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OCULISTS' FORMULÆ FILLED IN OUR OWN WORKSHOP.
In our issue, the middle of last October, we drew the attention of the Institute, in an editorial, to the fact that Tech had no regular correspondent to any of the newspapers of the country, outside of this city. It seemed to us, at that time, that sufficient reasons were given why this should not be so, but as yet we fail to see that any notice was taken of the editorial we refer to now. We are sorry such is the case, for it is a great injury to the welfare of the Tech. We will not repeat our former remarks on this subject, as the affirmative side of the question is a self-evident truth, and we firmly believe that no negative side exists.

We have heard it said that it is the duty of this Board to supply the newspapers with events which happen at college, but a little thought will convince even the most skeptical that this cannot be. Our time and endeavors are spent in the hope of making this paper a fit representative, in its way, of the Worcester Polytechnic Institute, and we feel that the students should not expect us to act as correspondents, knowing, as we do, that there are those among their number who have more time than we, and who therefore are more fit to supply this want.

A word to the wise is sufficient. In the near future we hope to be able to announce that this matter has been attended to by some of the students. We feel sure that their pains and trouble will not be without reward.

The Indoor Meet which the Athletic Association is to give in March promises to be a great success. The entries for the open events are certain to be first-class, both as regards numbers and quality, and good races must result. Inter-class rivalry and enthusiasm guarantee the hottest kind of competition in all closed events; indeed the team race should be one of the most exciting ever witnessed in the Rink. The decision that the men of the Institute team can not run on the class teams is an excellent one, as it gives untried men a chance to show their worth. It also leaves each defeated class opportunity to claim that if its 'Varsity men had run, the result would have been different, thus upholding interest for the race at the spring meet.
The athletes are sure to work well and will bring credit on the Institute. Meanwhile the rest of the students must do their part, which consists of advertising and boosting the meet to the extent of their ability, which is by no means small. This will result in financial success and will prevent the necessity of taking the sum pledged by the men interested.

The balmy weather of the past week has warned baseball enthusiasts that the season is fast approaching. Already the probable make-up of the team is being discussed and the Freshmen class critically scanned for material. Every man who played last year is now in college, and our prospects with a veteran team under its old captain, are certainly encouraging.

How enjoyable those spring-like days were! Not so, say the unfortunate youths whose road to knowledge leads up West Street. The advent of warm weather turns the road over Tech Hill into a muddy marsh and renders walking a very disagreeable necessity.

The polo manager is deserving of better luck. The Harvard men showed respect for our skilful team by refusing to play without their full strength.

We consider ourselves very fortunate to be able to publish such interesting matter relating to the Eastern war, as may be found in this issue. Mr. Kuwada's letter gives one a far clearer idea of the Eastern situation than any newspaper article we have yet seen.

We hope to be able to give our readers, in our next issue, abstracts of Mr. Mansfield's lecture on "The Steam Engine," and Mr. Risteen's paper on "Physical Measurements and How to Treat Them."

Washington's Birthday coming on Friday, has delayed this number somewhat.

**W. E. S. MEETING.**

The regular meeting of the Society was held Monday evening, Feb. 11, in the Mechanical Model Room at the Laboratories.

President Clement called the meeting to order shortly after 8 o'clock, there being about fifty members present. President Mendenhall, Professors Alden, Higgins, White, Bird, Kendrick and Conant of the Faculty were present.

Secretary Alden read the minutes of the last meeting, and then made a few explanatory remarks concerning the annual dues of the Society, which were supplemented by Mr. Cole. Mr. C. D. Parker, '79, then gave notice that at the next meeting he should move an amendment to the constitution to the effect, that the annual dues should be paid for the year ending with the October meeting of the Society, and that members should have until June to pay their dues. Those not paying their dues at that time should cease being members. Any past member might be reinstated on payment of arrearage in dues.

Secretary Alden then read a communication from S. S. Jennison, criticising Mr. Powell's new screw thread, which was the subject of a paper at the previous meeting.

Mr. Powell replied at some length, touching each point in the criticism, and exhibited a sample of the new thread. Mr. Clement then introduced Mr. A. D. Risteen, '85, who presented the principal paper of the evening, on "Laboratory Measurements and How to Treat Them."

The paper was quite lengthy, and was an able one in every respect.

After the reading of the paper President Mendenhall made a few remarks, emphasizing some of the best points of the paper, and Mr. Risteen answered a number of questions in regard to it, so that the meeting did not adjourn till nearly 11 o'clock.

**REMARKS ON MR. POWELL'S THREAD.**

*Mr. President and Gentlemen:*

I have been greatly interested in the paper presented at your last meeting by Mr. Powell, and published in the W P I January 15. As I do not agree with him in the reasons given why the square thread should be superseded by the angular thread, as designed by him, I would like to say why I disagree. It would give me great pleasure to be with you in your meetings, but as I cannot do so I will submit my opinions in writing.

I am willing to admit at first, what you all know to be true, that the angular thread is stronger than the square and that it is better adapted to the use of an
open and shut nut, as in the case of the lead screw of a lathe; but for the cross-feed of a lathe, the crossbar of a planer and all similar purposes, where a solid nut is used in machine tools, I can see no advantage in using angular rather than square threads. I fail to see wherein there can be any material difference in friction in the two types of thread, or that the thrust against a solid nut can in either case be in any direction other than parallel with the axis.

The square thread on machine tools, in such places as I have mentioned, seems to me to present a much more neat and finished appearance; were I to go into the greenman's shop with the idea of purchasing a planer, and should see the cross-bar provided with angular thread screws, it would give me an impression of cheapness, which is, of course, an excellent thing in itself, but I should immediately suspect cheapness carried to inferiority. I do not agree with him in that "case of fitting" is altogether with the angular thread. Neither nut will receive its screw till the thread is cut deep enough, and then both nuts will fit properly if the cutting tool has been made and set correctly. I would rather keep tools in order and cut square than angular threads, and in the many double square threads I have cut I never discovered that the tool need have seen much wear as to be troublesome as to be troublesome in the least, if it was properly set in the lathe; later the man was again installed in his former place and, I think, still retains it. The same man found it necessary to have a double-square inside-thread cut for a repair job, and, with the advice of the superintendent, and an equally brilliant toolmaker, the latter made a double-pointed inside tool for that purpose. The operation of the thread in the bed of the lathe was not a brilliant success, for reasons which need not be stated, and an average workman told all three of them how to do the job. The same man went all over the shop to find a lathe that would cut an unusually coarse pitch, and finally reported that they had no lathe with gears right for that pitch, when to my certain knowledge there were five lathes in the shop that would do the job.

The average workman has no business meddling with elaborate formulæ, if such formulæ are doing duty outside of the draughting-room, the average foreman ought to be capable of handling them and not let them roam around loose and lose themselves, and be carried out in the chips.

I believe that no necessity exists for discarding the square thread, heretofore largely used in machine tools, and replacing it with the angular, else it would have been done long ago. Angular threads of the same style as shown by Mr. Powell have been known and used for many years as lead screws, under the names of half V, bastard and others too numerous to mention, as you all know. That the elaborate formulæ set forth by him will make them any more valuable, I am unwilling to believe; perhaps manufacturers may adopt them, as a fashion, one after another, same as a flock of sheep will follow their leader through a hole in a bridge, but that any material advantage will be gained thereby is not yet apparent to me.

Respectfully submitted.

S. S. JENNISON, B.S.

DR. MENDENHALL LECTURES TO THE SENIOR MECHANICS.

Dr. Mendenhall lectured to the Senior Mechanics and Electrics on Wednesday, February 13, at 11 A.M., on the subject of "Modern Methods of Time Measurement." He traced the history of time measurement rather hurriedly, and then spoke of the modern methods of correcting for errors in time, which
is really the main advance which has been made recently. A great field is open for advance in the methods now in vogue, and attracts the attention of scientists. The lecture was illustrated with several models which proved the truth of the statements made very conclusively.

The lecture was of very great interest, and many questions were asked and answered at the close of the hour.

**MR. HENNING'S LECTURE.**

The general lecture last Monday was by Mr. Gustavus C. Henning of New York, on the subject, "Modern Methods of Testing Materials." The seating arrangements of the chapel have been entirely changed, so that the platform extends along the north side, and the seats, of course, face in that direction.

The chapel was darkened for this lecture, which was illustrated by some 50 plates, thrown on a large screen covering the north window.

The lecturer described the various kinds of testing machines used and the principles of them, and although highly technical in its character, the lecture was listened to very attentively by the students. Owing to the length of the lecture the time was extended to 12.30, and many remained at the close of the lecture to examine some pieces of recording apparatus which Mr. Henning had with him.

The next lecture was to have been given by Prof. Shaler of Harvard, but on account of illness he may not be able to come; in this event the lecturer will be Capt. Greene of the U. S. Navy. It is hoped that Prof. Shaler may be able to come.

**ELECTRICAL UNITS.**

Prof. Marsh of Yale University has a bill ready for presentation to the legislature, which provides for a definite law for electrical units and measurements. This law is practically the same as the laws recently adopted by the foreign governments.

**CHANGES IN CHAPEL.**

The students of the Institute, when assembling for the lecture last week, were surprised to see the appearance of chapel considerably changed. The chairs have been turned facing the north, and the north windows have been boarded up and covered with a screen upon which to throw lantern views. Across the south windows hangs a sliding curtain, while the small west window can be closed by means of a small dark screen. Thus chapel can be darkened sufficiently for lantern work. A new electric lantern has been tried, and without doubt the Institute will soon possess one of its own for use in lectures which need illustration.

**COMMUNICATIONS.**

*To the Editor of the W P I:*

While I was at the Tech I thought it strange that the Alumni did not take more space in the Alumni Notes, but now I know the reason, and I should probably have further delayed writing, had it not been for this Oriental war. Your American papers, such as I see by the kindness of my American friends, namely Boston Herald, New York Tribune and Washington Post, are remarkably correct in their statements, and seem able to identify doubtful reports.

The cause of the war you of course know to have been the obstinacy and intrigue on the part of the Chinese government regards Korean affairs, and our primal object to be the Korea's independence. These days one country cannot silently look on while another is being unjustly pounced upon and made a pauper.

Last June, as the Korean government was too weak to subjugate her own rebels, the Tonhacks and the foreign population, more than half of which consists of Japanese, were in peril, we landed marines and sent troops. China did the same. Then she demanded our withdrawal, claiming Korea to be under her sway. This we disputed, but consented to withdraw provided China did the same.

On her refusal, and several provocations thereafter, one of which was firing on our battleship "Naniwa," the war was finally declared. Here was the chance to humble that haughty, unjust neighbor of ours and put ourselves at the head of the Pacific nations.

It was a great undertaking, and in the minds of most foreigners, we were in imminent peril. China has great resources, they said, but her resources prove to be in the hands of unpatriotic people, not available by the government. Her war loans are wholly in the hands of European bankers. China is large and can raise a tremendous army, they said, but her army proves to be a horde of unpaid, unfed and undisciplined men. The winter in Korea and the Northern China, they said, would be the cause of another "retreat from Moscow," but the Japanese army had pushed beyond the severest parts before the winter came. Now let us see what we have done so far. From the very first, on one hand we sent a large army and experienced leaders, like General Yamagata and Lieutenant-General Oshima; and on the other hand, our war vessels, meeting the whole of China's northern
squadron, destroyed a half and damaged the rest. Thus, from the beginning, we pushed the ready resources of China to its utmost, so that she may be all occupied in defense and leave our country in comparative peace, and, being "downed" a few consecutive times, her army be demoralized for future work.

Such has been our policy thus far, and now it is to push right ahead to complete our triumph by entire humiliation of China in the fall of Pekin.

What is the condition of Japan?

Any time of the day, walking about the streets, I am led to ask, "Is Japan at war?" I am thankful that such is our fortune that, though externally we are at war, internally we are at peace. Price of coal, iron, woolens and provisions and such things as are in immediate demand for the army and navy, went up at once, other things following, so that now everything is ten per cent. higher than last May. On account of interruptions in commerce and another fall in the price of silver, the imported goods sell at nearly double the former price. The stocks have fallen and enterprises been postponed, but the people have accordingly grown economical. This you can see in the closed pleasure resorts, marked quietness of restaurants and grumbling of tailors. Even the laundrymen say they have lost half their custom.

Naturally the masses became a little anxious. But the government, in refusing all volunteers, in taking the military supplies as much as possible from the Japanese markets, and in moving the troops by night express trains, and the press soundly arguing better times after the war, have taken utmost pains not to stir up the people, and this year's crop of rice, the breadstuff of the Japanese, turned out 20 to 30 per cent. better than usual, and army and navy continued to win victories. Thus the feeling of security has returned, and trades, professions and arts all go along in their accustomed path, undisturbed and without great losses. First two issues of war bonds, calling for eleven million "yens," were met by sixteen millions of our own money, and to-day's paper reports the rise in various stocks during the last month to be nine and twentiths per cent.

At first, after each victory every house unfurled the national flag at the door or at the gate, and the negligent ones were called upon by the runners, shouting through the streets: "Raise up your flags, raise up your flags!" And in the country villages, even the poor—whole family living in a thatched cottage of one room—went into an extra expense of a new flag.

Then across street corners long bamboos, bearing immense flags, were hoisted, and here and there poles and pyramids of flags. Nowadays the victories come in so rapid a succession that the flags are left hoisted every day, and at the busiest parts of the city (Osaka) ropes of flags are suspended in diamond fashion over the street, bearing the national emblem of red spot, or radiating sun, "Long live our army and navy," "Long live our Emperor" and "Long live Japan." Actually the every-day appearance of the streets now is much gayer than on usual national holidays.

Now let us see what is going on in the field of action. Perhaps you have an idea that we conduct wars in a somewhat barbaric fashion. "Harakiri" and execution scenes in "Mikado" come very distinctly into your minds.

Not so the present Japan! The army following French tactics, and navy the English and American, the methods are scientific and the arms modern. Fighting the Chinese is mostly besieging strongholds, thus mortar guns are found to be of great service, and of them 12 c. m. and 9 c. m. guns were most effectively employed at the capture of Port Arthur. And the shells fired to burst over their heads with the above guns or with field guns, are winning us most of the victories.

Although the enemy is armed with Remington rifles and Krupp guns, they fire the whole magazine full in rapid succession and their shells do not burst. It appears that they do not either understand the property of shells and the use of time-fuse or their explosive is bad.

When they flee, all their guns fall into our hands. In some instances they knew enough to drive nails into touch-holes or to carry off breech mechanism, but most of them are in good condition. So far we have gained something like one thousand pieces of artillery and coast guns, varying from nine to twenty-seven centimeters in bore, of their own manufacture, of Cruzoe, of Krupp and of Armstrong.

All these are now being made ready for our army, and whatever damages our war vessels have received are being repaired at Port Arthur, where there is the largest dry-dock in the East, and a great deal of material, also new guns not yet set up.

If the Chinese are kicking themselves, they are practically doing it with their own heels.

A few days ago some captured arms were sent here from Ping Yang. From them we judge that though Remington rifles and Krupp guns are used by the Chinese army, a considerable part of them are armed with such weapons as Greek gods might have handled. Most curious of them were swords three feet long of iron, one and half inch at the hilt and three and an eighth
toward the point and a quarter inch thick at the back, sheathed in leather case, fancifully painted and stitched; and the spears with three prongs, the middle prong straight and square, and the two on sides thin and curved like a sickle, and with handles six to eight feet long, painted red or red, white and green, like a barber pole.

Among them were brass horns and wooden drums, probably the ones on which they beat retreat.

Their regiments consist above of regular Chinese style garments, but embroidered at the breast with the name of a regiment and the color of a flag; and below, of a loose pantaloons with variously stitched and bordered aprons. It is clear that at present, as in old times, the fighting must be done with men, not with machines. A glance at the list of our wounded and killed tells the story. On the other hand, what do the Chinese soldiers and officers wear under their regiments? Their common clothes. This provision is their means of escape. If they are defeated, they cast off their military suit and in their common suit they try to pass for non-combatants! What is the good of soldiers that are prepared to flee? In this city there are held a few hundreds of the prisoners of war. But few of them can write. When first they arrived here, such filth and odor! But having been bathed, fed and clothed, they express a great surprise for not being beheaded or paraded through the streets. They expected to be treated as they treat others. Of course, they were surprised. On having their wounds healed for them and good treatment continued, they confess great gratitude and tell us that when they were enlisted they had not been paid, and while in the battlefield but scantily fed. Napoleon's assertion that a good stomach makes a good soldier seems well founded.

At sea, they were a trifle more successful. Our vessels "Matsushima" and "Laikiomaru" had escaped by hair's breadth, and had the hole in the former's side been three feet lower, she would surely have sunk. Two torpedoes were fired at "Laikiomaru"; one of them is said to have scraped her, but neither took effect.

On the battlefield, our surgeons and Red Cross corps have heavy work, for the Chinese leave all their wounded and flee, and the number of their dead is so great that, although everything is done to take proper care of their remains, the approaches to the battlefields of Ping Yang and Port Arthur are known by the foul odor for miles around. Along with foul atmosphere and bad water, typhoid fever and dysentery have taken away many of our men.

The parts of China that have fallen into our hands—up to Newchan—are ruled by the temporary government established by Japan, and it may interest you to know that at its head stands a Yale graduate.

Throughout that region the people have been freed from taxes for one year, and pillaging is forbidden; so those people are living more easily than under their natural government. They appreciate the situation and feel well toward our soldiers, which makes holding of those points much easier.

From now we shall advance into China, city by city, and Port Arthur being ours, the navy is free to land troops nearer Pekin, so before next summer comes, you may hear of the fall of that famous thousand-mile wall.

It is too early yet to predict on the outcome of China, but concerning Korea, a few words will explain the present situation.

Korea was long ago one of the most flourishing little kingdoms in the East, as seen by what is left of the old days, but now the people are grossly ignorant of what constitutes a government or society—a little better than beasts.

Higher classes are intellectual, but "in the wrong way," as Gen. Torio says. For no sooner is a new government thought of than a system of official "wires" is laid and the deception of the beneficent party planned. They do not understand what is a good government, except for advancing their own greedy gains and striking down their enemies—a veritable little "Tammany."

Now it is an object of Japan to set up such a kingdom as an independent nation, and Count Inonye is now in Korea to guide the repaired craft.

But many thoughtful men are shaking their heads and saying, "The war is the easier of the two." Till now, Dainikun had been the viceroy of Korea. He is said to have been in communication with Touhacks, the rebels, while in power, and actually encouraged them to attack our soldiers. He has been deposed, but there are others just such as he. Exactly as expected!

Day before yesterday the list of new cabinet came out in the papers, and to-day we hear that the newly appointed prime minister of Korea is not appreciated. Just so. We may triumph over China and set up Korea as an independent nation, but if Korea stays compact any length of time, Japan will have won a greater victory indeed.

Dec. 21, 1894.

GUMPETI KUWADA.

1355 Michigan Avenue, Chicago, Ill.

February 18, 1895.

The Editor W P I:

Those who heard Mr. Hunt's speech at the Commencement of '94, will perhaps remember
his statement that he thought Chicago an excel-

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NOTICE OF THE REGULAR MONTHLY MEETING OF THE

smell place for a young man, advising graduates
to go there. "You may have to walk the streets
of Chicago for a little while," he said, "but yet
once get started there, it is the great place for
growth," or words to that effect. I little ex­
pected at the time to become myself a resident
of that city so soon, but I was here within three
months from that time, and, like nearly every­
one who comes here, and who is not too much
prejudiced, I am coming to have great faith in
Chicago as the "greatest place on earth"; not
only for her wonderful record of the past 60
years, but also of the future. Nothing in the
nature of reasoning and reasonable prophecy as
to the future of this country and of Chicago,
which I have seen or heard, is better than the
book called, "Cosmonics," by Prof. Babcock, of
Philadelphia. I send you an extract of that
work, which deals particularly with Chicago and
her future. But to leave these more weighty
subjects, let me tell you of a few of the more
interesting events that have occurred here since
I have been a resident. I presume you have
heard of the "Chicora," the steamer that sailed
for Milwaukee from St. Joseph, Michigan way
back in January, and, overtaken by terrible
storms and cold, has never been heard of since.
Tug-boats have been out as far as eighteen miles
looking for her, plowing through ice all the way.
A curious feature of the Lake is that, whereas it
may be covered with ice solidly as far as one
can see, yet in a couple of hours it may all be
open water. This happens when a strong west
wind is blowing from off shore. Only yester­
day, a party of twenty skaters, who had skated
out as far as the "Four-mile Crib," where the
water supply for the city is taken, were caught
by the ice sheet breaking loose from the shore
and starting lakeward. The men in the crib
telephoned to the city, and the imprudent skaters
were rescued by boats. Interesting to the Civil
Engineers would be the new "Bascule" bridge
over the river at Van Buren Street. When
necessary to open it to allow a ship to pass
through, each half revolves backward in the
vertical plane, being counterbalanced by heavy
weights on the short arm, thus very effectually
preventing any possibility of a car or team pass­
ing through the open draw, as happened in Mil­
waukee recently, and which might happen on
nearly all the other bridges here.

An interesting event the other evening was the
holding of the regular monthly meeting of the
Western Society of Engineers at Armour Insti­
tute, which not only placed their accommoda­
tions at the disposal of the society, but had the
whole building open for inspection, with mem­
ers of the higher classes to show the visitors all

over. Not only this, but they also provided an
excellent arc light stereopticon to illustrate the
papers of the evening, which were about the
Drainage Canal, that stupendous undertaking,
and prepared the slides themselves from nega­
tives taken by the engineers. To cap their hos­
pitality, after the meeting, refreshments were
served in the Department of Domestic Science,
and I can vouch for the excellency of their
"practice," and am sure that in this case there is
no lack of harmony between it and theory.

Needless to say, that the equipment at Ar­
mour Institute is of the very first order. Some
of you have seen it and most have heard of it.
You have, perhaps, heard also of the search
light sent by Secretary Morton to Prof. Moore
of the Weather Bureau here, who has his office
in the Auditorium Tower. It had to be hoisted
up on the outside, over 250 feet, and is to be
used to flash warning signals to the surrounding
country.

Not least curious among recent events were
the freaks played by the wind one day last Jan­
uary, when at 8.30 A. M. it rather suddenly
changed from a 15-mile per hour zephyr to a 65-
mile per hour gale. The most "fun" was located
around the bases of the great "skyscrapers,"
notably the Masonic Temple and the Monad­
nock. There it was positively unsafe for a
woman to attempt to go round the corners, and
many were the instances of individuals driven
like unmanageable vessels before the wind, and
of collisions and capsizings. Several delivery
wagons were blown over, a horse was upset by
the force of the wind, and breaking its leg had
to be shot. The most serious accidents of the
day occurred where a tall building was in course
of erection, the top being enclosed in a construc­
tion of planks while the work was carried on
inside. Many of these planks were loosened by
the wind and came swooping into the streets be­
low, one man being killed and others injured by
these unusually heavy "autumnal leaves."

It would be possible to go on writing for
hours about the curious occurrences which are
frequent in this tremendous and rushing city,
but it would be very tedious to read.

In closing I will call your attention to an
advertisement which appeared the other day in a
Chicago newspaper, and which tends to show
how very largely Chicago is made up of immi­
igrants from Europe or from other States. It
read, "Wanted, at — Theatre, 50 young and
handsome ladies, with large fees."

HOWARD A. COOMBS, '93.

'94, H. C. Boyden is first assistant in the
office of the City Engineer of Waltham.
CONNECTICUT WORK AND WORKMEN.

By Dr. George L. Porter, Bridgeport, Conn.

Transactions of the American Institute of Mining Engineers.

Mr. President and Gentlemen of the Institute of Mining Engineers:

Connecticut has contributed much to the general prosperity.

On May 31, 1638, two years after the beginning of the Colony, the Rev. Thomas Hooker enunciated the doctrine "That the foundation of authority is laid, firstly, in the consent of the people; that the people or their representatives are supreme; from them originate the laws, the establishment of office, its duties, powers and limitations, and the selection of rulers." This sermon in the wilderness, where now is Hartford, developed into the Constitution of the Colony: "the first written constitution, ... as a permanent limitation on governmental power known to history, and the first American constitution of government to embody the democratic idea." It awakened the spirit of independence which culminated in the organization of the nation, and furnished to the Constitutional Convention of 1787, in Philadelphia, the model of a pure republic, upon which was patterned the Constitution of the United States. If Panueil Hall was the cradle, the log meeting-house of Parson Hooker was the birth-place, of American liberty.

In the Colony the town was the unit, each of the original towns sending two representatives to the assembly. Each family was largely a self-dependent, patriarchal assemblage, living mainly upon the products of the farm, the women skilled in all domestic labor, and familiar with loom and spinning-wheel; the men practiced in outdoor work, dexterous at the forge, the anvil and the carpenter's bench. No idle person was tolerated; every one became an adept in some of the household industries. Hence, a Connecticut colony organized itself at once into a complete body-politic, with equitable laws, with capable officers in harmony with other colonies, and with members educated for self-support. The men thought to be best equipped for the offices were elected, and if they did not serve they were fined. While in office they were cordially supported; when their time had expired, they were equally loyal to their successors. Until this century Connecticut was mainly an agrarian Commonwealth; but the Constitution of 1818 abrogated all special rights of the land-owner, and gradually changed the State from an agricultural to a manufacturing community. Notwithstanding the difference of occupations, the spirit of independence, inherited from a brave ancestry and developed by duties faithfully performed, distinguished the workman. Equal in Church and State, employer and employees realized that skill in workmanship, diligence in labor, honesty in business, and personal ability, determined their individual future. The road to success was closed by no bar of privilege. Fortune and preferment could be better acquired by cordial co-operation than by a niggardly and grudging performance of contracts. The sagacious artisan was quick to see, that in manufacturing articles, experienced work upon single parts, similar and interchangeable, cheapened and improved the product, and that if machinery could make these parts the result would be still more favorable.

Early in our history the probability of mineral deposits stimulated the traditional and inherited desire for wealth. The copper mines of Simsbury, the property of the town, were "farmed out" to various people, who brought over miners from Germany and spent their money freely, but got little of it back. The ore contained from 15 to 20 per cent. of copper, but was too refractory to do more than lure speculators into bankruptcy through assayers' reports. Governor Belcher wrote in 1735 that he had spent more than £15,000 in fifteen years. It is characteristic of the place and time that the lease provided that one-tenth of the receipts should be devoted to education—one-half of which should be paid for a good schoolmaster for Simsbury, the other half given to Yale College. The enterprise was a failure, and in 1733 the mine was turned into a prison, of which there are many romantic and curious traditions.

The iron-deposits of Salisbury, worked from 1730, were of great value before and during the Revolution, and have been ever since. "The cannon for the army and navy, the heavy chains (some of which may still be seen at West Point) which barred the rivers, the materials for gun-barrels and other military equipments for the Revolutionary armies, came from the works of Salisbury, which (among the mountains of northwestern Connecticut) were never reached by the enemy."

Upon broader lines, however, has the State contributed to the national development. In 1798 Samuel Higley petitioned the General Court, stating that "he hath with great pains and costs, found out and obtained a curious art, by which to convert, change and transmute common iron into good steel, sufficient for any use, and was the very first that ever performed such an operation in America, and praying for an exclusive right to manufacture the article for a term of years." His request was granted for ten years, on condition that he and his associates should prosecute the business and bring it to a good and reasonable perfection within the period of two years. Upon this corner-stone—the recognition of private right in personal invention—was the patent office department of the United States government erected.

The wide sweep of your practical studies has but recently been recognized, showing how slowly knowledge grows and how feeble is human intellect compared to divine wisdom. Man, searching, investigating, study during unknown ages, has found out some of those secrets of nature which were created by Him who called them into being and decreed their eternal laws. The discoveries of science are not creations, but recognitions, of the result of these laws; for "the laws of the universe are the thoughts of God."

"Tis said that those who on this earth Themselves all fun deny, In Heaven will have a pair of wings And be exceeding fly.—Ez.

"I simply dote on Horace," Said the Boston maid, "Don't you?" And the maidens from Chicago Wondering, queried, "Horace who?"—Ez.
THESIS SUBJECTS.

The Mechanical Engineers of '95 are hard at work on their theses, being required to put in six hours per week.

The following are the subjects:—

C. W. Barton, † Comparative Test of a Hydraulic Elevator Using Pump and Compressed Air as Motive Power.
A. W. Howe, † Hydraulic Elevator Using A. W. Walls, † Steam as the Motive Power.
V. Warren, † Design and Test of a Triplex A. D. King, † Pump.
W. H. Morse, Jr., † Test of Feed Water W. T. Van Ostrand, † Heaters.
H. J. Fuller, Design and Test of a Steam Power Pump for Clark Marine Engine Co.
C. C. Brooks, Hydraulic Rams.
F. M. Hitchcock, Compressed Air.
F. M. Martin, Design, Construction and Test of an Impact Water Wheel.
H. S. Favor, Comparative Test of Strength of Flat and Curved Cylinder Heads.
H. T. Ford, Test of Bolts.

I. A. A.

The convention of delegates to the Intercollegiate Athletic Association was held at the Quincy House, Boston, February 9, at 11 o'clock A. M.

Worcester was represented by Fred Martin, '95, and R. Sanford Riley, '96.

It was decided to hold the meet this year at Worcester, on the same terms as last year. The rules regarding the hammer-throwing contest were made to conform with those of the American Athletic Union. The motion to drop the mile walk from the list of events was lost, as was also the motion requiring a year's membership of an athlete when coming from another college.

The election of officials for the ensuing year resulted as follows: President, Benj. Hurd, Jr., Boston Tech; First Vice-President, D. L. Sharpe, Brown; Second Vice-President, Stephen Chase, Dartmouth; Secretary, L. L. Leonard, Trinity; Treasurer, J. F. Searles, Wesleyan; Executive Committee, the President ex-officio; H. L. Barker, Amherst; Stephen Chase, Dartmouth; W. W. Robinson, Bowdoin; A. D. Call, Brown; L. L. Leonard, Trinity; J. F. Searles, Wesleyan; William R. Putney, Williams; H. W. Allen, Boston Tech; Charles A. Harrington, Worcester Tech.

ATHLETIC MEETING.

A meeting of the Athletic Association was held Friday, February 15, at which the constitution was formally accepted.

The football manager's report was read and accepted.

The voting for football manager for next season resulted in F. D. Crawshaw, '96, being elected.

Dimick was elected to represent ninety-eight as a director in the Association.

GOSSIP OF THE ATHLETES.

The Coming Meet.

The City Guards' meet held in the rink Feb. 13, was encouraging in its outcome in more ways than one to the Tech students. The large number who attended—filling the rink to its utmost capacity, almost—leads us to hope that our meet may be a financial success, and the good showing made by the few Tech men entered is a source of gratification to us.

Brown, '96, won second place in the 40-yards dash, a closely contested sprint. M. C. Allen won his heat but lost in the semi-finals.

In the 600-yards run Field, '95, was one of six men who had the limit. At the sound of the pistol he took the lead and was never headed. Field ran a good race, and could have done even better had he been called upon to do so.

In this race Allen was heavily handicapped, and it was impossible to get through the large field of men.

Trials were again run for the Tech relay team last week. Capt. Allen was not in condition to run. The four successful men, in the order of their speed, were Vaughn, '96, O'Connor, '95, Field, '95, and Warren, '96.

Interest in the training is still on the increase, new men continue to come out, the coming meet is talked of on all sides, and everything seems to look bright.

The Freshman class deserves credit for the manner in which their athletes are coming out. Their representation to be found at the rink each night is as large, if not larger, than that of any other class. Besides several long-distance men, they have brought out one fast sprinter, who bids fair to be the fastest man in the Institute this spring.

'97 is lacking in athletes, although at present more men are training than ever before, while '96 and '95 have their usual number at work.

The Tech team were anxious to secure a team race with M. I. T. for the indoor games, but for
some unknown reason Boston Tech refused to accept the challenge. An attempt will now be made to secure a race with the Brown University team.

Heard About the Institute.
That Hitchcock, '98, is running fast.
That Brown, '96, is right with him.
That the relay team is a good one.
That Capt. Allen is doing faithful work.
That the Indoor meet will be a success.
That '98 may prove a dark horse in the team race.
That the scratch-man will have to work hard to win points.
That '95 will not win the team race.
That Field, '95, will become a half-miler in the future.
That '97 will have a class supper the last of April.
That our polo team is invincible.
That special students are not in favor.

POLO.

The polo game to have been played with Harvard Saturday, February 16, was given up at the last moment on account of the Harvard team declining to play. The reason they gave for not wishing to play was that two of their players were laid up and they did not wish to risk being defeated.

This is considered, by our team, to be rather a slim excuse for a University of two or three thousand students.

NOTES ON THE BURLESQUE.

Monday afternoon the first rehearsal of the candidates for the ballet was held in the Mechanical Model Room, A. W. Doe and A. H. Warren have charge of the preliminary training. The number of candidates is about 25.

The first rehearsal of the chorus was held on Wednesday afternoon, under the direction of Mr. Charles J. Rice, with W. S. B. Dana pianist.

'95 CLASS-MEETING.

The Seniors held a lively class-meeting Tuesday noon, in the Laboratories, and elected officers for the present term. An informal ballot was first taken, and then the four highest contestants were voted upon.

H. S. Davis was elected President after four ballots.

W. H. Morse, Jr., was elected Vice-President and C. W. Barton re-elected Secretary. Mr. G. C. Gordon holds over as Treasurer.

A vote was then taken for the most popular professor, and Prof. A. S. Kimball had a large majority on the first ballot, this was then made unanimous.

Some discussion of class-book money and class photos followed, and then H. E. Field was elected captain of the Athletic team, the meeting then adjourned.

TECHNIALITIES.

The freshmen have elected the following officers for the next half-year: President, F. C. Harrington; Vice-President, R. R. Smith; Secretary, H. S. Knowlton; Treasurer, W. B. Bicknell.

'93. Aldus C. Higgins, who is Asst. Examiner, U. S. Patent Office, Washington, D. C., has also been studying at the National Law School, and has recently been elected president of the graduating class.

'97. A class meeting was held Jan. 31st, to nominate officers, and appoint a committee on a supper.

The class of '97 elected the following officers for the remainder of the year at a meeting February 14: President, A. W. Merchant; Vice-President, R. E. Fish; Secretary, R. A. Barnard; Treasurer, E. E. Pease.

W. W. Braman, class historian, read a very interesting paper on matters of interest to the class, which have happened during its year and a half at the Institute. Mr. Braman was then unanimously re-elected.

An entirely new method of Laboratory practice will be used this term by the Juniors. This is an experiment of Dr. Kimball, and if successful will revolutionize the work in the Physical Laboratories for the future. An account will appear later.

Professor: "If a ball is fired from a cannon, what determines the distance it will go before stopping?"

Will-isms (confident of having answered at least one question correctly): "The amount of powder there was behind it."

Student: "I suppose we can get our marks Saturday, the Doctor said they would have them for us at three o'clock?"

Instructor: "Well, I don't know where the Doctor got authority for any such statement."

Carroll the tailor, formerly at 406 Main street, is now connected with the Boston firm whose "ad." appears on the first page.
A NEW CONSTITUENT OF THE ATMOSPHERE.

The Cosmopolitan for January contains the following article, which it is thought may be interesting to our readers:

The proportional parts of the essential constituents of the atmosphere, oxygen and nitrogen, were determined with much accuracy more than one hundred years ago. For an almost equal length of time, it has been thought that these gases, with three others, carbonic acid, ammonia, and water-vapor, which occur in very small quantities, were the only other all-persistent components of the atmosphere, that is, components not due to local causes.

The suggestion of a new constituent came to Lord Rayleigh in 1893, while determining the densities of the principal gases. In these investigations he discovered that the nitrogen obtained by the decomposition of ammonia was lighter than nitrogen obtained from air. He at first thought that this might be due to the existence of an allotropic form of nitrogen, similar to the modified form of oxygen known as ozone. By April, 1894, Lord Rayleigh had determined the density of nitrogen obtained from ammonia, from nitrous and nitric oxides and from ammonium nitrate, and it was found to be the same in each case, but different from the density of nitrogen obtained from the atmosphere.

After this result was reached, Lord Rayleigh satisfied himself that the difference could not be due to the presence of any known gas likely to be present. He then, in conjunction with Professor Ramsay, removed both the oxygen and nitrogen from a certain volume of air and found that a substance was left that was neither oxygen nor nitrogen, as was proven by its spectrum. The oxygen and nitrogen were removed from air by different processes, and in each case the new substance was left. Since the announcement of the discovery, no investigations tending to throw light on the nature and properties of the new substance have been published, and it is not known whether it is an element or a compound. According to the discoverers, it constitutes about one per cent of the atmosphere.

Professor Dewar had previously noticed that liquefied oxygen and nitrogen gave a clear liquid, while the liquefied atmosphere was turbid, and it has been suggested that this new constituent of the atmosphere may have caused the turbidity. It may be confidently assumed that, if there has been no mistake, the discovery will soon be verified and the properties of the new substance determined.

FEBRUARY 22.

Welcome to the day returning,
Dearer still as ages flow,
While the torch of faith is burning,
Long as Freedom's altars glow!

See the hero whom it gave us,
Slumbering on a mother's breast;
For the arm he stretched to save us,
Be its morn forever blest.

—O. W. Holmes.

Announced by all the trumpets of the sky,
Arrives the snow; and, driving o'er the fields,
Seems nowhere to alight; the whitened air
Hides hills and woods, the river and the heaven,
And veils the farm-house at the garden's end.

The sled and traveller stopped, the courier's feet
Delayed, all friends shut out, the housemates sit
Around the radiant fireplace, enclosed
In tumultuous privacy of storm.

—Emerson.

Deal gentle with us, ye who read!
Our largest hope is unfulfilled;
The promise still outruns the deed;
The tower, but not the spire we build.

Our whitest pearl we never find;
Our ripest fruit we never reach;
The flowering moments of the mind
Lose half their petals in our speech.

—Dr. O. W. Holmes.

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