MASSACHUSETTS INSTITUTE OF TECHNOLOGY
1861
MENS ET MANUS

The Tech

March 18,
1886.
Vol. V. No. 11

Entered at the Post-Office at Boston, Mass., as Second-Class Matter.

THE

Massachusetts Institute of Technology,

BOYLSTON STREET, BOSTON.

FRANCIS A. WALKER, President.

THIS school is devoted to the teaching of science, as applied to the various engineering professions; viz., civil, mechanical, mining, and electrical engineering. as well as to architecture, chemistry, metallurgy, physics, and natural history.

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.

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For information, address, JAS. P. MUNROE, Secretary.

The Tech.

VOL. V. BOSTON, MARCH 18, 1886. NO. 11.

THE TECH.

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

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

FRANK WOOD, PRINTER, 352 WASHINGTON STREET, BOSTON.

A COMPLAINT which we have to make against our readers at the Institute, is in regard to the small extent to which they use, or, rather, do not use, our columns for communications upon local affairs. One of the chief objects of the college paper is to serve as the organ of the students—a place where they can make complaints, requests, or suggestions. The Faculty have the bulletin-boards whereby to make communications to the students; the latter, however, cannot make use of that ready means, but must resort either to the cumbrous petition, or to the columns of the college paper. A board of editors is necessary, of course, to conduct the publication, but if the students in general do not use it for the purpose just mentioned, it fails of its object of being the organ of the students, and becomes simply that of the editorial board. A writer upon college journalism says, that the best means by which to learn the manner of life at any particular college, is to procure a volume of its college paper. It is here, he says, that the local history of the place is chronicled; that the students write of what they are thinking, doing, and feeling.

This writer is certainly mistaken if the general body of students take no further interest in their publication than subscribing.

Contributors will always find our columns open to communications upon any subjects which are worth the space.

THERE seems to be a growing feeling, especially in the lower classes, that the fraternity men are endeavoring to control student affairs here, and that therefore the fraternities should be opposed, and no fraternity men elected to positions in class or society, put on committees, or otherwise honored. That members of the fraternities hold many of the prominent positions, is true; but that the fraternity, as such, is made a tool in the college politics, is false. The number of fraternity men at the Institute is small, while the field from which to choose is large, so that those who are selected to become Greeks are very often the ones who would be prominent in any case. A class, or society, in electing men to its offices and filling its commitees, should consider the fitness and willingness to work of its candidates, without regard to whether they have attended any particular preparatory school, or wear fraternity badges, or not. When members of a class allow petty feelings to close the eyes of their judgment, they are working against their own interests. Other things being equal, the class that best preserves its unity in feeling and action will accomplish the most as a whole, and receive the most benefit in its individual members. The fraternity, by its nature, is removed from other

college organisms, and it is only because of ignorance of its true aims that these feelings ever arise—unless, as is the case in some colleges, the purpose of the fraternity has been perverted. At the Institute there is no cause for any but friendly feelings toward the Greek-letter societies.

IT has occasionally been remarked, and perhaps with reason, that the class of '86, during its career, has as a whole been lacking in social enterprise to some extent. We are speaking, it will be seen, of the class *as a whole*, for, as is well known, many of its members are deservedly popular for their interest and spirit in social matters. The cause of the apparent want of enterprise is due mainly to the fact that a large number of its members spend all their time over their work, to the utter exclusion of class matters, and this is shown by the general advanced scholarship of the class. Of this latter, '86 may justly be proud, and this is, of course, of paramount importance; but, at the same time, it is not only pleasant, but advantageous, to keep up certain class associations, both for the time being, and always.

It is proposed by the small portion of the Senior class who attend class-meetings, to have some sort of a class-day this year. Now, if '86 has really been backward in class spirits heretofore, an opportunity is here offered to redeem itself; and instead of being known as "the first class that did not give a Freshman ball," (a title which, though by no means to its discredit, is, it must be confessed, a negative one,) it may achieve the greater honor of being the first class to establish a regular class-day at the Institute.

Our Alma Mater is now in her twenty-first year; in fact, she is of age, though still a young college in comparison with those around us. It is high time that some such custom as Class-day should be formed here, and we think '86 will give it a start, if only every member will interest himself in the matter. A committee has already been appointed to arrange the details, and it is confidently believed that the affair will prove a success.

FOR a number of years past our gymnasium has been used, not only as a gymnasium and drill hall, but also for dancing parties. Most of these parties have been given by members of the Institute, who have merely gone through the form of obtaining permission from the gymnasium committee, nothing being charged them for the use of the gymnasium. Some of the apparatus is in a very bad state, several new things are wanted, and the gymnasium committee have no money with which to get them. The Corporation allows a certain amount each year for improving the apparatus, but it is not enough to keep it in good repair. The money obtained from the lockers, which really should go for improvements, goes to defray expenses of coal and gas.

Taking these things into consideration, we suggest to the gymnasium committee that they charge something to those parties who desire to use the gymnasium for dancing, or any other but its legitimate uses. We think this is especially applicable to outside parties who desire its use. The money thus obtained can, at least, keep in good repair the apparatus which we now have.

BRILLIANCY and perseverance are brought into strong contrast in college life. The large body of students regard brilliancy with especial admiration, and give the greatest praise to him who acquires knowledge with the least effort, who seems to do with ease whatever he attempts. On the other hand, the majority of instructors regard perseverance with especial favor, and assume that steady application alone should receive encouragement. But is it not true that both brilliancy and perseverance are worthy of admiration, both need proper encouragement? The brilliant man sighs because he is wanting in the power of application, feeling that he will never achieve any lasting success; while his persevering fellow, as he slowly grinds out his work, envies the other's quick wit. A little thought would show that both ready wit and perseverance are necessary to attain success, and it needs neither proof nor illustration to show that both can be acquired.

Her Answer

(TO AN APPEAL.)

O student, when working and sighing,
Surrounded by volumes a score,
Think of the ones who are wooing and striving
For the same as thou strivest for.

They seize me so blushing and willing,
And steal my susceptible heart,
I yield to them, laughing and sighing,
With stereotyped feminine art.

I write this regretting and fearing;
Oh! don't let it end your career;
No longer I'm trusting and—loving,
But,—but 'only your friend,' my dear.

LAURENS.

The Trial of the Pyx.

Section 3,547 of the Revised Statutes of the United States provides as follow:—

To secure a due conformity in the gold and silver coins to their respective standards of fineness and weight, the Judge of the District Court for the Eastern District of Pennsylvania, the Comptroller of the Currency, the Assayer of the Assay Office at New York, and such other persons as the President shall, from time to time, designate, shall meet as Assay Commissioners at the Mint in Philadelphia, to examine and test, in the presence of the Director of the Mint, the fineness and weight of the coins reserved by the several mints for this purpose, on the second Wednesday of February, annually.

In accordance therewith, the Commissioners appointed by the President to examine the Coinage of the year 1885, met at the Mint in Philadelphia, February 10th, of this year. There were present, besides the ex-officio members prescribed by law, citizens from Massachusetts, New York, Pennsylvania, Maryland, Virginia, North Carolina, Wisconsin, Colorado, Arizona, and California, including many experts in assaying.

Judge Butler presided at the formal meeting of the Commissioners, at which the letter of appointment by the President was read, and the duties of the Commissioners explained.

A small box, with two locks, containing the standard weights and the gold and silver of absolute purity, was opened by the Judge and the Superintendent of the Mint (by separate keys, which always remain respectively in their possession), and presented to the Commissioners; who, thus equipped with accurate standards, were then ready to go to work. The principle on which the coinage is tested is perhaps best described in the words of Section 3,539 of the Revised Statutes, which is as follows:—

At every delivery of coins made by the coiner to a superintendent, it shall be the duty of such superintendent, in the presence of the assayer, to take indiscriminately a certain number of pieces of each variety for the annual trial of coins; the number for gold coins being not less than one piece for each one thousand pieces, or any fractional part of one thousand pieces delivered; and for silver coins, one piece for each two thousand pieces, or any fractional part of two thousand pieces delivered. The pieces so taken shall be carefully sealed up in an envelope, properly labeled, stating the date of delivery, and number, and denomination of the pieces inclosed, and the amount of the delivery from which they are taken. These sealed parcels containing the reserved pieces shall be deposited in a pyx, designated for the purpose at each Mint, which shall be kept under the joint care of the superintendent and assayer, and be so secure that neither can have access to its contents without the presence of the other; and the reserved pieces, in their sealed envelopes, from the coinage at each Mint, shall be transmitted quarterly to the Mint at Philadelphia. A record shall also be kept at the same time of the number and denomination of the pieces so taken for the annual trial of coins, and of the number and denomination of the pieces represented by them and so delivered, a copy of which record shall be transmitted quarterly to the Director of the Mint.

The verification of the contents of the packages is simply a matter of accurate counting; and after this is finished, a few coins are taken at random from each package and given to the committee on weighing, and others to the committee on assaying. A careful record is kept of all the coins thus received by the committees, and the coins themselves are put in envelopes, which are sealed, and the contents noted on the back to correspond with the record. In addition to the single coins thus set apart for exam-

ination, a large number (several hundred) of both gold and silver coins, are tested by weighing in mass. These same coins are subsequently melted in large crucibles, and a portion of this "mass-melt" tested for fineness.

If one should look in at the Mint at this stage of the operations, he would see the busy Commissioners seated around a long table, anxiously counting, recording, checking, and labeling the gold and silver coins which seem to flow to to them from bottomless coffers. Although this is merely clerical work, yet the importance of having an absolutely perfect record of the coins received necessitates the utmost care; for an error of record at this stage might render the final results valueless.

But the serious character of this work cannot altogether render one indifferent to the novelty of the situation. It is not often that an assayer has to deal with bullion with a government stamp on it; and it is difficult to realize that these brilliant coins, so lavishly distributed, represent just so much *work* to be done, suggesting, as they do, so completely the idea of *compensation*.

The weighing is done on a carefully-adjusted Becker balance, such as is used in the analytical laboratory, and standard weights, duly verified, are used to counterbalance each coin. The gold dollar should weigh 25.8 grains, and the double eagle 516 grains. The variation allowed by law from the normal weight of gold coins, plus or minus, is one-fourth of a grain in the dollar, quarter-eagle, three-dollar piece, and half-eagle, and one half of a grain in the eagle and double-eagle. In the silver coins the permissible variation in weight is one and a half grains in the single pieces, and when weighed in mass, two one-hundredths (2-100) of an ounce in one thousand dollars, in half dollars or quarter dollars, and one one-hundredth (1-100) of an ounce in one thousand dimes.

It is not often that the Commissioners find the legal limit exceeded. The trial of the coinage of 1884 was quite exceptional in that a silver dollar from the Carson City Mint was found to be 1 51-100 grains below the standard weight; that is to say, the legal limit was exceeded by one one-hundredth (1-100) of a grain.

In the fineness of the coins, however, there is a greater chance for error, on account of the tendency of alloys to separate into their component metals when in the fluid condition, or when about to solidify. This tendency is more marked with the alloy of silver and copper, than with the alloy of gold and copper; and the test sample of the "mass-melt" of the silver coinage is, therefore, always taken (after stirring well the molten contents of the crucible) by pouring a small quantity into water. This sudden cooling prevents any separation of the metals, and the alloy thus granulated represents fairly the contents of the crucible. It is very seldom that any but the most minute variations from standard fineness are found in the "mass-melt" of the gold and silver coins, while the individual coins may show considerable variation within the limits allowed by law.

The fineness of both gold and silver coins is 900; that is, the gold coins contain in 1000 parts by weight 900 parts of pure gold. The remaining 100 parts are copper, or copper and silver, "but the silver shall in no case exceed one-tenth of the whole alloy." In the silver coins, 900 parts are pure silver, and 100 parts copper. The law permits a variation of fineness in gold coins, plus or minus, of one one-thousandth, and in silver coins, of three one-thousandths; that is to say, a gold coin may be 899 or 901 parts fine without rejection, and a silver coin 897 or 903 parts fine.

To return to the work of the Commissioners: The committee on assaying chip off a piece from each of the coins in their possession, roll it out to a thin strip under heavy rolls, and stamp this strip with its proper number. The gold coins which form the "mass-melt" are put into a black-lead crucible, covered with borax, and melted down in a crucible furnace. When thoroughly melted, the metal is well stirred, and cast into an ingot, from which a piece is clipped off and rolled out into a strip, as in the case of the separate coins. The "mass-melt" of silver is formed in like manner, except that

the sample is taken, as already described, by granulation in water.

Let us first follow the course of the gold strips. Each strip is taken in turn, from the lowest number to the highest, and from it pieces are cut off to weigh exactly half a gram. Then three times this amount of silver, free from gold, is weighed out, and both silver and gold are put into a little cone of lead (about ten times the weight of the gold), made by folding a small piece of thin sheet-lead (which, likewise, must be free from gold) into the form of a cornucopia. The lead is folded tightly around the metals, so that no particles can escape, and then pressed into the form of a ball. With each batch of twelve samples thus prepared, there is placed one containing absolutely pure gold. To this half-gram of gold is added 10 per cent of copper (the amount contained in gold coin), and three times its weight of silver, and it is likewise enveloped in sheet-lead. These leaden balls are now put into cupels, and heated in a muffle furnace. They soon melt, and in the course of fifteen or twenty minutes the lead and copper are oxidized, and absorbed by the porous cupels. The resulting buttons, containing the gold and silver, are taken out, hammered, and rolled into thin strips, which are plainly stamped with their proper numbers. The metal must be annealed once or twice during the reduction in the rolls; otherwise it becomes too hard for the subsequent manipulation. The strips, which are nearly white in color, are rolled into small coils, called cornets, and they are then ready for "parting," or treatment with nitric acid, which dissolves the silver and leaves the gold unattacked. The object of adding the silver is to insure the complete separation of the metals by the acid; if too little silver is present the gold will protect it from complete solution. From the fact that the proportion of one gold to three silver has been found the most favorable for the separation of the metals, the process is often called "quartation."

The operation is performed by putting the cornets into separate compartments in a little platinum basket, which is immersed in another vessel of platinum containing boiling nitric acid. Two treatments with nitric acid, for about ten minutes each, suffices to dissolve all the silver, and the pure, yellow gold is left in the form of the original cornets, with a number-stamp still plainly visible. These cornets are then thoroughly washed, dried, and weighed. As the gold is now pure, each cornet should weigh 90 per cent of the weight taken for examination, with the permissible variation one one-thousandth. A correction may be called for by the control assay of the pure gold. If this should, after treatment, weigh more or less than it did originally, it is assumed that all of the same batch, having been subjected to identically the same treatment, should suffer a corresponding correction in weight. In any case, this correction is extremely minute.

The assay of the silver coins is a much simpler matter. From the strips prepared as above, the standard weight for the silver assay is cut off—namely, 1.1150 grams, which amount should contain 1.0035 grams of pure silver, since the silver coins contains 90 per cent of pure metal. The same amount is also weighed out from the granulated silver of the "mass-melt." The test samples are then put into glass bottles, and dissolved in nitric acid with the aid of heat. The solution has a light blue color, from the dissolved copper. To this solution is added a solution of common salt, which precipitates all the silver as chloride, and from the amount of salt solution used to effect complete precipitation, the amount of silver is calculated. This salt solution, containing 5.4274 grams to the liter of water, is kept in a large bottle on a high shelf. By means of a gum tube and valve the solution is conveyed to a 100-cubic centimeter pipette which, when full, is emptied into one of the bottles above mentioned. The amount of salt in 100 cubic centimeters is just sufficient to precipitate 1 gram of pure silver. Ten bottles are usually treated in rapid succession with the pipette full of salt solution, and they are then carefully closed with good-fitting glass stoppers, and put in a shaking-machine, where they are violently agitated for about ten minutes. This

makes the precipitated silver-chloride coherent, so that it settles promptly, and enables the assayer to test the clear supernatant liquid with more salt. For this purpose a solution of salt one-tenth of the strength of the original solution is used. One or two cubic centimeters of this dilute solution is added to each bottle, and from the degree of turbidity produced the assayer estimates the amount of silver still remaining in solution. The bottles are again put in the shaking-machine, and tested a second time with dilute salt solution to confirm the first estimate. The accuracy of this determination depends, of course, on the precise knowledge of the strength of the salt solution, and to avoid any error arising from its faulty preparation, a sample of pure silver is treated at the same time with the coins: 1.0004 gram is weighed out for this purpose, and from its behavior, when treated with salt solution, the data are obtained to control the accuracy of the assay.

When the committees on counting, weighing, and assaying had finished their work, had tabulated their results, and had written out their formal reports, the Commissioners assembled around the large standard balance of the Mint to witness the test of the weights. The balance, which is contained in a large glass case about six feet long, was first examined, to ascertain if it was in perfect adjustment. This proving to be the case, one one-thousandth of an ounce was put on one scale pan, and the beam fell promptly and decidedly on that side. Both pans were then loaded with 300 ounces, and when found to be in equilibrium, the small weight was again put on one pan. This time the deflection was not so marked, but it was still perceptible. The accuracy and sensitiveness of the balance having thus been shown to be satisfactory, the crucial test, on which so much depends, was then performed. With due formality the Superintendent of the Mint produces from the safe a small box, unlocks it, and hands to the Commissioners the identical troy-pound weight which was procured by the Minister of the United States in London, in the year 1827.

This precious piece of brass is put on one pan of the balance, and on the other the standard pound weight used at the Mint. The glass case is closed, and amid perfect silence the crank is turned which liberates the beam and brings the knife-edges on their bearings. Anxious eyes watch the indexes on the ends of the beam, for one can scarcely avoid the feeling of personal responsibility for the result. The untold confusion which might overtake the country if doubt were thrown upon its pound weight, cannot be estimated! It was with a sigh of relief, therefore, that the Commissioners turned from the balance, which had calmly stood the test with moving a hair's breadth, and expressed their mutual congratulations. For whatever might be the difference of opinion regarding the sanity of its legislators in continuing the coinage of the standard dollar, the nation's standard weight, at least, was safe, and above suspicion.

The Commissioners came together again in the room where they originally met, and Judge Butler presided over the final, formal session. The chairman of each committee read his report, and a unanimous resolution was adopted declaring the coinage of the year 1885 to be satisfactory, both as to weight and fineness. The box containing the standard weights and the pure metals was delivered up to the Superintendent of the Mint, and duly locked by him and the Judge. To each Commissioner was then given a bronze medal, struck to commemorate the work of the Commission, and the Board adjourned *sine die*.

T. M. DROWN.

Inside a Catholic College.

AN interesting article could be written on the transition from the English to the German University system of education, and the attending higher plane of responsibility and manhood that the student in consequence assumes at a period of life that fifty years ago was considered little better than the "bread and butter" age. The larger scope and freer play given by the institutions of to-day to their

followers, and the complete throwing of the individual on his honor and merit, "to be, or not to be," as the case might prove, would have struck our fathers as instigations from the enemy of mankind.

So completely exploded is the idea of fostering care and parental tenderness in conjunction with education, that it is with difficulty that the old system can be found. It still exists, however, wherever the Catholic Church has control, the idea of obedience being paramount even to the minutia of the daily circle of life.

No outsider is fitted to judge the merits or demerits of "the Church and State system." To do so, one must have entered within the veil and been an actor, and not a mere spectator.

To a student, then, of a Catholic college, and one who has since pursued his studies under civil directorship, a certain right is given to draw comparisons.

Accepting the fact, of which there can be no doubt, that the instructors of Catholic schools are learned men, and qualified to act as teachers, it simply remains to find out whether the student flourishes as well under the Roman tactics of close surveillance as the German method of individual responsibility. Granted that there are natures that require a bit of curbing, and which should always be fed with a tether, can this doctrine be applied successfully to a body of, say, seven hundred young men? Is this — the Catholic method — as likely to turn out a class of men whose mental acquirements will rank as high as those who, through four years of study, have had to rely not only upon their own efforts, but upon their honor?—who have been treated as no longer children, but as what they are, *young men*, with whom rests the making or the unmaking of their future?

Take for example our own Institute: the student signifies the course he desires to pursue, is classed therein, and then the matter rests with himself, whether he shall attend to his duties or haunt the pool-room—until the examination day. In that crucible all is made known, and the unaccounted hours are accounted for — the grand weeding is begun, and the result is the survival of the fittest. The dead wood is trimmed out, and the healthy growth, well pruned, proceeds unhindered to develop into the thoughtful scholar. For those who have abused the trust placed in them, who have wrecked their time with matters foreign to their course, there is no backward road, no returning, although they seek it ever so bitterly.

Knowing this beforehand, the student is aware that minutes are precious; that time once lost cannot be recovered; and that there is no escape for work ill done. Graduating here means something more than completing a prescribed course of studies; it implies character, strength of will, and mental victories, in which but a few of the original number have been successful.

The Catholic student, on the other hand, is considered as a machine, and his duty is to rest plastic in the hands of his preceptor, to receive and retain whatever impressions the mind or hand of that official may choose to give.

He sleeps in a dormitory guarded by ecclesiastics, and rises and retires to the sound of a bell, marches from the lavatory to the study-hall for morning prayer and spiritual reading. An hour's study follows, and then comes mass, which ceremony prepares the carnal appetite for its refreshment. Breakfast over, class commences, and in its turn study. Angelus rings in the noontide hour and dinner. Recreation attended to, study, class, collation, study, prayer and spiritual reading, supper, recreation, and study makes up the day's routine.

Each moment is passed under the watchful eye of a prefect or his subordinate. No idle time is left for Satan's hands, and no pupil is given such a dangerous charge as his own responsibility. He is to do and be but as he is told, as he is directed, so that the grievous sins of omission and commission are forestalled by the omnipresence of the ecclesiastical eye. The loving care of the Church for the "children" intrusted to her is such that over the portals of her colleges and schools one is made to feel, if they cannot read, that eternal vigilance is the price of safety.

The idea of an elective course or optional studies, freedom of will, self-reliance, upon honor, are heretical thoughts, and are to be banished. The young mind is to be watched, and carefully pruned; the tares are many, and the wheat requires a skillful gleaner, or it will be defiled.

The old classical course as laid down by the Fathers of the church enriches the mind, makes a finished scholar, and treads no dangerous ground. The combative spirit of science knocks too loudly, and asserts with too much force; is given to doubting, and has no reverence for mysteries. Her claims are to be carefully examined before concessions, and she is not to be recommended as a subject for training-schools.

The graduate comes into the world filled with mystic lore, himself almost anancient,—more a Roman or a Greek than a member of a busy inquisitive, hurly-burly, work-a-day world.

A thousand temptations; forbidden pleasures; the careful guardianship that has hedged him in; the automatic motion,—each in their kind are offered as taken away; and the startled subject of deprived volition finds himself in a sea beating from every point, with muscles relaxed, his staff taken from him, in scenes that require a Peter, uncertain how to act.

J. T. G.

Student Life in Heidelberg.

AN article under the above caption, which appeared in an early number of the present volume of THE TECH, having been received with much favor, we have obtained permission to publish extracts from two private letters written by a Harvard graduate, now studying at the University of Heidelberg, which illustrate the same subject from equally interesting standpoints.

HEIDELBERG, Jan. 7, 1886.

The best way to give an idea of a student's life here, is to recount the doings of a day, with comments thereon. Well, then: at eight, my interval clock admonishes me that it is time to arise. It is not yet very light, for we are much farther north than you, and the days are very short, to say nothing of the fact that the nights are very long. I arise, dress with lightning celerity, on account of the cold, and descend into the breakfast-room, where I pour out my coffee from the urn, which sits boiling away on the stove, and masticate my "Brödchen" (which are something like rolls, but rather tough) and butter. Often I am alone; but just now a young English boy, who is coaching for the Woolwich examinations, has also to start off early. My first lecture is at nine, nominally, but fortunately for me there is "das Akademische Viertel,"—which means, you have fifteen minutes to get there. Promptly, however, at a quarter past, the Professor, preceded by an assistant bearing trays of rock specimens, which would be immense for Bret Harte's famous fracas, rounds the door leading from the ante-room, and we all spring to our feet, but immediately sit down again, for he is generally in a full tide of conversation. His first words I have never heard. There is a tradition that they are, "Meine Herren, das letzte Mal—;" but by the time I get the run of things he is well into the present lecture. He goes on, not fast, but steadily, very clearly, and in a highly interesting way, but rarely repeating, and stopping only occasionally, when a specimen he wishes to show is not to be found. Consequently, if your attention flags for a moment, you wish it hadn't, for you lose something. Moreover, as he talks he walks around, starting specimens of the rock under discussion, granite, or gabbro, or whatever it may be, in circulation; so that your mind is liable to be distracted unless you can pay attention with eyes and ears quite independently.

At ten o'clock, however, he approaches the ante-room door, and, having finished a sentence, vanishes; and we, having taken a more leisurely look at the specimens, of which he has a wonderfully fine collection, wander down to the laboratory below. This consists, first, of three main rooms, wherein are eight windows, each with desk and microscope. Of the eight in the laboratory, five are Americans, one a Russian, and two Germans. The German assistant is also with us, and always at hand to explain or help.* Besides these rooms, which contain a working library, we have a dark room for optical work, a a chemical laboratory, and rooms for grinding and polishing stone sections.

Into this last I go, as I have to finish grinding a topaz prism. You made me laugh in reading the

*This feature constitutes one of the chief superiorities of the German system.

description of your lectures on physics, in your last letter, by using the word "paralyze" as synonymous with polarize. The theory of polarization we have to have at our fingers' ends. You know that topaz and most other crystals polarize the light that passes through, and also give it different velocities, according to its direction, so that the refraction is different. I have been working at cutting a prism which has its edge parallel to the machro axis of the crystal. It is done by cementing the crystal to a piece of glass the size of your palm, in the proper position, and then rubbing it on a glass plate covered with emery. On hard minerals it is a slow and not very easy process. As I am getting up my triceps, rubbing away, I suddenly discover that it is past twelve, and I must skip up stairs to another lecture.

The first was on minerals in the mass; the second is on them as individuals. The lecture goes on much as the other,—save that as from one to two there are no lectures, the Professor is inclined to round out the lecture at the expense of the next hour.*

After this, we scatter from the laboratory to our midday meal, crying, "Mahlzeit" as we leave. I go only a little way off, "Zum Goldner Römer," where, with some other students, I eat my soup, beef and pickles, potatoes and cake, and talk, or read the little German papers, which contain about as much news as a quarter of a *Record*, and can be read between drinks. Then back I saunter to the laboratory and finish making my prism, and proceed to measure the index of refraction in the dark room by the ghastly light of a mono-chromatic sodium flame; or perhaps some of my H Fl. solutions are dry, and I examine the crystals left under the microscope.

Perhaps you may not see the connection between my prism-grinding and microscopic work. Well, the chief, practical end which my work has, outside purely scientific ones, is to solve the problem: Given a rock, an aggregation of minerals in often microscopically small grains, of what is it composed? One of the ways of determining this is through the optical properties of the minerals when viewed in their sections, for not only the color but the refractive power, the crystals' form, and many other characteristics can be so determined through polarized light.

Now, our Professor — as it seems to me very wisely — first gives us work on the properties separately, so that we thoroughly understand a mineral and its optical properties, before beginning its microscopic study. Don't think, however, that we do not use chemistry. That chemical laboratory isn't for show; there is always some one there. But chemical methods are used as a last resort for qualitative work, and are mainly reserved for quantitative determinations. The blowpipe tests, too, of which I used to hear so much at Harvard, are here scarcely mentioned, although there is a continual reference to their composition in classifying minerals.

About four it grows dark here, but the gas is lighted, and we work on till six; then home, and study until half past seven, when we have a hearty supper. Just now my evening work is mainly drawing crystals; and if you want to find ample employment for all the most ponderous English and German adjectives in your vocabulary, you try to draw a quartz crystal, with half-a-dozen rhomboidra and trapezoidra!

Wednesday night we have a "colloquium," likewise a "Nach colloquium." That is to say, about six o'clock the Professor comes from his private room into the laboratory, if not already there. We gather around the table and give each other accounts of the latest publications in our department of knowledge, which have been divided around among us for that purpose. The Professor makes his comments, and the thing often ends in a lively discussion, which is great fun.

As we are not through till past eight, and have all missed our suppers, we go off together to dine at the sign of the Grüner Baum, and afterward drink beer and sing student songs until a late hour. I once asked a Docent who comes with us, how late students generally studied; at whichhe laughed, and replied that they generally sat up till one or two, but didn't usually study in the evening much. Of course we we were talking about the working students, not the corps students, who fight the duels. They never study at all the first few terms; but they stay here five years.

There is a general idea that Germans are very thorough, and know more than other nationalities. If so, it must be in the training in Gymnasia, for the University men seem to behave very much as similarly placed men in America. There is only one other theory that suggests itself; viz., that beer and tobacco stimulate the intellect.

For my own part, I am glad I came here. There

* This custom is said *not* to be distinctively German.—Eds.

may be some place in America where I could get work that suited me, and I suited as well, but I didn't know it. I have a taste for mathematics, but I can't stand them pure. Here I can use all I have, even determinants and quaternions (of which, however, I do not believe the professor knows much); but they play only second fiddle. Chemistry, geology, optics, mechanics, and all my favorite subjects are coming. In fact, my experience is such, that if you find some kind of work that is fitted to you, and knuckle down to it, after you get agoing it is more fun than a goat, and better than football.

Yours, ever,

W—— L——.

HEIDELBERG, Jan. 17, 1886.

I must tell you about a very dramatic spectacle I saw yesterday; one, too, that is not often seen. For nearly a month a student has been lying in the hospital slowly dying. The cause, not to put too fine a point upon it, was a sword-cut on the temple received in a *mensur*, or student duel. I have been introduced to his antagonist, a man even taller than myself. The wounded student was short, and the cut rather an unusual one. The student is also said to have had a very thin skull, to have fallen down on the same spot, to have been subject to fits, to have had his blood in an unhealthy condition. Some of these rumors are doubtless partly true. Deaths from these duels are about as rare as from rowing or playing football, and of course no blame attaches to his opponent more than to any of the corps students.

The night of the ball he died, and on that account all the members of his corps were absent. The next day we heard that his funeral services were to be in the Providenz-Kirche; that afterward he was to be escorted to the station by the student societies, and all the usual ceremonies performed.

When I emerged from my German lesson, about half-past five, the dusk had well gathered into evening; the sky was overcast, and an occasional snowflake fell. But the Haupt Strasse was filled with people, either surging to and fro or standing on curbstones and doorsteps. I had thought of going to the funeral services, but gave up the attempt and waited.

After awhile torches were seen up in front of the church; not such affairs as we use in America, but real torches, long sticks saturated with pitch or tar, giving forth a lurid flame and much smoke. We did not have long to wait, for soon, to the sound of the dead march, the procession passed. First came the band, all dressed in black; then a few student officers; and then the hearse, a large one drawn by six horses. Each horse had a student at his bridle; behind walked two students with black draped maces, and others carrying the corps and national flags draped in black. After these followed the rest of the students; first the corps, which are aristocratic, and after them the Burschenschaften und Verbindungen.

The officers were dressed in black dress-coats, tight white knee-breeches, and black top boots, carried dress swords, and wore various hats,—some the ordinary student cap, some cocked hats, some a velvet four-cornered cap with an ostrich feather.

The corps students were dressed exactly as they were for the ball the night before; that is to say, ordinary evening dress, with the band of corps colors across the breast, and their corps caps.

After they had left the body at the station they came back, with the band playing a lively march, to a large square, around which they marched and halted, forming a large hollow square. The officers collected in a body on one side, and at the signal "One, Two, Three—Throw!" all the students hurled their torches toward the center. For a moment the square was full of wonderful flitting meteors: the spectacle of these hundreds of blazing torches whirling through the air, was one the like of which I never saw. Of course they did not begin to fall all in the same place, but servants hurried into the center, and through the murky gloom were seen gathering them together. The ground strewn with fire-brands and the figures dimly seen amid the smoke made a most infernal scene.

At last they were all gathered into one heap, which, from its pitchy richness, sent forth clouds of inky smoke, with here and there a burst of intense flame. The officers advanced, and forming a circle about the fire, clashed their swords together in fence, while the students sang "*Gaudeamus Igitur.*"

> "Let us rejoice, then, while we are young:
> After our happy youth, cometh old age;
> After a sad old age, earth shall receive us."

"Let us eat, drink, and be merry, for to-morrow we die."

I thought in the midst of the celebration, how much the deceased would have enjoyed it were he alive, and could not help wondering what were his feelings as it was.

In the evening they had a Trauer-Kneipe.

W——L ——.

Hilda.

Most fickle of all
  Is my gay, pretty Hilda;
Yet charming withal,
Most fickle of all,
On consistency's wall
  She's but a poor builder;
Most fickle of all
  Is my gay, pretty Hilda.

A vision of light
  From Olympus' fair portals,
She stands there to-night,
A vision of light—
Oh, loveliest sight,
  E'er granted to mortals;
A vision of light
  From Olympus' fair portals. S.

Noticeable Articles.

The rather timid conservatism of the recent book of Sir Henry Maine, entitled "Popular Government," is vigorously met in the *Fortnightly* for February, by Mr. John Morley, Mr. Gladstone's new Secretary for Ireland, and himself one of the best of England's political writers; and by Mr. Godkin, editor of the *New York Nation*, in the *Nineteenth Century*. Nothing, however, that the eminent author of "Ancient Law" can write can fail to be worth reading, and his new book contains one paper that gives a capital outline of the United States Constitution.

Whoever is not afraid of the Serbonian bog of Irish politics can enter it under good guidance, for in the *Nineteenth Century* for February there is a paper on "Alternative Policies for Ireland," by Prof. James Bryce, the learned author of that admirable historical monograph, "The Holy Roman Empire"; a book, the reading of which no student of the Middle Ages can afford to omit; and another in the *Contemporary* for February on "Home Rule," by Prof. Freeman, with whose name readers of THE TECH are somewhat familiar; while in the *Fortnightly* there is an anonymous "Radical View of the Irish Crisis."

In the *Fortnightly* there is a provokingly amusing paper, signed Theodore Child, and entitled "Through the States." Mr. Child's account of his experiences in our country, especially of railway traveling and hotel life, are more just than complimentary, but one cannot help laughing at their truthfulness. But he is by no means blind to the good side of things: "Buffeted by the vulgar crowd, jostled by tobacco-chewing stock-operators, irritated by badly-paved and dirty streets, where the dust-bins stand unmolested at all hours of the day (this is not Boston), constantly shocked by the want of finish and elegance that pervades all the exterior life of the cities, the lone traveler is tempted to concentrate his observation on the shortcomings of America. He forgets, while in this carping mood, that the country is very young, and that it is not so much the imperfection of the civilization that ought to astonish him, but rather the universality of that degree of material civilization which he everywhere finds. He forgets the libraries, and museums, and splendid educational institutions that private munificence is creating all over the Union. He forgets the extent, the wealth, the magnificence of the country, the determination of the people, and their unparalleled working capacity which makes twenty years in America worth more for progress than forty years in Europe. Above all, he forgets that leaven of refined people, those hospitable and charming friends whose sympathies and interests he has found to be so wide, and whose social qualities have often struck him as being peculiarly complete; . . . and, reflecting upon what has already been achieved, he will be tempted to adopt Herbert Spencer's conviction that the Americans may reasonably look forward to a time when they will have produced a civilization grander than any the world has known."

In the same number there is á pleasant account of Nassau and the Bahamas, a paper on "What Boys Read," and another on "The Wear and Tear of London," which gives a formidable account of the labors of an eminent London barrister, doctor, judge, or member of Parliament. Nevertheless, the following are very just remarks: "It cannot, I think, be shown that, provided all proper precautions are taken, mental work, even of the hardest kind, and pursued for almost an indefinite period, really injures the nervous system of the individual thus occupied. Indeed, as a matter of fact, it is almost invariably followed by an entirely opposite result. The human body is a machine, so constructed that work is a necessity for its continued existence and well-being; the amount of work it is capable of doing is in strict proportion to the power of the mechanism; and while other machines, having no power of repair, tend to become weaker and worn out by use, the strength and capacity of the nervous and muscular systems of the human body are increased by exer-

cise, provided the latter is regulated by certain well-known laws. Injurious effects resulting from hard work are almost always traceable to neglect of obvious precautions."

In the *Contemporary*, Sir John Lubbock has a poor paper on the "Pleasure of Reading," and winds up with a futile attempt to make a list of one hundred best books, which is much like trying to make a list of one hundred best dinners for all palates. Prof. Geffcken finishes his valuable paper on "Contemporary Life and Thought in Germany"; and Frederic Harrison, the redoubtable Positivist, writes on the "Radical Programme."

The *Quarterly Review* for January contains an elaborate article on the new translation of Don Quixote, the great book of Spain. It is satisfactory to those who never found themselves growing enthusiastic over the earlier English translations, to know that not one of the seven that have been before made is at all adequate, and that Smollett's "is worse than unsatisfactory; it is a burlesque." In Mr. Ormsby's we have for the first time an adequate reproduction. "He has lived among the Spanish peasantry. He has looked into their ventas, and made personal acquaintance with many a provincial inn-keeper, and many a Maritorhes, and many a Sancho Panza. He has learned their vernacular phrases. He has made himself at home in the exact society in which Don Quixote moved," and probably in out-of-the-way parts of Spain; and the greater part of Spain is out-of-the-way; the society is not much changed since the time of Cervantes.

Spain, fallen from her high estate, and now, through the combined influences of bigotry and bad government, is one of the most backward of European nations; yet she is still a wonderfully interesting country, and one that has always had a special interest for Americans. The best history of Spanish literature is by a Bostonian, Mr. Ticknor, and one of the best of Spanish libraries in the world is the one bequeathed by him to our city library. Washington Irving wrote the lives of "Columbus and his Companions," and the picturesque "Conquest of Granada." Prescott's books are all on Spanish subjects, and some of the best travels in Spain have been written by Americans, though no one quite so good as that remarkable book, George Borrow's "Bible in Spain."

The *Quarterly* has a paper on the "House of Condé," and an account of England's new acquisition in the East, "Burmah, Past and Present."

The *Edinburgh* for January contains a paper on England, Afghanistan, and Russia, which no one will fail to read who is interested in following the slow but steady progress of Russia eastward into Asia, or who has made acquaintance with desert life and Turcoman tribes and dare-devil adventures, in the exciting book of MacGahan, the newspaper correspondent, or in Capt. Burnaby's "Ride to Khiva."

The *Edinburgh* also has a paper recounting the vain attempts of the French to colonize or conquer Madagascar, that great island of which we know so little. There is a paper on Victor Hugo, and one more on Sir Henry Maine's "Popular Government," of which the reviewer says: "By a fortunate coincidence, at the very time when the British nation was in the act of accomplishing the largest experiment of popular government which has ever been tried in the United Kingdom, a book issued from the press which deserves to rank with the best and wisest productions of English political literature." This is the conservative liberal view.

W. P. A.

COMMUNICATIONS.

The editors do not hold themselves responsible for opinions expressed by correspondents.

EDITOR OF TECH:—I read with considerable interest the editorial, in your issue of March 4th, relating to athletics and our gymnasium. I agree with you on the whole, but I do not think that you have hit upon the correct solution of "why the students do not patronize the gymnasium more." Some three weeks ago I went down to the gymnasium, and attempted to take a bath after exercising. I followed the printed instructions posted over the shower-bath, and waited patiently for five minutes to obtain the right degree of temperature, and finally, in disgust, resorted to a bucket of water and a sponge. I also noticed that in order to keep their feet clean, some of the fellows had to make a flying leap from the bathing-room on to the bench in the dressing-room. In my opinion it is in the bathing appliances that all the trouble lies, and the sooner the Corporation provides a decent place to bathe in, the sooner will the "instructors be gratified by the students' clearer brain, and the nation by the far-reaching inheritance of health."

Yours truly, S. S.

A grate thing — The furnace.

'85's Class Dinner.

THIRTY-EIGHT members of the class of '85, the last class to give a Senior ball, gathered at Young's on Saturday, March 6th, to inspect a very tasty *menu*, designed for the occasion by Mr. E. B. Homer.

The inspection having been completed, notwithstanding continual and continued interruptions by the irrepressible Arthur, President Richards called on A. R. McKim for "The Remains," great respect and feeling being exhibited therefor; E. H. Mumford, for the "Alma Mater;" A. D. Little, for "The Publication;" and Ike's spirit for the "Absent Ones."

Ike's substantial spirit and Tracy Lyon were the most foreign elements, one coming from New York, and the other, Oswego, N. Y.

After talking, stories, and singing, the assembly broke up, and the fourth annual dinner was a thing of the past. S. W.

The Junior Class Dinner.

THE second annual dinner of the class of '87 was held at Young's, on Friday, the 5th inst., about fifty members being present. There were three tables,—two running parallel the length of the room, the other running across at one end, for the accomodation of the officers and guests of the class. On this table was also placed a "monkey gymnasium," arranged by Messrs. Harris and Stone, with the help of some lady friends. It was an elegant little affair, representing the various athletic sports at the Tech., and a foot-ball game which did *not* represent our last game with Williams, but which told what will happen next year. The *menu* cards had on the outside an original design by Mr. Draper, and within contained the toasts, which were responded to, as follows:—

"Our Alma Mater," James H. Mirrlees; "The Class of '87," Fredrick C. Todd; "The Ladies," Norman Q. Stewart; "Past Members," Albert L. Cushing; "Foot-ball," Maurice W. Cooley; "The Society of '87," Frank E. Shepard; "The Glee Club," John L. Shortall; "The Tech," Benjamin C. Lane; "Athletics," Walter C. Fish; "The Faculty," Hollon C. Spaulding; "Canada," Thomas D. Brainerd. All the responses were full of wit, those of Messrs. Mirrlees, Todd, Cushing, Fish, Spaulding, and Brainerd being especially good.

After an excellent dinner, which Young's knows so well how to provide, a ballot was taken as to who was most worthy of the spoon; and after some discussion the ballot was decided in favor of Mr. Thompson, over his nearest competitor, Mr. Patterson, all agreeing, however, that Yale had done herself credit. The other members were each presented with a little gift, kindly donated by the Foundling's Home, in the shape of a little two-inch baby bottle with all the attachments, and filled with Prof. Nichols' $H_2 SO_4$. Mr. Taintor then favored the assembly with an antiquated manuscript, set to song, which he had revised for the occasion. It went off capitally, and its chorus is still ringing in the ears of all.

Not too much praise can be given Mr. Kirkham, who, in the capacity of toast-master, did much toward keeping the boys full of spirits. (See Technics.) Much credit is also due Messrs. Todd, Sturges, Draper, Harris, and Kirkham for the manner in which the supper arrangements were conducted. The class adjourned about 12.30, entirely satisfied with its feast and the good times "Across the walnuts and the wine."

Technics.

THINGS ONE WOULD RATHER, ETC.—*Miss Brown:* "Oh, don't hurry, Mr. Craggle."

Craggle: "Well, really, I'm not feeling very well, and only want a little fresh air. *I shall be all right as soon as I get outside.*"

THE ENGLISH OF IT.— *Student in German:* I couldn't find the meaning of *froh*, Professor.

Helpful Professor: "How do you feel when you are full of spirits?"

Student: "*Drunk!*"

Athletic student (*translating*): "Es sparte immer": He always sparred.

ORGANIC LABORATORY.— *Enter student, with camera:* "Is there any objection to my taking the laboratory?"

Preoccupied instructor: "No; but be sure and give me an order for it."

Professor to Jones (who has just computed on the blackboard the head of water necessary to drive a certain turbine): "Seems to me, Mr. Jones, you have a remarkably large head."

FACT *vs.* THEORY.— *Scene:* Freshman in laboratory, during explanatory lecture.

Instructor: "What is produced when sulphur is burned in the air, Mr. Luffy?"

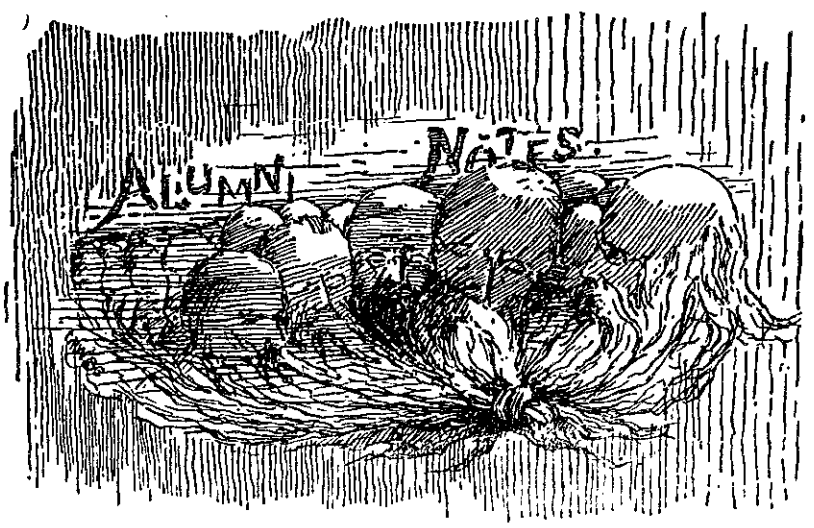
Mr. Luffy (with the assurance of absolute knowledge): "A very bad smell, sir."

A general explosion followed.

Instructor in photography, examining negatives: "Seems to me that in getting a good view of Trinity you have made the Brunswick look rather too full."

Junior, absent-mindedly: "That's because last night the Brunswick made *us* —— I mean the camera slipped."

FEATHER-WEIGHT SPARRING — A LOCAL HIT.



Robert H. Richards, '68. Recently elected President of the American Institute of Mining Engineers.

H. M. Howe, '72. Elected to Board of Managers of American Institute of Mining Engineers.

Mr. Howe is at present in the West, collecting data from a work on "American Steel Manufacture," which is to be published in the columns of *The Engineering and Mining Journal.* The latter paper speaks of him as being "universally recognized as probably the most competent engineer in America for the special work in question."

John R. Freeman, '76, late principal-assistant engineer Essex Water-power Company, has accepted the position of Inspector for Boston Manufacturers Mutual Fire Insurance Company.

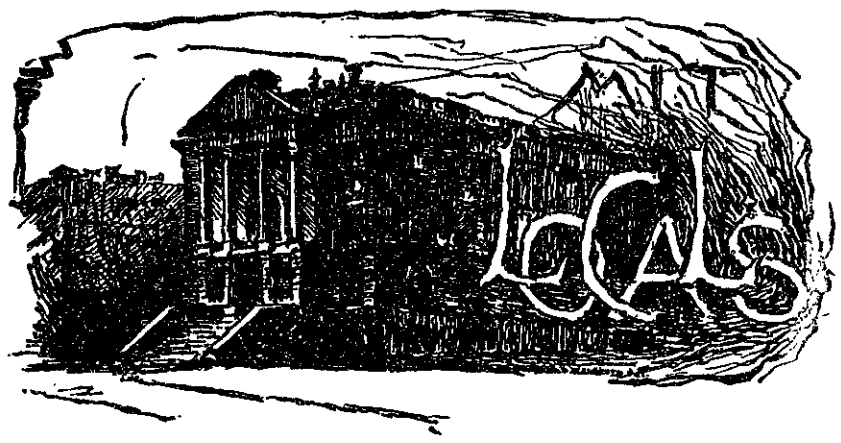
W. A. Chapman, '85. Proprietor of a hotel and skating-rink, Galveston, Texas.

A. D. Little, '85, formerly editor-in-chief of THE TECH, Chemist with Chas. S. Wheelwright, manufacturer of wood-pulp, Providence, R. I.

O. T. Stantial, '85, assistant chemist with Lehigh Zinc Works, Bethlehem, Penn.

W. H. Ellis, Jr., '86, student in chemistry at Heidelberg, Germany.

Geo. W. Paterson, '87, was one of the two gentlemen who, at Chautauqua, in the summer of 1880, saved from drowning Miss Mina Miller, recently married to Thomas A. Edison, the electrician.



The Society of '88 had a love feast, last Friday evening.

The Hammer and Tongs Club dined at Young's, Saturday evening.

The Seniors have appointed a committee to consider arrangements for Class-day exercises.

Charles Cheney, '89, has become a member of the Alpha Tau Omega Fraternity.

Walter C. Fish was elected to the gymnasium committee at a meeting of the class of '87, March 9th.

Some twenty of the architectural department took notes on the construction of the Black Hussar, the first night of its presentation.

The class of '88 proposes to try the novel combination of the Quincy House and no wine, on the occasion of the supper, March 25th.

The Orchestra furnished the inspiration at an enjoyable gymnasium dancing party, Saturday afternoon.

'89 men smiled contentedly at the announcement that, in the Harvard inter-class tug-of-war, '88 pulled '89 by about six inches.

A condensed account of the life of Gen. Walker somewhat similar to one published in THE TECH, Vol. I. No. 14, appeared in a recent issue of the *Herald.*

The *Crimson* speaks of the pleasure which Yale has had in listening to a course of lectures by Pres. Walker, and deplores the fact that Harvard has not had a like privilege.

At a meeting of '89, March 4th, Messrs. French, Simpson, Olzendam, Basford, and Bailey, were appointed a committee for the class supper, which will probably take place at Parker's, March 26th.

F. A. Thomas has returned to the Institute, and is now plotting curves.

The Freshmen propose to present to each member of their successful tug-of-war team a suitable medal and a class supper-ticket. Keep it up, '89, and you will make a name for yourself.

Arthur F. Bardwell, '89, was recently initiated by the Sigma Chi men. Mr. Bardwell's brother was a charter member of the local chapter of that fraternity.

The *Herald* of March 10th contained an article descriptive of the Institute and its work. The article was adorned with excellent cuts of one or two of the professors and of the buildings.

H. E. Hill, '87, and F. L. V. Hoppin, '88, were missed from the architectural department, not long ago, but were *traced* to H. H. Richardson's office, where they were found carefully erasing all marks that they had made.

The first-year architects submitted twenty-seven designs for a porch for city residence. George C. Shattuck's received the highest mark, and Charles L. Faunce's next. Others followed, almost too numerous to mention.

Extract from N. Y. *Graphic:* "Culture still booms in Boston. On Saturday afternoon, Poet John Boyle O'Reilly presided as referee in a series of heavy slugging matches between member of the Y. M. C. A. It is not visionary to expect that a nickel-plated effigy of John L. may yet grace the Common or the Public Gardens."

There were twelve designs for a combination billiard-hall, boat-house, and belvedere by the second-year architects. F. L. V. Hoppin is to be highly congratulated on receiving first mention. J. Prince Loud received second mention.

At a meeting of the Base-Ball Association, March 5th, the following elections were made: president, Guy Kirkham, '87; vice-president, Quintard Peters, '87; secretary, A. H. Badger, '88; treasurer, John L. Shortall, '87; manager, A. D. Currier; committee for selecting the team, the manager and W. L. Brainerd, '86, John L. Shortall, '87, W. L. Dearborn, '88, C. W. Pike, '89.

Fifty cents will be paid at this office for a copy of THE TECH, Vol. I. No. 7, in good condition.

The Senior class dinner will be at Young's, Friday evening, March 26th. All members of the class, past or present, are earnestly requested to be present.

Our local editor was told in the *civil* room, where he had gone in search of news, that one item was that no talking *aloud* was *allowed* during office hours. He took the hint, and waited for no more items.

At the second regular meeting of the Class Club, last Thursday evening, at Young's, Professor Pope was unanimously elected the first honorary member of the club. Messrs. H. C. Moore, '88, and T. W. Pietsch, '89, were voted in, bringing the total number of members up to nineteen, which is one less than the limit provided by constitution. Seven couples then "took the floor," and twenty-five games were played during the evening.

On Friday evening, March 12th, the 2 G. Society gave a reception at the Quincy House, in honor of Prof. Richards, the new President of the A. I. M. E. Prof. T. M. Drown, Mr. F. W. Clark of the Institute, and Mr. H. O. Hofman, the distinguished metallurgist; Mr. H. M. Howe was unable to be present, on account of his absence from the city Capt. D. A. Lyle, U. S. A., '84, and several other ex-members of the Society, were present. A quartet from the glee club kindly volunteered their services, and entertained the guests with several well-rendered selections. The affair was very successful.

Nine Junior chemists visited the well-known brewery of J. Roessle at Roxbury, last Friday. These works employ between sixty and seventy hands, and turn out sixty thousand barrels of beer annually. Just inside the door is a sort of small central hall, hung with convivial mottoes, such as

"Erst mach' Dein Sach',
Und trink und lach,"

and containing a bar, where unlimited beer is served out to all the employês. From this rallying-point the party visited in turn the coolers, mash-tubs, boilers, fermenting-vats, and lastly, with the aid of a dozen candles, the great vaults, reaching fifty feet underground, where huge tuns, running up to 130 barrels capacity are stored; bringing up at regular intervals at the bar, where the foreman, whose short, massive form and immense white felt hat, made a first-class model for a Half-Moon Navigator, would produce an extra supply of glasses and encourage the party by exhibitions of a capacity which only the Chicago man attempted to emulate. A feature of interest in this establishment is the introduction of the use of ammonia, condensed by a steam engine, instead of ice, for cooling the beer imemdiately after boiling, to prevent the setting in of acetic or lactic formentation. The condensed gas is allowed to escape through a sort of water-fall of horizontal pipes, down the outside of which the boiling beer trickles, arriving perfectly cold at the bottom. An extended account of the brewing business is given in the October, 1885, number of *Harper's Monthly*.

UNFORTUNATE EVIDENCE.

Caller: "WHAT?! IS THE HERR PROFESSOR NOT AT HOME?! WHY, I SEE HIM NOW, THROUGH THIS DOOR!"
Maid: "OH, THAT — THAT IS ONLY HIS SHADOW!"

Fliegende Blätter.

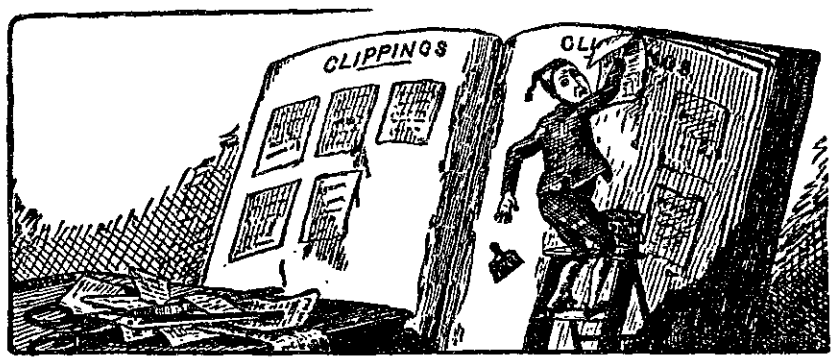
THE COLLEGE WORLD.

HARVARD.—Chamberlain, '86, broke the college record in putting the shot at the first spring meeting, his put being 37 feet 10½ inches.—There are thirty candidates for the freshman nine.—The boat crew is $1,700 in debt.—Sixty men are in training for the Mott Haven team.—Smith, '86, and Henshaw, '89, will constitute the change battery.

YALE.—At the games, March 6th, two Yale records were broken,—Brown, '86, making 8 feet 10¾ inches in the running high kick, and Goodwin, '89, making 5 feet 6 inches in the running high jump.—By the retirement of Brooks and Hamilton from the Mott Haven team, Yale's chances for the cup are greatly lessened.—The battery for this season will probably be, Kellogg, '87, catcher, and Dann, '88, pitcher.—Seventeen men are trying for the freshman nine.—The professional coach for the crew has been given up.—Boat crew is $1,200 in debt.—The nine has arranged for four games with the New Yorks and two with the Nationals, during Easter vacation.

PRINCETON.—Princeton closed the season with $253.55 in her foot-ball treasury.—Twelve Princeton students, graduates of Exeter, have offered a gold medal for the best declamation from members of the academy's literary societies.—The Glee club will make a trip through the South, starting April 14th.

IN GENERAL.—Nine of Wesleyan's Foot-Ball Eleven return next year. There are 193 students at Wesleyan.—Lafayette will present a strong tug-of-war team at Mott Haven this year.—Courtney will coach the Cornell crew again this year.—The University of Vermont was admitted to the Intercollegiate Athletic Association at its last meeting.—Stevens' Institute was recently admitted to the Intercollegiate Lacrosse Association.—There are twenty-four candidates for the Williams College Nine.—Amherst has six of last year's nine left.—Twenty men are trying for the ball nine at Cornell.



AT THE MASQUERADE.

He—Is it all right when everything is masking,
Since people are not what they seem to-night,
Perhaps to flirt, and do so without asking,—
Is it all right?

She—Is it all right when none can see your blushes,
Hearing sweet words you know full well are light,
Yet to forget that doubt which ever crushes,—
Is it all right?

He—Is it all right when no one will betray you
(What lips half seen do more than half invite),
To steal one kiss—just one; confess, I pray you,—
Is it all right?

She—Is it all right that after you have kissed her,
To say the least a thing most impolite,
She should unmask, and say, "Since I'm your sister,
Is it all right?"

—*Yale Record.*

"Ah, chappie, glad to see you. I say, could you lend me ten dollars? I want to go out for a bit of breakfast."

"Certainly, dear boy, but you had better take fifteen; you may want a cigar, you know."—*Rambler.*

One of the brightest lads in a school not far away was asked by the teacher, "Why are animals larger in a tropical than a frigid zone?" The quick reply was, "Because heat expands and cold contracts!"

NOT SIGNED.—*Auctioneer:* "Now, gentlemen, what shall I say for this magnificent and authentic Paul Veryoneasy? Come, start it at something."

Old Gentleman: "Don't see the painter's name on it anywhere, mister."

Auctioneer: "Of course not. A picture like that doesn't want signing; it stands on its merits. No bid? Pass it in, John, and bring out the next. Now, gentlemen, here is a superb Landseer by the same hand." (Tableau!)—*Melbourne Punch.*

Equivocation.

We lingered, in the act to part,
  The last word still unspoken,
By the quick beating of my heart
  The silence faintly broken.

So beautiful she seemed, and pure —
  Ah me! how I should miss her:
Unable longer to endure
  My wish, I asked to kiss her.

A blush of deepest rose o'erspread
  Her face, as if to mask it,
As, with a woman's art, she said,
  "Why, Frank, you should not *ask* it!"

SOOYSMITH.

SHE DRAWS HER BOW.

She draws her bow with ardent care
To bind her wealth of raven hair:
This little maid of scarce fourteen
Has found *vraiment* too soon, I ween,
That she is fair and *debonnaire.*

The years sped by; my boy, beware!
A maiden never looks so fair
As when, upon the village-green,
She draws her bow.

With laughing eyes beyond compare,
She drives her suitors to despair
When chosen of the day the queen:
She feasts them at the old demesne.
The game is up; 'tis sad, when there
She draws her beau.

—*Williams Fortnight.*

Ardent lover (*embracing the leading lady*): At last, my own, I can hold you in these arms—at last I can look into those calm blue eyes, and read there the sweet story of your love. Kiss away my sorrows, love, and the past will seem like some dreadful dream! (Aside to her)—Now, when you kiss me, don't hang on forever. There's my wife watching me from the opera box.—*Rambler.*

Selected miscellany— Mince-pie.

First Tramp (*contemplatively*): "Horace, did you ever wonder what you would do if you got all Vanderbilt's money?"

Second Tramp: "No, I've never thought much about it; but I guess I would lay low till the affair blew over.—*Ex.*

He had a silk hat,
That was glossy and round:
He had a silk hat,
But he went on a bat,
And on it he sat
With a sensible sound.
He *had* a silk hat
That was glossy and round.

— *Yale Record.*

The manager of a Boston daily telegraphed to its correspondent in Belfast last week to "send full particulars of the flood," thinking that the freshets which have been inundating the Hub and vicinity extended to Maine. The answer was returned by postal: "For particulars of the flood, refer to the 7th chapter of Genesis."—*Ex.*

IT is announced that the Mikado, which has been played at the Hollis Street Theatre ever since the opening, will be replaced in a couple of weeks by "Nanon," the New York casino success.

DURING this and the coming week McCaull's Opera Company, with a notably able cast, present the "Black Hussar" at the Boston Theatre.

THE comic opera of "Princess Toto" will be presented at the Bijou Theater by the Mahn Comic Opera Company, for a limited season.