the purpose of expediting their examinations. One struck off in the direction of the mountains, but the heat of the day was great, the road dusty, and soon becoming tired, he wandered to one side and entered a farm-house to solicit a drink of water to cool his parched throat. Here he encountered a beautiful farmer's daughter, who with a shy courtesy, handed him a tin dipper filled with limpid spring water in answer to his appeal for help, at the same time glancing admiringly at the stalwart form of the handsome metal seeker. The latter was not slow to avail himself of the proffered split-bottomed chair and the modest invitation to rest himself "a little." Fascinated by the ingenuous child of the wilderness, he tarried longer than was necessary to restore the elasticity of his frame, and fell to conversing on such subjects as naturally suggested themselves, though the burden of the colloquy was bee-farming and honey-making which is an important industry in that region. Here was a field for the display of his scientific knowledge. He explained the geometrical construction of the comb-cells, the properties of the adhesive cement used by the insects in securing the comb to the roof and partitions of the hive, the method of filling the cells with honey, and how the bees took advantage of capillarity and viscosity in their operations. He discussed the best form of adits to gain the interior of the hives, the methods of ventilating and lighting these aerial mines without the use of Sturtevant blowers or Edison lights. In impressive language he told his wondering listener how no bees could have lived in early carboniferous times, since no flowers existed from which

to distil honey, nor were there any dewy lips to taste it in that sultry, foggy era.

But all this took time, and as his rural auditor showed signs of coma he suddenly recollected that the day was nearly gone, and with uplifted hat and never-to-be-forgotten bow he took his leave of this lily of the mountain vale, gave up further explorations for that day, and returned to the village rendezvous.

Now, for his companion. He, less susceptible to maiden charms and filled with professional enthusiasm, scoured the hills in search of "indications," and at last brought up on the bank of a cool river. He could see that the rocky strata he had traced to this point dipped into the water, and desirous of tracing their continuation, was not to be thwarted by such a small obstacle as a river. Without more ado he doffed his garments, deposited them on the grassy bank, plunged into the clear waters and dived down to continue his geological researches. Many times was this refreshing operation repeated until our youthful miner was satisfied that nothing but mud rested peacefully upon this river bed, the result of erosion higher up. But, while our hero was thus placidly making an amphibious study of the regimen of the stream, the less scientific but more practical native prospector wandered *dabei* with his divining rod in his hand. This unerring instrument pointed to the mass of modified drift yclept *beinkleider*, and the native stooped for a closer inspection. Excavating a little of the strange earth he made a trial pan which showed color, but not of *Au*; it was *Cu* and *Ni*, with a trace of *Ag*. Dumbfounded at the result from such a small placer, he essayed a second panning, and lo! the two coupon tickets showed up with cabalistic inscriptions *darüber*. This puzzled him sorely, but thinking they might be the keys to the long lost language of the extinct moundbuilders, he laid them carefully aside to dry, preliminary to selling them to an antiquarian crank who lived in the village. A third pan was excavated, and protracted washing displayed a nodule of *Ni*, with an indentation on

one side, as if made with a drop-hammer, and showing certain characters around the margin, and these strange marks across the diameter, "Waterbury, Conn., \$2.35."

Our native dropped this strange object and was astounded to hear a whirring sound like the flight of a partridge, and at the same time hearing a plash from our hero under the bank, he superstitiously jumped to the conclusion that the place was haunted, frantically grabbed at his favorite divining-stick and unconsciously caught up the detritus of the aquatic miner and dragged it after him in his insensate fright. Whether he has stopped yet or not is unknown. But when our miner came up to where he had left his bodily raiment, he comprehended for the first time the mathematical definition of a point, for there was "position without length, breadth or thickness"; and to add to his horror the absconding native had aroused the slumbering anger of a family of hymenoptera, commonly known as yellow-jackets. These added their persuasive, impulsive forces to the nascent energies of our mining hero who was soon describing an epicycloidal orbit through bushes, over fences and fields in the general direction of the preconcerted meeting-point. After his velocity had been diminished by the friction of the earth and the resistance of the air, it suddenly dawned upon him that this was not the Garden of Eden, and he hastened to shield himself in a friendly copse to await the coming of darkness to shroud our planet. His friend, disturbed by his non-appearance, sallied forth and found him, and by means of an ample ulster succeeded in smuggling him into his lodgings.

Pathetic appeals to a cheery professor enabled our disheartened miners to obtain sufficient *klein geld* to reach home, wiser but less enthusiastic.

The Bridge of Sighs — The gallows *Life*.

Teacher, — What then do we learn from this story of the foolish virgins?

Pupil (girl), — To wait for a husband. — *Die Fliegende Blätter*.

Another Fast Train.

IN speaking of the Chicago Limited Expresses in THE TECH No. 1, the writer omitted to state that coming east the Pennsylvania has a train which makes the run of nine hundred and eleven miles from Chicago to Jersey City in twenty-five hours twenty-eight minutes actual time, as against twenty-six hours twenty minutes of the return Limited. This is, therefore, the quickest time between New York and Chicago, though the speed is only thirty-five and seven tenths miles an hour. The New York Central does not attempt to compete with this east-bound train, as it would necessitate a much higher speed over a route sixty-five miles longer than the Pennsylvania's.

A train on the Maine Central recently made fifty-five miles in one hour and five minutes, including two stops, one of five minutes. This is the fastest time ever made on the road.

Communication.

MR. EDITOR:—A brief paragraph in your last issue indicates a state of things in which, it seems to me, we, as a school, cannot acquiesce without a protest. I refer to the financial statement of the treasurer of the Rogers Memorial Committee. If I understand the statement right, the treasurer, failing to receive sufficient support from the students, has himself made up the balance due on the Memorial. The causes of the deficit need no mention here, having been sufficiently specified in THE TECH, No. 1. But whatever the cause, enough that the debt has been incurred by our authorized agent, acting under our instructions. Such being the case, we can, neither as a school collectively nor as individuals, permit our agent to make good our own deficiency.

However creditable the act to him, however disinterested his generosity, we cannot avail ourselves of it with justice to him or with honor to ourselves.

Such a course, too, is widely at variance with

the original design,—that all should give a little, that none should give more. It would establish, also, a most harmful precedent. Will a man be anxious to do work for us if he feels that he may be called upon to pay our debts also? Such a feeling would inevitably deter many from committee work. Shall the school, too, be allowed to assume that it can thus evade payment of its just debts?

The amount in question, if properly divided, would be trivial. I would suggest either that the vacancies in the original committee be filled or that new committees be appointed by each class to canvass the school for subscriptions. It is no pleasant task, particularly when, as now, the field has been already worked, but the justice of the claim should command a cordial response from all.

To resume briefly: First, the present status is not just to our agent; second, it is not honorable to ourselves; third, it is contrary to the original plan; fourth, it establishes a bad precedent.

I hope for the honor of the Institute that we shall not be backward in discharging this just obligation, and I firmly believe we shall not if the duty is once properly presented.

Permit me to add that nothing in the above should be considered in the slightest degree a reflection on the officer in question. He has, as he deserves, the respect and confidence of all.

T., '84

AT a meeting of '85 on Monday last, nearly the whole of that class's proportionate part of the deficit was raised. Mr. Pratt will be glad to receive further contributions.—EDS.

NOTE.—It was W. Hall Kerr, '83, who had charge of the North Carolina Exhibit at the Institute Fair, and not Mr. Carr as printed in THE TECH of Oct. 31. Mr. Kerr's engagement to Miss A. M. Getchell, of Brookline, Mass., is announced,

Department Notes.

At the meeting of the New England Cotton Manufacturers' Association, held Oct. 31, Mr. Edward Atkinson proposed that the Institute of Technology should construct and equip a Textile Laboratory and Museum, and should establish a course of instruction in the textile arts. Subscription papers are already in circulation.

Stevens Institute will hereafter restrict its Freshman class to the forty passing the best entrance examination.

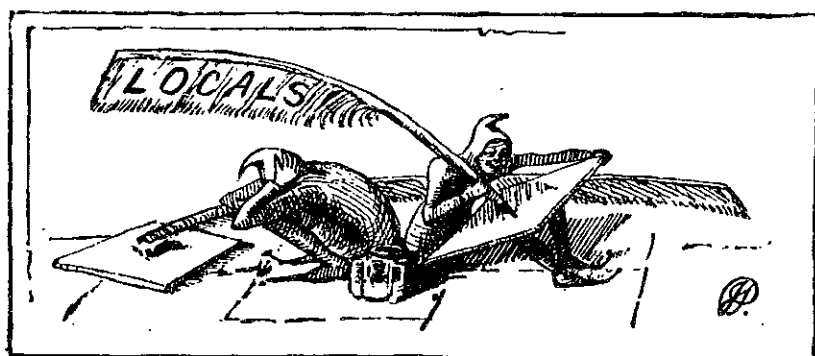
The Boston and Albany Railroad is building at its Boston shops a freight engine with four cylinders, the first ever made in this country. There will be two small and two large cylinders, the former exhausting into the latter, so as to utilize the steam after it has once been used. The cylinders are so arranged that live steam can be used in both pairs at the same time, thus giving an immense power, but the main idea is to utilize the exhaust steam. The engine will have one of the big boilers and fire boxes, so as to carry 160 pounds of steam, the same as the first-class passenger locomotives, but the drivers will be only $4\frac{1}{2}$ feet in diameter. The machinery is the same as that of an ordinary engine, and if the four cylinders fail to work well they can be taken out and one pair put in. THE TECH hopes soon to publish drawings and a detailed description of this engine.

The *Railroad Gazette* is publishing illustrations and descriptions of new locomotive boilers.

Correspondents of *Cotton, Wool and Iron* are wrestling with the theory of the planimeter and the problem as to which part of a carriage wheel moves the fastest. "Sixty Miles an Hour over our present Roadbeds" is the title of a series of papers in the *American Engineer*, by W. B. LeVan, which discusses the conditions necessary for fast railway trains.

In connection with our own new building the following description of the Jefferson Physical Laboratory, auxiliary to the Scientific

School at Harvard, is interesting : The laboratory is a plain structure of red brick, with stone trimmings, located directly in the rear of Lawrence Scientific School. It partly occupies the former site of the university shops, which were removed to make way for its erection. This institution is the gift to Harvard College of Mr. Thomas Jefferson Coolidge, of Boston, in commemoration of Ellen Wayles Coolidge, a granddaughter of Thomas Jefferson. Its cost is estimated at about \$115,000. It will have three stories above the basement, and a separate building containing engine and dynamos, erected on the eastern side. It will have a lecture-room capable of seating three hundred students, and a laboratory above it 60 × 60 feet dimensions. Its arrangement of rooms for special investigation is carefully planned. These are in the west section, furthest withdrawn from the engine building and from divisions of most general use. Through this special investigation section is erected a double walled tower in view of the study of atmospheric physics. It will rise 12 feet above the building, being at a height of 72 feet from the earth ; its sides above the roof are to be formed chiefly of glass. At the centre of the basement has been excavated a section to form a room below its level for constant temperature. One of the basement rooms is to be devoted to magnetism, another is for heat, and a third for weights and measures. The first floor will have rooms arranged for the study of heat, electricity, magnetism, and sound, and there are to be two lecture-rooms in connection with a balance-room. On the third floor will be also a balance-room, in connection with a general library and rooms for electric measurements and photometry. The Rumford laboratory will be located in the second story, which will also contain rooms for the study of optics and electricity. Adjacent to the lecture-room of the eastern section, and which is twenty feet high, will be three stories of rooms on its northward side for the physical cabinet ; these will communicate with smaller recitation-rooms and a general laboratory.



"He was killed in der jam."

What has become of the Σ . M. E.?

Have you heard the new Institute cheer?

The Architects have begun water-color sketching.

The Civils' byword is, "What did the guide say?"

All of the new chemical laboratories are now ready for work.

The shops will be ready for the class in metal turning in about a week.

The Freshmen have formed a tennis club consisting of twenty-two members.

Electrical engineering is becoming popular. Twenty from '86 are taking this course.

The second-year miners are not to take mineralogy until the second term of this year.

'87 has finally voted not to give the Freshman ball. The class was almost evenly divided.

The class in geology went to Marblehead Neck recently to examine the formations of that locality.

The uniform which the Freshmen are to wear at drill is to be quite different from that worn last year.

Messrs Doane, Harrington, and Worthington, of '85, were initiated into the *F. S. T.* at its last meeting.

Ask Mr. Ely by what Means the rule "No dogs allowed in the architectural department," is carried out.

Under the head of "Noteworthy Edifices," the *Herald* of Oct. 23 devotes three columns to a description of the new Institute buildings. The writer kindly refrains from criticising the exterior, but dwells at length on the interior fitness.

The laboratories are called "the most complete in the New World."

At last the Faculty have relented, and the annually coveted brass buttons will appear on the new uniforms.

The various bulletin boards about the Institute are much like comfortable arm-chairs — good for a week back.

The 2 G Society has recently initiated two new men into membership, — Capt. Lyle, '84, and Mr. McRae, '85.

Mr. Peirce, of the Freshman eleven, was quite seriously injured during the game with Andover a few weeks ago.

The second-year Civils were out the other evening, under charge of Mr. Burton, finding the true meridian of Boston.

One hundred and seventy-six Freshmen are enrolled in the battalion. They form four companies under the command of Major Locke, '86.

Col. Chadwick resigned the position of instructor of military drill at the beginning of the term, and Gen. Moore was appointed to his place.

The ghost of J. G. Hadley, of Memphis, Tenn., appeared the other night at a Spiritualistic seance at which several Institute students assisted.

A company of about two hundred students of the Institute went down town on the night of the 6th and assisted in the demonstrations as the returns came in.

The Harvard Freshman eleven was to have played our Freshman team a week ago last Saturday, but as they did not put in an appearance the game was forfeited to us.

The fall assessment of the Athletic Club must be paid by Nov. 15. Morss, '85, the treasurer, can be found in the Mining Laboratory Wednesday and Thursday afternoons.

The officers of the Athletic Club for 1883-4 are as follows: *President*, H. Furlong Baldwin, '84; *vice-president*, Frank M. Haines, '84; *secretary*, Walter H. Bunce, '84; *treasurer*, Everett Morse, '85.

The Rogers Memorial Tablet is now at the sculptor's studio and is pronounced by all who have seen it as very successful. The head is said by good judges to be exceedingly life-like. It will be placed in position in the entrance hall of Rogers Building directly.

At a class meeting held Nov. 1, '84 elected A. Lawrence Rotch, president, and George H. Heywood, secretary and treasurer. Messrs. Bennett and Bunce and the president were appointed a committee on class photographs, and Messrs. Baldwin and Haines were put on the gymnasium committee.

Some of the members of the class of '84 seem sadly to want a better knowledge of parliamentary proprieties. Supposing that their seeming disregard of these proprieties proceeded from ignorance rather than from ill will, we would suggest that it is customary to elect the man who moves the appointment of a special committee a member, at least, if not chairman, of that committee rather than to wholly ignore his existence, as was done at the last class meeting, and then to say nothing of the impropriety of hastily proposing the closing of nominations when but two men have been nominated to fill two offices, it is contrary to all custom for one of the nominees to second that motion.

Mr. Turner, with the architects, has opened the winter campaign in water color. Some of the new recruits are storming the gates of Vienna, and apparently with a good deal of fire in their composition. Others are attacking the domes of Ichweissnichtur, with doubtful success; a re-enforcement of veterans might open their eyes to a bolder method of attack. A few sharpshooters are practising upon sundry small jars and glass balls, before entering the field for active duty. They have already discovered that a Prussian blue is a much more effective ally than any French can be, and have begged assistance of the former in spotting the jar. Gen. T. has not organized all his forces yet, and the old campaigners stand ready to be ordered to the front.

THE two lower classes of the Rensselaer Polytechnic Institute, who engaged in a free fight over a Freshman flag on Nov. 1, have decided to pay damages amounting to \$300, when most of their number will be taken back into the school. A commendable action of the Faculty is its decision to expel prominent members of both classes.

A NOVELTY in the way of railway appliances is now in process of construction at the Atlantic Works, East Boston. It consists of one of Robbins's patent steel tubular railway cars, this being the first one, and built by the company controlling the patent as an experiment.

The car consists of a firmly riveted steel shell, stiffened by steel ribs, V-shaped in section, running completely round the car on the inside. These hollow ribs open into a ventilating trunk extending along the top of the car, and by means of apertures furnish an abundant supply of pure air to the inside of the car. Tubes at each side of the car contain illuminating gas for over a week's supply, stored at a high pressure, and twenty-two large plate-glass windows furnish ample light to the interior.

The car is heated by steam, and among the advantages claimed are entire incombustibility and freedom from dust and cinders, as there is to be no wood at all in the interior of the car, and all fittings are dust-proof.

In case of collision or derailment there would be no danger from flying splinters and debris, as the steel would only bend and dent where iron or wood would fracture.

Less weight, and consequently less wear on the rails, are also claimed for these cars.

A dredger — the largest ever constructed — is nearly completed at the same works for Washington parties. The jaws of this machine open ten feet and ten inches, and are operated by a new method, which insures much better work than has been hitherto effected by ordinary dredgers.

H. C. S.

Athletic Notes.

An effort is being made to form a Base-Ball Association in the Institute. Considerable interest has been displayed, and there is every prospect of our being represented by a first-class nine next year. About twenty-five men have already signified a willingness to practise during the winter.

A meeting of those interested in the formation of an association will be held Thursday, Nov. 15. If there is enough interest taken, it is proposed to hire some place in the city which shall afford opportunity for practice in batting and throwing. All men who are interested in base-ball are earnestly requested to come to the meeting, whether they intend to try for the nine or not.

The Athletic Club opens the year with a balance in its treasury. Last year the spring meeting at Beacon Park was abandoned, and only in-door meetings were held, which were well attended and very successful as a part of the social life of the Institute. If the Athletic Club is to maintain its present position, it must have the support of the whole Institute, and especially of '87.

Every year there is a similar appeal for the support of this organization, and the response is always below the demand. The possibilities are large and the requirements in proportion. Good material is not lacking, and if fifty per cent of our men would take the active interest in athletics that the occasion warrants we would not be obliged to point to a few flattering records of years past, but could read them in the columns of the daily press.

From the Freshmen, since they are the largest class in the Institute, and since they have more time at their disposal, it seems only right to expect their hearty support in this direction. Let every one, therefore, join the Athletic Club, and show that he is willing to do all that is in his power to bring the Institute to the front in the field of athletic sports.

The College World.

BOWDOIN is trying the experiment of self-government among the students. A jury has been made up composed of one representative from each class, one from each inter-collegiate society, and one from non-society students, and it is before this tribunal that all cases of discipline must be brought. The president of the college stands in the relation of a judge to this jury, and the penalties are to be awarded by him. Though in the higher colleges this method of administration may do very well, yet in colleges where a majority of the lower classes consists of "men" under twenty years of age, whose immature judgment cannot be relied upon, the experiment would certainly prove a failure. For instance, we cannot think this method of discipline would prove successful among the students of the Troy Polytechnic, whose lower classes have recently been amusing themselves with punching each other's eyes and noses in contest over an '87 flag to see whether it should or should not be placed on top of the college building. In the course of this exciting game many were hurt, some maimed, and if report does not exaggerate, some three hundred dollars' worth of college property destroyed. To submit the discipline of the school to such "men" would indeed be folly, but we, by all means, advocate self-government for those who are able to bear it, trusting that all our colleges will in time be able to sustain this great blessing. The Bowdoin *Orient* laments the innovation of delivering a part of the salutatory in the English language. We think this "innovation" on a par with the advance made in that branch of the college government relating to the discipline of the students, with the abolishment of the system of demerits, and, if an innovation, a desirable one. Probably not one among the audience would comprehend the least part of the Latin portion of the address, and after paying due compliment to the old-time custom, the people would hear with all the more eagerness some ideas expressed in a language which they understand.

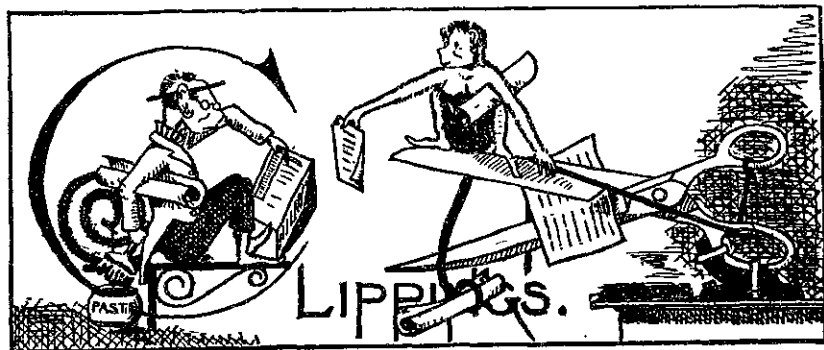
We are glad to see that Bowdoin has taken this step in advance, and hope we shall not see from her a retrograde movement in this particular.

YALE. — The crew coached all summer in their new stroke. — Glee clubs at Amherst and Yale have been practically successful. — One student pursuing the agricultural course. — Yale is to have some text-books to which no cribs are published. — A Cherokee Indian is at the Theological School. — New athletic grounds are not to be opened till 1885, owing to the poor condition of the turf. — Vinton, the Andover pitcher, enters Yale next year.

DARTMOUTH. — The Faculty is endeavoring to raise the standard of the college. — The *Dartmouth* advocates the endowment of the college journal, thinking that journalism will probably soon be in the curriculum of many colleges. — Confident of the success of its foot-ball team. — It seems that Dartmouth has an "historical laboratory," where each student must make individual research, and give the result of such in lectures before his class, much as we do in our "Memoirs" with Prof. Richards. We congratulate Dartmouth on its advance in this particular.

AMHERST. — The corner-stone of the new gymnasium was laid Oct. 13. — The Faculty have reconsidered their resolution discouraging participation in intercollegiate sports.

HARVARD. — Commencement parts and scholarships have been assigned. — A Harvard shooting club has been organized for target and glass-ball practice. — A dinner in honor of the Harvard University crew that beat the Columbia and Yale crews was recently given at Young's Hotel. — Mr. Wesselhoeft, '84, is still ill, and will not be able to play in the foot-ball team for some time to come. — The Harvard Nine will have Allen for catcher, Nichols for pitcher, and Smith for first base. — Hare and hounds popular with the Harvard Bicycle Club. — There are three eights in practice for the Freshman crew. — The game between Harvard and Yale in New York on Thanksgiving day promises to be largely attended by men from most of the New England colleges.



The Margin o' Moonshine Land.

A PRANKLET.

WHERE the ghost of the Goo-goo goes to roost
On the topmost tine of a red-ripe star;
Where the Whangoo whistles and whets his voice
And the throstle twavers afar, —
Where the owls hoo hoo
Till their lips grow blue,
And the cevers answer a lonesome coo.

Where the moon mists drip from the lid of night,
And the Hoodoo sports with a skein of shine;
Where the lamp of the light'ning Ong falls faint
And the Whickwhacks wheel in line,
When the wind blows weak
From his swollen cheek,
And the voice o' the Echo scarce can speak.

Where the Twinelves ravel the Rainbow's ends,
When the grass gleams, gemmed with a diamond
dew;

Where the oberish oogers pirouette,
And the Night-notch nods at you,
Till your eyes grow hot,
And you wot not what —
The shape o' the Sun, or — a scarlet blot!

J. M. A. in *Life*.

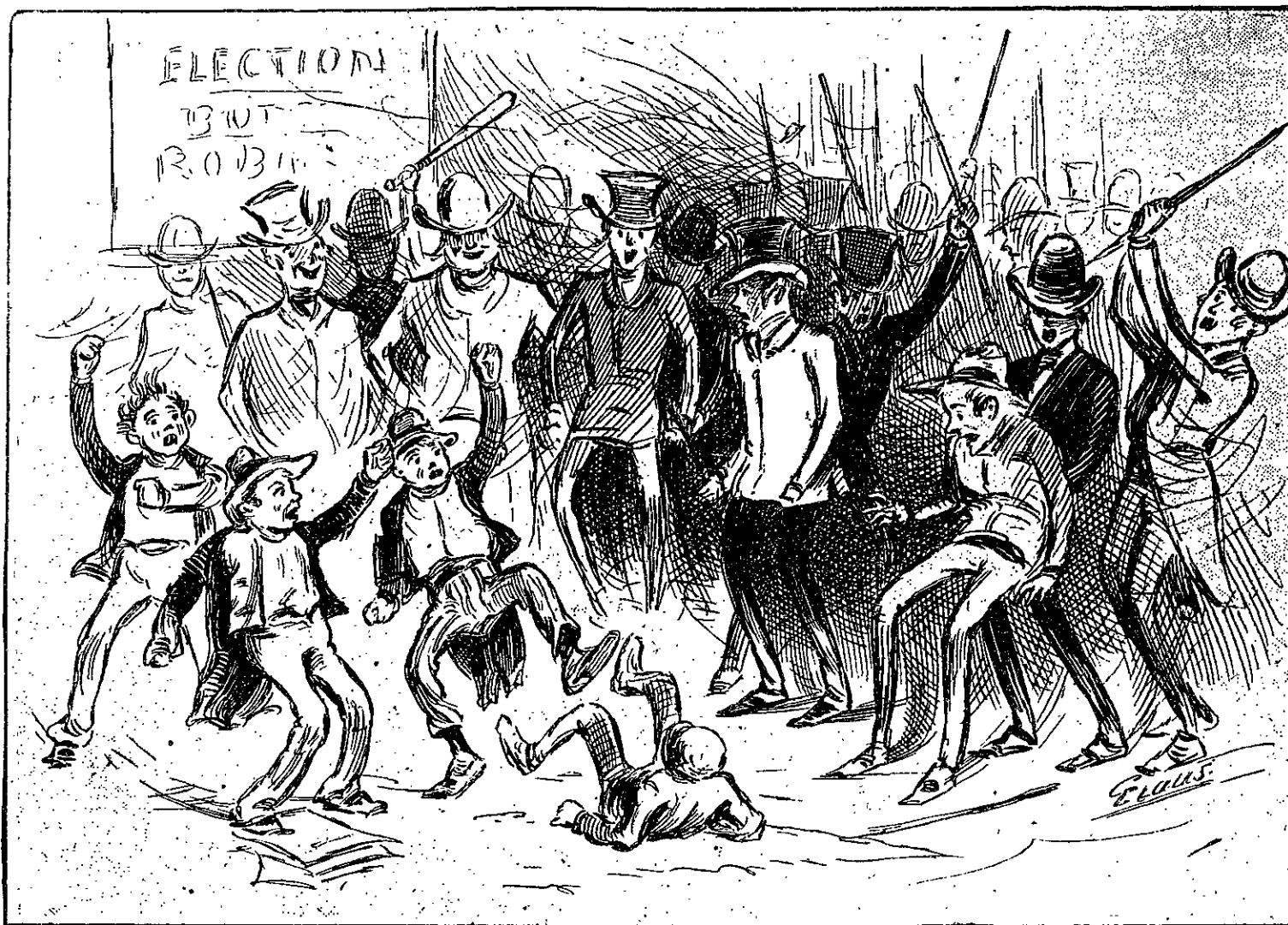
Was woman made from the rib because that
is the crookedest bone in the body?

Fresh Junior to Professor: As I've been unable to get down your lecture fully, will you please lend me *your* copy? I'll return it soon.
Prof. paralyzed.

De wust boy don't al'ers turn out to be de bes' man. I has knowed good boys ter drag along an' finally amount ter suthin'!

A Michigan man who lost both legs in a saw-mill now sits around and tells about the terrible battles of the late war. That's the sawed off man he is. — *Boston Post*.

Restaurant, — Res — thing — Taurus a bull
— a bully thing.



This cut was intended to represent election night in Massachusetts. We had something real funny to go with it, but have forgotten it since we saw the picture, and will not attempt to recall it, nor presume upon the intelligence of our readers by pointing out its many ludicrous points. We would say, however, for the benefit of our Western exchanges, that it contains no hidden allusion to Boston beans.

Why is Lord Landsdowne likely to be unhappy? Because he has gone out for-Lorne. — *Punch*.

If a body tax a body
Straining mind too high,
And a body wreck a body,
Won't a body die?
Ah! the prospect is the saddest,
For the more we try
Mental forage we encourage
De-ge-ne-ra-cy.

"In the bright lexicon of youth there's no such word as fail," exclaimed the Soph as he shoved a crib up his sleeve and started for examination.

Do you believe in the chaotic nebula, self-evolver of heaven and earth, and in the differentiation of its original homogenous mass?

East and West.

SHE was a beauteous little witch,
The pet of her papa;
Old gentleman was vastly rich,
They came from Arkansas.

"Oh! yes, indeed; of music I
Am very fond," said she.
"Now, won't you our piano try,
And play something for me?"

A Chopin *scherzo* I essayed,
And tried with all my art
To please this Occidental maid,
And win her Western heart.

I finished. As I turned my head
I met her eyes of blue.
"Oh! That was just *too sweet*," she said.
"Now do play '*Peek-a-boo!*'"

H. L. in *Life*.

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An amusing incident is related in *L'Electricien* showing that the knowledge of electrical terminology is yet far from perfect amongst patrons of the latest applications of the science. One of the most eminent and old-established firms who supply incandescent lamps had lately fulfilled an order for a certain number of lamps specified to be of twenty candle-power at forty-five volts. They received, three days after dispatching the goods, the following memorandum: "We have received your lamps as per invoice, together with the supports, but we were unable to find amongst the goods consigned the forty-five invoiced with the lamps. . . ."

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

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

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

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

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

Graduates of colleges conferring degrees are presumed to have the necessary qualifications for entering the third-year class in any of the regular courses of the Institute, and will be so admitted provisionally, on 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, gingham, and other woven goods. A weaving department with a variety of looms is connected with this school. No charge for instruction is made.

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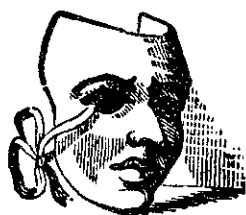
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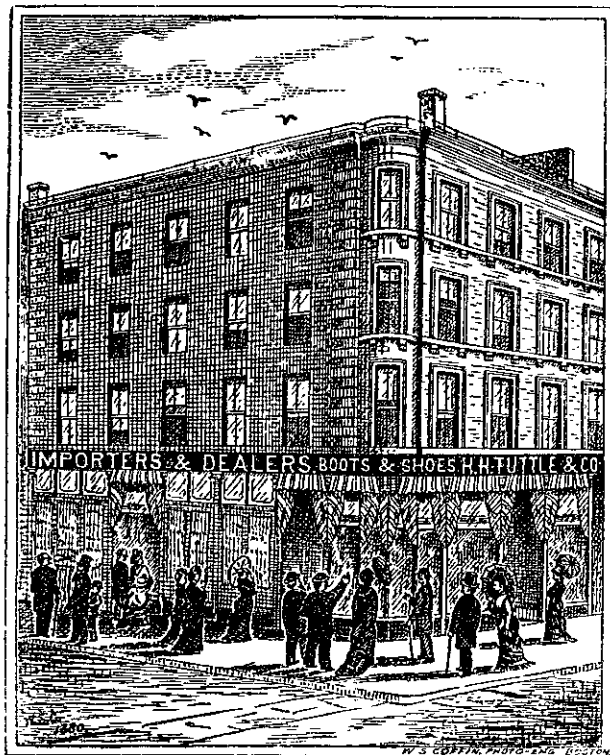
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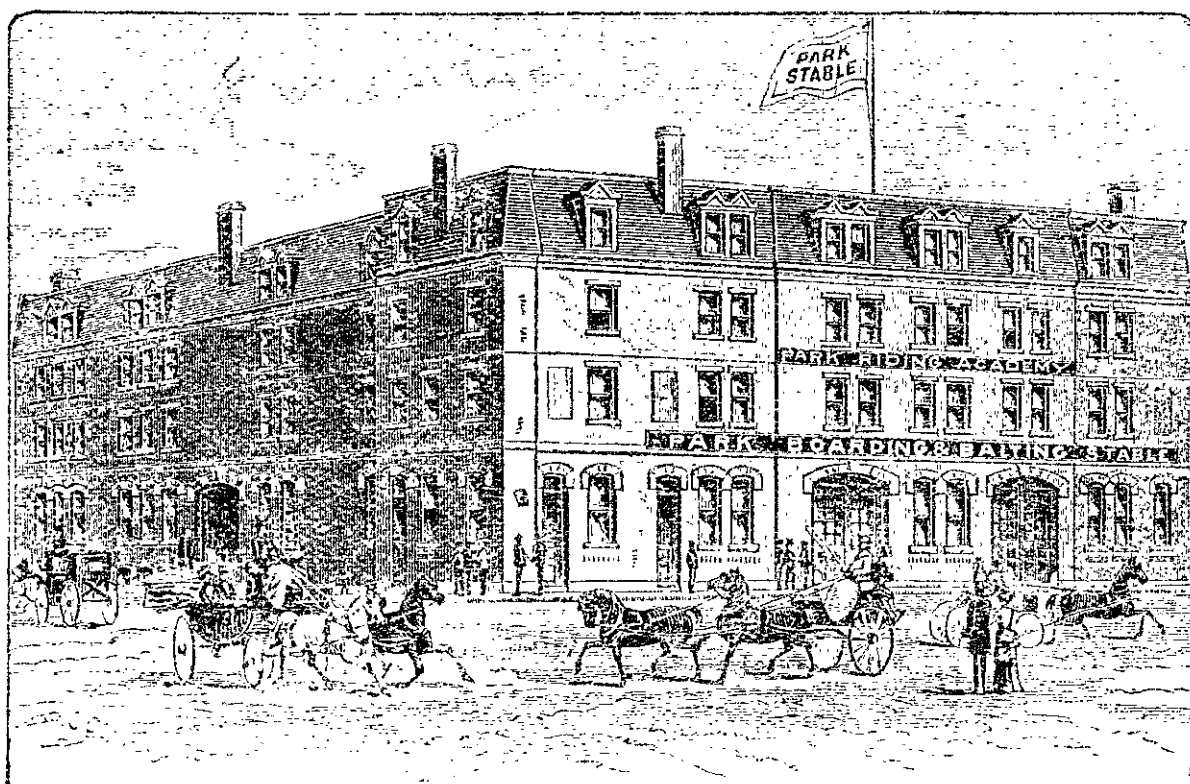
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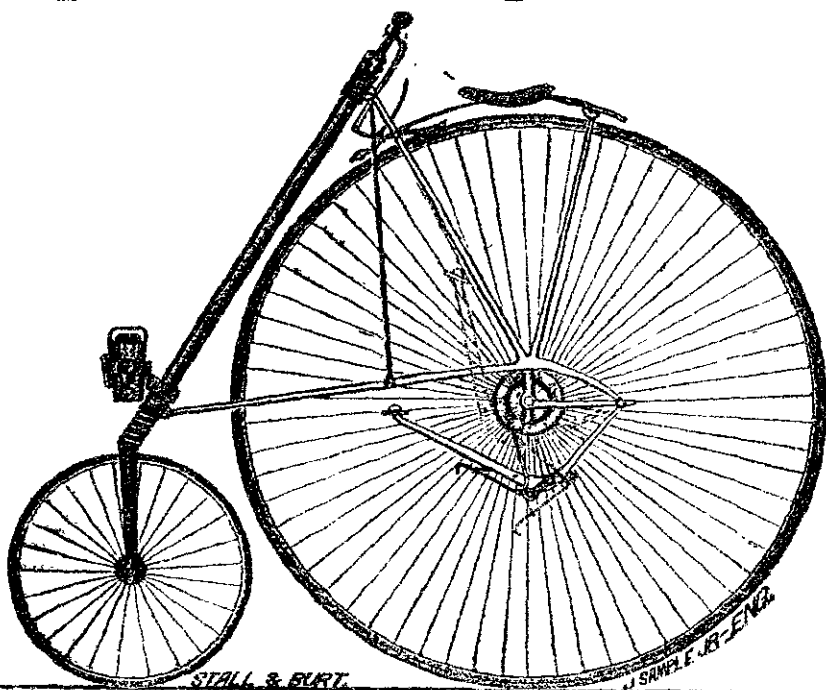
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