

# The Tech.

No. 3.

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VOL. I.

## THE TECH.

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ONE of the leading English journals, in a recent article, strongly advocates the ceding of Canada to the United States. It takes the ground that, far from being a disadvantage to England, the change would be for her greatest good, as well as for that of Canada; that the addition of five million citizens to the United States, strongly loyal to England in feeling, and at the same time joined to America by every tie of interest and commerce, would have an enormous influence in cementing the bond between the two great English-speaking nations.

The future separation of Canada from England seems to be a foregone conclusion, just as the separation in time of the American colonies was. England's shortsightedness only hastened that change, it did not cause it. The real cause was the growth of the young nation; for na-

tions have their childhood and their coming of age; and now Canada in turn is fast getting beyond the apron-string period. England has been noted for planting colonies in every quarter of the globe; many of these are growing rapidly, and there is bound finally to come a time to each of them when the dominion of the mother country is no longer advantageous to the colony, or to England herself. Then the separation is pretty sure to come. Our separation was violent, and the effects were long felt on both sides; but prejudice and bad feeling are rapidly dying out, and we are beginning to remember that England is our mother after all. England and America are not naturally antagonistic. They are united by ties of language, race, and common interest; and it seems as if the Canada question were the grand opportunity for destroying the last traces of the old quarrel, and uniting in closer friendship the two great powers which have so much of mutual advantage to offer each other.

THE idea of forming a society of miners originated with Mr. Leonard, and has been very successfully carried out. In the society, records of the school affairs are kept, examination papers are filed, the members prepare together for examinations, and discuss matters of general interest to the department. Such an organization tends to ally the students more closely, and can, by the records which it keeps, be of great benefit both to its present and future members. To illustrate: New phenomena and new methods of conducting experiments are being constantly discovered in our laboratories, and the work upon the theses is always in the form of original investigation. Mr. Prentiss, of the class of '78, conducted a series of experiments upon the combustion of fuel; and Mr. J. C. Hoadley, a

well-known engineer, having been requested by the combined mill-owners hereabouts to compare the relative efficiencies of two boilers, read a copy of Mr. Prentiss's thesis, and pronounced it to be the most thorough work upon the subject. Accordingly Mr. Prentiss, with five men of '82 and two men of '81, was engaged upon these tests during the past summer. Mr. Woodbury, also one of our alumni, has been recently experimenting upon the subjects of lubrication and friction. "The results of Mr. Woodbury's experiments, presented by him at the recent meeting of the American Association for the Advancement of Science, have been accepted as a long step in advance of anything ever attained before." And yet these results, which are of so great practical importance in our professions, are comparatively unknown to us. There can be no question that both the students and the alumni would gladly furnish such a society with particulars of whatever investigations they might make. The architects have recently been ascertaining, by direct experiment, the strength of cemented joints. The mechanicals have been testing the strength of eye bolts, and will soon be at work upon the strength of small cylinders. Such results as these would be interesting to all of the students in these departments at least.

It is evident from the above facts that it lies in our power to secure a great deal of information which it would be impossible for our professors to give us, and it is to be hoped that the students will take this matter into consideration, and act as the occasion seems to demand.

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### Contributions.

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#### Explorations at Assos.

TWO of the former members of the Architectural Department have lately, under the auspices of the American Archaeological Institute, been making extensive excavations in the town of Assos, in Asia Minor.

The temple there, which is of the Grecian Doric order, has heretofore remained unde-

scribed, but the diligent efforts of Mr. Clark and Mr. Bacon have enabled them to clear it of rubbish and to restore all parts completely. Some of the beautiful sculptures which adorned the building have been removed to the Louvre, but a great many have been reserved with the intention of having them drawn for publication.

Their work has not been confined to the temple, however, and exceedingly interesting are the results attained in other sections of the town. A true Greek gymnasium has been unearthed, revealing a large and beautiful mosaic pavement, and many valuable inscriptions have been found in the Street of the Tombs. One of the most curious discoveries was that of a stone bridge, on the banks of the river which flows through the town. This bridge is of early Grecian origin, and forms the only known example of the kind.

On the summit of the Acropolis is the large temple, greatly resembling that of Theseus at Athens. Below this temple, which was once reached by a long flight of steps, an extensive terrace has been built into the hill. On the outer side of this terrace runs a paved walk bordered by a stone water-conduit; within this and close to the rocky wall were found the ruins of a vast portico, whose roof had been upheld by a double row of Doric columns. The details of this building are very rich, the outer walls having probably been decorated with paintings and sculptures. The terrace was filled with numerous statues, the pedestals of which alone remain.

Unfortunately the season is fast drawing to a close, and the work will soon be stopped. We trust, however, that Mr. Clark and Mr. Bacon will be enabled to continue their explorations another year. We wish them all possible success in their undertaking, and hope that a more detailed report of their work will soon be published.

Several of Mr. Clark's drawings are now on exhibition at the Museum of Fine Arts in this city.

J. G. E.

### The Boiler Excursions.

THE afternoon of Friday, the 2d, was the occasion of a mechanical excursion to examine the Babcock & Wilcox boiler at the sales-room of the firm on Oliver Street, and see this form of boiler in operation at the Bay State Sugar Refinery. At the first point the various parts of a complete boiler were found, and an hour spent in examination.

By the rapid circulation of water in this boiler, the great extent of heating surface, and the nearly complete exhaustion of heat of the gases before escaping to the chimney, the steam is generated very quickly and economically, and though not superheated is entirely dry. The easy inspection and cleaning of the tubes are matters of considerable importance. The gentlemen at the office kindly answered all questions, and gave us some interesting suggestions in regard to the nature of steam!

At the refinery, opportunity was given to examine the boilers under fire. The gases entering the up-take, with a temperature below three hundred degrees, were passed, before reaching the chimney, through an economizer, by which the feed water was heated.

Permission was given to go through the refinery itself, and the remainder of the afternoon was spent in noting the various processes through which the cane product goes, from the crude state to the pure crystallized sugar of our tables. The amount and appearance of the recovered impurities warned us to beware of the crude article, and gave some anxiety to those who had tasted the latter on entering.

The following Tuesday the boiler works of Messrs. Kendall & Roberts, in Cambridge, were visited. The shops were found to be of good size, though gloomy and ill-lighted. The punching, drilling, and bending of the steel plates all received their share of attention; but the riveting, both by machine and hand, was the most interesting operation to the majority. The powerful steam riveter, of a sort of toggle-bar construction, forced the hot rivets tightly into the holes, forming at the same time a true

conical head. A criticism, however, was made on the carelessness of leaving three or four hot rivets to cool in the holes ahead of the machine. The hand riveting was even more interesting, having our own attempts in mind; but the lot of the workman inside the boiler was not particularly envied. Outside the shops a good-sized boiler was being tested by hydraulic pressure, its tightness appearing to our unpractised eyes as rather dubious. A somewhat peculiar vertical engine was next visited in an adjoining shop, which with a cylinder over twenty inches in diameter should have developed some sixty horse-power, while the whole need of the shop was about eight. Probably on this account the lower part of the cylinder, being regarded as superfluous, was covered with dirt and ashes to the height of the valve wheels. In respect to dirt and darkness, we must allow that this engine-room discounted even our own "steam laboratory." A novel method of keeping a belt on a pulley, by leaning a joist against it, was necessitated by the non-centering of a shaft, which, as one of the employes told us, "needed about forty horse-power of the engine to turn it."

On the second floor of the machine shop two hoisting engines of nine horse-power each were being set up, having vertical cylinders bolted to upright boilers. The material and finish were much superior to ordinary engines of this class, and the vertical arrangement makes them very compact. The pattern-making rooms on the third floor contained many hundreds of patterns, but arranged without system. On asking the workman how he found a required pattern, he replied that he hunted till he found it, and then hunted again till he found the core box. The draughtsman, Mr. Dodd, received us very kindly, showed us many drawings, and explained his methods of draughting for ordinary workmen, and the simplicity required.

Our thanks are due Mr. Kendall for a very kind invitation to the mechanical students to visit the works at any time, and be free to ask any questions they may wish.

H. S. C.

### The Steam-Engine Indicator, and What it Indicates.

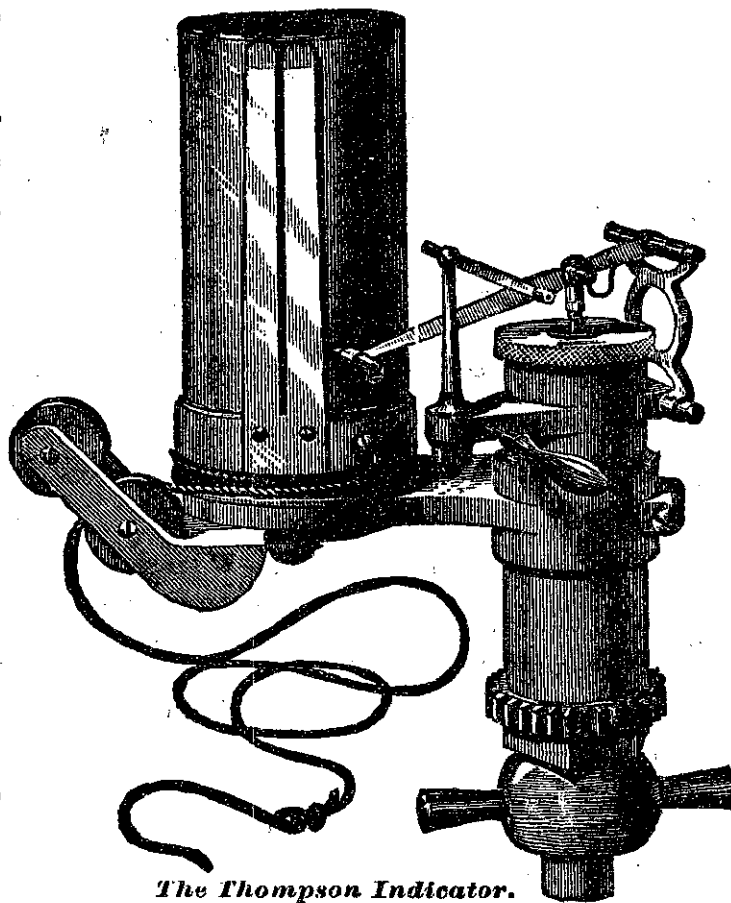
THE steam-engine indicator indicates the precise manner in which the steam does its work in the cylinder of an engine. By no other means can the movements of the valves be ascertained. From its indications, the exact pressure upon the piston of the engine at every point of the stroke is known. Then, having the mean pressure upon the piston for a whole stroke, with the length of the stroke and the number of strokes per minute, the horse-power exerted may be determined.

The indications are made in the following manner: In a small cylinder works a piston of about 0.25 square inches area, with the least possible friction. One end of this cylinder is in as direct communication as possible with the cylinder of the engine, while the other end has a removable cap or cover. Through this cover works a rod attached to the piston, and having on its outer end a pencil. In the cylinder, and firmly attached to the piston and the cover, is a spring of known tension. If, now, steam is admitted to the indicator cylinder, the piston and also the pencil are pushed outward and the spring is compressed. Then, as the pressure on the piston is removed, the spring elongates and the piston and pencil fall. Thus the pencil rises and falls with every rise or fall of the steam pressure in the cylinder of the engine. Now, as the pencil rises and falls, a piece of paper having a motion reduced, but precisely coincident with that of the piston of the engine, is drawn past the pencil, which traces a line. The height of this line above the "no pressure" line represents the pressure in the cylinder of the engine at every point of the stroke. The piece

of paper is wound around a light metallic cylinder, which is made to revolve on its axis in one direction by a cord attached to some part of the engine, and is brought back in the other direction by a spring. In practice the movement of the piston of the indicator is multiplied, by suitable connections, so that the movement of the pencil with respect to the piston is as four to one. The instrument may be seen in the mechanical engineer's drawing-room.

Having thus briefly described the instrument, the writer proposes in articles to follow to illustrate and discuss some of these indications or diagrams, found in actual practice, and taken by the members of the Senior Class in mechanical engineering.

Fig. 1 is a theoretical diagram. When the communication between the cylinder of the engine and the indicator is closed, the pressure of the air is on both sides of the piston; and if the paper is then drawn past the pencil, the "no pressure" or "atmospheric" line A B will be traced. Suppose, now, that our theoretical engine is just beginning its stroke, and communication with the indicator open. Steam enters the cylinders of the engine and indicator, and raises the pencil to C, or to a height corresponding to the boiler pressure. As the piston of the engine moves, the paper moves also, and the pencil stays at the same height until no more steam is admitted, or until the point of cut-off, D, is reached. Then, as no more steam can enter the cylinders, that which is there expands and decreases in pressure as the volume increases, according to Mariotte's law. This occurs until the end of the stroke E is reached, the pencil meanwhile tracing the expansion curve D E. At the end of the stroke the steam is released or exhausted from the cylinder into



The Thompson Indicator.

the air in non-condensing engines, of which this article speaks. When the steam is exhausted, the pencil falls to B, on the atmospheric line. On the return stroke, as there is no pressure in the cylinder, the pencil follows the atmospheric line A B. This diagram represents the action of the steam and valves in one end of the cylinder during one complete revolution. A C is called the admission line, C D the steam line, D E the expansion line or curve, and E B the exhaust line.

Figures 2 and 3 are fac-similes of diagrams taken from a Brown engine in a neighboring town. The diagrams of Figure 3 were taken first, and they present one of the most extreme cases of bad valve adjustment, as may well be judged by comparing them

with the diagrams in Figure 2, which were taken after the valves were correctly adjusted. It will be noticed that the general figure of the diagrams of Figure 2 is very similar to that of Figure 1, the great difference being that the corners are not as square as in Figure 1. This rounding is due to the gradual opening and closing of the valves and the speed of the engine. If the valves are correctly adjusted, the corner at C, Figure 1, will in most cases be square, for the reason that the admission valve is opened an instant before the piston reaches the end of its return stroke, and while the piston changes the direction of its motion, the pencil has time to reach C before the

paper begins to move. This would also occur at the corners B and E if the exhaust did not take place until the end of the stroke was reached. But the steam is exhausted an instant before the end of the stroke, so that the steam may have time to get out of the cylinder before the return stroke is commenced. It will be noticed in Figures 2 and 3 that there is a line a little above the atmospheric line. Owing to the bends and length of the exhaust-pipe, there is in most cases a "back pressure" on the piston, which is the cause of the back pressure line above the atmospheric line. It will also be noticed that the corners of the diagrams of Figures 2 and 3,

corresponding to the corner A of Figure 1, are more rounded than the other corners. This is caused by the exhaust valve closing before the end of the return stroke is reached, so that the steam remaining in the cylinder is compressed and increases in pressure, according to Mariotte's law. The pencil of the indicator then traces the compression curve. The steam is thus compressed for the reasons that it forms a cushion which receives the shocks due to the reversing of motion of the reciprocating parts, and also because the steam thus compressed, sometimes to boiler pressure, fills the steam passages, instead of making the direct steam do this before it can act on the piston. The expansion curves in Figure 2 meet the back pressure line at the end of the stroke, and it is the very best practice to so proportion the speed of the engine that this condition takes place. This can be done only with a constant

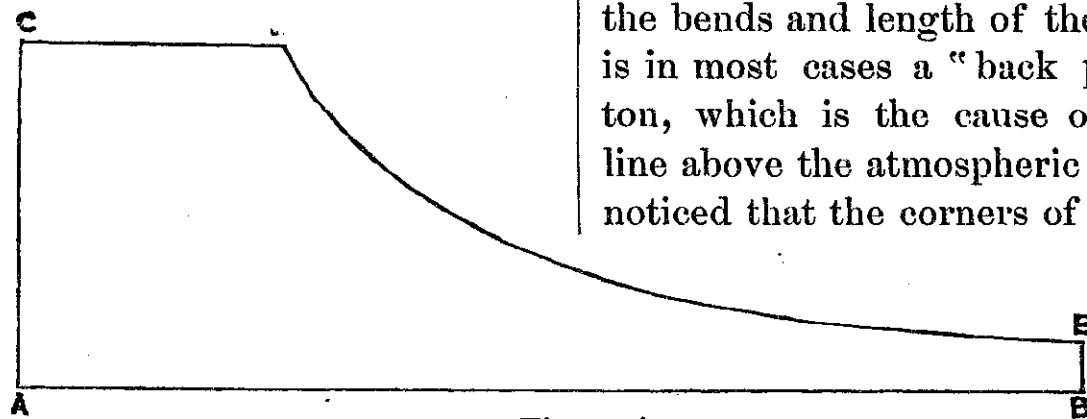


Figure 1.

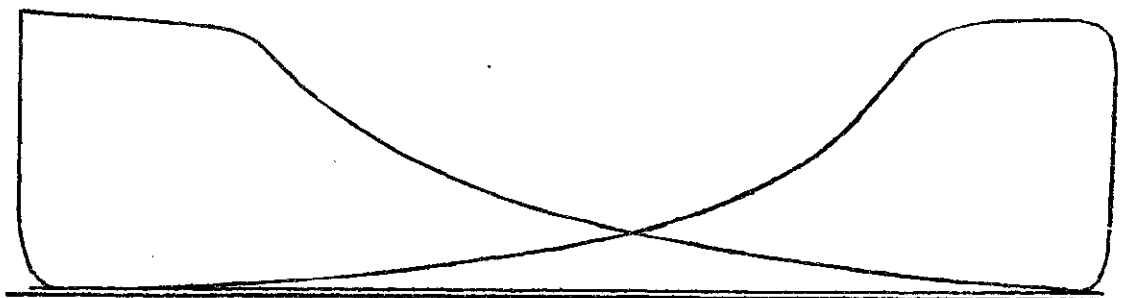


Figure 2.

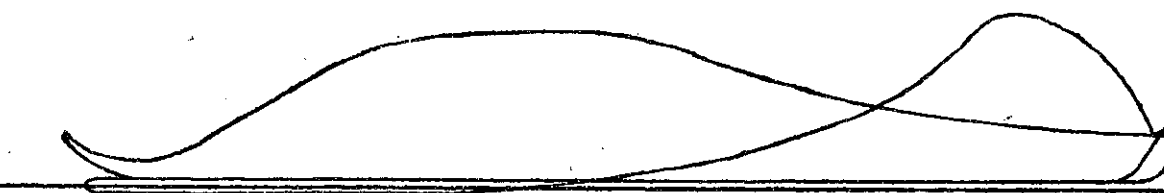


Figure 3.

load, — that is, a constant amount of work to be done. It is very seldom that an engine will be found that will give diagrams like these for several revolutions, because the load will vary. This is caused by throwing on or taking off work. The expansion curve should never cross the back pressure line as it does in the right-hand diagram of Figure 3, when the engine is doing its ordinary work; for if this is the case, the back pressure on one side of the piston is greater than the working pressure on the other side, and no effective work is done at that part of the stroke.

As the areas of these diagrams represent the amount of work done in each end of the cylinder, it will be seen that one end in Figure 3 was doing considerably more work than the other. The steam did not begin to enter the cylinder until the piston had started on its stroke, and hence the pencil could not rise in a vertical direction; but the admission line is a resultant of the vertical movement of the indicator piston and the horizontal movement of the engine piston. As the admission was late, the cut-off was also late. The exhaust and compression lines are very good. The engine is of the class known as the "automatic cut-off," having admission and exhaust valves independent of each other for each end of the cylinder. The difference in height of the diagrams of Figures 2 and 3 is partly due to the difference in the scale of the spring used. The scale refers to the height through which the pencil rises; that is, with a 30 spring, thirty pounds' pressure will raise the pencil one inch. A 40 spring requires forty pounds to raise the pencil one inch. The diagrams of Figure 2 were taken with a 30 spring, and those of Figure 3 with a 40 spring.

H. G. M.

For the benefit of members of the Institute our exchanges will be placed in the reading-room. Students will please not remove them from the room.

Fire in the forge shop recently; loss estimated at eighty-seven cents.

## Mechanical Engineering.

TWO boiler excursions within a week!

A friend suggests that a tasty sign in a conspicuous place in the "steam engineering laboratory" might relieve the anxiety of the uninitiated, who sometimes vainly seek for that department!

The number of students in the three years taking the regular Mechanical Engineering Course is now thirty-five, while but a few years ago the department had no representatives in the fourth year and only two or three in the third. This great gain, making it the largest of all departments in the Institute, shows clearly the increase of interest taken in the work of our course by those wishing to prepare themselves for an active life. A proof of the practical success of the course is given by the readiness with which our graduates obtain good positions soon after completing their work here. As shown by the catalogue, a large majority find opportunities for putting their knowledge and ability to immediate use in securing an independence.

At the last meeting of the Cotton Manufacturers' Association, Mr. Edward Atkinson wore one of the remarkable suits which were made at the Atlanta Exposition in nine and a half hours from the time the cotton was brought in from the field. At this meeting it was voted to present to the Mechanical Department of the Institute a series of models of arrangements for belting, exhibited before the Association.

The *Scientific American* says: It is a significant fact that in this country more boilers explode in establishments that use light fuel than in any other class of manufactories. It is probable that this results mainly from neglect of the safety valves, coupled with the great, sudden, and oft-repeated changes of temperature of the shell; the result of careless, excessive, and irregular firing, and perhaps the use of ice-cold feed water.

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 Department of Architecture.
 

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GO to the Museum and see the drawings from Assos.

Prof. Longfellow has allowed the Seniors an extra week on the frontispiece.

The annual dinner of the A. A. M. I. T. comes off on the 30th.

The apartments of two of the fellows on Charles Street had quite the appearance of an atelier a week ago.

Mr. McKim is building in Newport, on the corner of Bellevue Avenue and Perry Street, a large brick house for Isaac Bell, Esq.

Miss Catherine Wolf has bought the Governor Lawrence place, on Ochre Point, and intends building a large house. Renwick will be her architect.

The subject of discussion at the last meeting of the A. A. M. I. T. was "The Relative Merits of Terra-Cotta and Carved Brick Work."

Mr. Ware was here for Thanksgiving; but owing to its being holiday times, only a few of us saw him.

The Juniors received last week the time-honored porch for their first problem. The preliminary sketches were to be handed in on Dec. 12, and the finished drawings two weeks later.

We heard a rumor the other day that the architectural laboratory was to be moved to the Mechanics' Fair building. This is a change which is most earnestly to be desired; for putting aside the want of room, and the fact that we will be turned out ere long to make room for the founders, the perpetual retarding of the work is, to say the least, unpleasant. A more childish and senseless performance than the wholesale destruction of the work which goes on there weekly can hardly be imagined. If we could see any amusement to be derived from such buffoonery, we might have some indulgence for our mischievous little boys; but the wilful destruction of another's labor is unpardonable.

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 Science Notes.
 

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QUITE a deposit of tin has been found in Maine. The metal is very rare in the United States.

A writer in the *Chemical News* describes a new pigment, which possesses the curious property of being black all day and white all night. It changes again to black soon after the approach of daylight.

The blue-glass craze is not dead yet. The *Journal of the London Chemical Society* states the discovery that pigs may be made to fatten with great rapidity under the influence of the blue rays of the sun.

The whole upper part of the Swiss peak Risikop is in motion, and threatens with annihilation the village of Elm. The authorities have so far endeavored in vain to precipitate the moving mass in an opposite direction by bombarding the mountain.

India-ink drawings that are to be colored or washed over with tints should have a little bichromate of potash added to the ink. After the drawing has been exposed to light for an hour or so, the lines can be gone over without washing them up. — *English Mechanic and World of Science*.

M. G. Fasoldt claims, in the *American Journal of Microscopy*, to have ruled on glass one million lines to the inch. So far as the microscope could resolve them, the lines were seen to be fairly ruled; beyond this point the regular succession of colors seen when the band was viewed on an opaque object proves that the lines are undoubtedly ruled fairly up to the band containing a million to the inch.

Ancient Rome had a name which could only be pronounced under pain of death. Organic chemistry has attained to such a degree of development that many of its compounds boast names whose pronunciation would be fully as fatal. A recently discovered body rejoices in the appellation, Metachloronitrobenzenemonosulphonic acid.

## In General.

WHERE is that instruction in the fire apparatus?

Sharp, formerly '83, has entered the Buckeye Engine Company as machinist.

'84 took its second intermediate examination in physics on the 9th.

Francis, of '83, is at present working in his father's woollen mills at Pittsfield, Mass.

Quite a number of the graduating class have already commenced their theses.

Negotiations are now in progress by the enterprising photographers for our class pictures.

Don't mention the "eternal fitness of things" when you speak of the Freshman uniform.

How would "Mosaics" or "Classics" do as the title of the column of general notes?

Mr. Butler, Sp. '82, has accepted a position as chemist at the Arlington Mills, Lawrence.

Gas-light at times and a few more nails are sadly needed in the coat-room.

Prof. A—— has considerable to say about "breeches of decorum": what kind does he want worn?

With examinations and drill, the poor Freshman is in the jaws of both Scylla and Charybdis.

One of the Sophomores says his landlady requires a "reputation" from persons wishing lodgings in her house.

References for Constitutional History: "The Cat," by Sir John Lubbock. "Head-Hunters of Borneo," by the author of "Red-headed Ralph, the Ranger of the Roaring Rialdo."

Song of our subscribers: "Oh, for an elevator!" This may be sung in the key of five flats.

Don't be alarmed if a Freshman seems about to knock you down. He is only trying the military salute.

Sears, '83, is now studying medicine in the Harvard Medical; during the summer, he was with the Hinkley Locomotive Works.

Prof.: "Who was the great portrait painter of the reign of Charles II.?" Student: "I promised not to tell."

Now that they have come, it is expected that the Freshmen will be uniform in their attendance upon drill.

The new way of calling a thing ridiculous is to say that it is but a step from the sublime.

The "Western Ranch" mourns the loss of one of its members, who, though *small* in stature, was by no means an unimportant factor.

Walkley, '83, is with Peck, Stow, Wilcox & Co., a large hardware manufacturing company in Plantsville, Conn.; the works have branches in England and America.

They had only been married about a year when he bought a copy of "Upton's Infantry Tactics." He found it was n't what he wanted.

After spending an afternoon in the mineralogy-room of the Institute, one can readily appreciate the feelings of Dante upon his descent into Hades.

Some of the miners of '84 have set up mineralogy laboratories in their rooms, the Faculty having refused them the privilege of doing extra work in the building.

Some of the men have begun Qualitative Analysis. For a short time, however, it is probable that the *quantity* of their analyses will be rather more marked than the *quality*.

The question of beginning work on artillery drill is being agitated. It will be necessary to take it up at once in order to be ready for the semi-annual drill.

The chemists are racking their poor brains for a suitable design to put on their badge. We would recommend the chemical symbol of dimethylamidoazobenzosulphano of ammonia.

Ten of the architects have organized a life class and secured Mr. Hammond's studio, where they meet every Thursday evening to sketch from a living model.

According to Tyndall, the stoppage of the earth in its orbit would generate heat enough to raise a sphere of lead of the same size as the earth, 384,000° C.

A correspondent sends us some verses on Daniel Pratt, which we are obliged to omit for this issue.

The present prospects of the Freshman Ball, Dec. 22, are of the brightest, and it promises to be a most enjoyable affair. One admission ticket is to be given to each student of the Institute; additional tickets and supper checks are for sale by the committee.

Our military officers are considering the question of new swords and belts. They would make a decided improvement in the officers' appearance, besides being, in the future, pleasant reminders of our Institute days.

Mr. Munroe, '82, has fully recovered from his attack of jaundice. We noticed that he was quite blue before he turned yellow, and now we rejoice that he has regained his normal color, — white.

The pugnacious chemist and argumentative physicist are at present engaged upon solving the following: Is thought deduced from the molecular activity of the protoplasmic, grayish-white, spongy mass, which in manifold contortions and convolutions occupies the cerebellum?

The article by T. B. C. in our last issue should receive serious attention, as under our form of government there is nothing more important to a well-informed man than a good address and fair knowledge of parliamentary law.

Mr. Alfred Butler, '82, recently delivered a lecture on "Geology" at the Warren Street Chapel, in this city, under the auspices of the Winthrop Literary Association. The audience was large and appreciative, the lecture being made doubly interesting by the large number of illustrations.

The chemists also had a spread over in the Industrial Lab. the other day. The first course consisted of crackers, the second of potatoes, and the third of corned beef. Whe-e-e-e-w!!! We noticed, however, that the contents of several bottles on the side shelves had materially diminished.

The following is the partial list of what the chemists have been working on in the Industrial Lab.:—Manufactures of salts, paints, soap, glass, whiskey, and rum; dyeing, bleaching, calico-printing, alcoholic fermentation, fractional and

destructive distillation, extraction of ammonia from nuts, bones, etc.; comparison of zinc white and white lead.

It is said that one of the boarding schools on Newbury Street was enriched the other evening by a portion of a Freshman's ulster. He left in such an ecstatic frame of mind that he was unaware that his outer garment had been locked in the door. He found it harder than ever to "tear himself away."

A last year's graduate noticed that an architectural Soph., who was walking in front of him, threw something shiny down on the pavement. He, marvelling what it was that merited such contempt, picked it up, and wonderful to relate, it was a large button of pure gold worth \$22.50, which he had recently assayed and lost. That sweetly ignorant architect evidently had "all that glitters is not gold" running in his noddle.

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### Exchanges.

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**W**HAT a queer way of using Latin some college papers have! We were clipping our way through an exchange the other day, when we suddenly encountered *Alumniorum*. Another exchange tells us about *Personalia* and *Cornelliana*. Oh, friends, sufficient unto the paper is the stuff thereof! *Weiania haviorum hadia Latinianiorum enoughiaorumiania!! Am-averam. Selah.*

The *Polytechnic* folks are thoughtful enough to send us their back numbers. Shake, Poly.

Judging from the *Brunonian*, mortar boards are all the go at Brown.

We like the *Princetonian*. It is sensible. It speaks English. No. 10 is fully up to the mark, and carries with it a supplement. Judging from the number of advertisements, the agent of the *Princetonian* must be a very busy man.

The *Lampoon* gives a pictorial description of the game with Yale. It is the wettest thing on record. The *Lampoon* has discovered why Harvard is below the average in athletic sports.

It is because Harvard is a university, — ahem! — while Yale, etc., are only colleges. Necessity is the mother of invention: go in, *Lampoon!*

### Technicalities.

The new play, "Marked for Life," probably treats of the horrors of vaccination.

THE EASTERN QUESTION. — The disposal of Turkey may now be considered as settled.

LOST. — An umbrella belonging to a Freshman with a dog's head.

"Lay off your overcoat, or you won't feel it when you go out," said the landlord of a Western inn to a guest who was sitting by the fire. "That's what I am afraid of," returned the man. "The last time I was here I laid off my overcoat. I did n't feel it when I went out, and I have n't felt it since.

Professor. — Mr. S——, can you tell me what the reciprocal of the sine is?

B. to F. — Of course-he-can't.

The food which Mr. Smith is giving us this term is so easy to digest that we are afraid we shall all die-jesting.

In New York, the other day, there was a procession which required an hour and a half to pass a certain point. The point was a beer saloon. — *American Cultivator.*

C is a very peaceful letter, and yet it always makes Ross cross.

Why is the present Freshman class so poor? They have n't any Nichols.

When a man becomes deaf he has one consolation — there will be no hear-after for him.

"Longfellow wears his frock-coat buttoned to his chin." Who sewed that button on his chin?

The matrimonial fruit-basket — the cradle. — *Exchange.*

"Women barbers should have pretty mugs." So quoth a Chicago paper.

A Freshman, pressing his suit, was V-toed by the governor.

New-Yorkers prefer to be buried in Greenwood, because that burns less readily than dry wood. — *Exchange.*

"This is two two," as the man said when his aesthetic wife presented him with the second pair of twins. — *Exchange.*

The latest Patent Office Report has the names of two new patent medicines, — "Miller's Constitution Searcher" and "Palmer's Hair Food."

#### Beyond the Gate.

'T is night:  
Two lovers lean  
Upon the gate;  
A nearing form is seen, —  
It is their fate.  
A piercing shriek from her  
The welkin rent;  
It was, as you infer,  
Her pa-ri-ent.  
The lovers sought to scoot,  
Alas! too late;  
He 's hoisted by a boot, —  
Beyond the gate. *Exchange.*

Mrs. Partington recently went to a chemist's for some more "venom extinguisher." She said the "cockroaches enumerated so fast" that she was forced to "get something to asperse them."

#### Left.

"Meet me," she said, "by the orchard wall,  
To-morrow night, as the sun goes down."  
And this is to-morrow, and here am I,  
And there 's the wall, and the sun 's gone down.  
*Exchange.*

The man who asserted that he saw Governor Rice going up Columbus Avenue plumb full, afterwards explained that he referred to a Highland horse-car.

Why are two cats hanging on a clothes-line with their tails tied together, like Gen. Grant? *Ans.* — They "propose to fight it out on that line if it takes all summer."

We recently heard a clergyman say that he could not be induced to do a certain action by all the wealth of the Roth's children! — *Fact.*

Lesson in political economy: "Is time money?" "Yes, sir, it is." "Prove it by an illustration." "Well, if you give twenty-five cents to a couple of tramps, it is a quarter to two." — *Exchange.*

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