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It is most earnestly desired that all students, sound in body, should take advantage of the privileges which are thrown in their path. The spring meet of the Inter-collegiate Athletic Association is to be held in Worcester, and in this the W. P. I. is most greatly favored. The advantage which this gives us ought to be productive of much better results than it has been our fortune to obtain in previous years. The desirability of training on the grounds where the contest is to be held, especially when these grounds rival in excellence any others in existence, cannot be too forcibly advanced. Furthermore, the expense of sending a team to some other city is avoided, and the result is that other privileges are obtained.

In order to bring out to the greatest extent the ability which there is in the Institute, the rink has been obtained for training purposes until it is desirable to commence out-doors. All other colleges which make any pretences of producing an athletic team have long ago begun to develop material for the coming season. The Tech is, as usual, slow in getting to work, and there is no doubt whatever that a change is most necessary. There are many men now in the Institute who need only to try to show themselves and their friends that it will not be long before they can successfully compete for inter-collegiate honors. The rink is the place to make these efforts, and now is the time.

New men must avail themselves of this opportunity, as the rink has been obtained especially for them, and will be a loss to the Association if no new men are produced. Let every one who has any loyal feeling at all in him accept this change to try to make himself available as a candidate to contest for the honor and glory of the W. P. I.

The renewed interest shown in base-ball matters, during the past few weeks, is indicative of great success the coming season. The team will be practically the same as that of last year, although there may be a few changes. The newly-elected manager has started out to manage the team this year, something that has not been done satisfactorily for many seasons. For almost two years the debt of the Base Ball Association has hung over the Institute, discouraging all desires for novelties, restraining all impulses to forward advancement, and giving all who are ignorant of the methods of management the impression that base-ball in the Institute cannot be engaged in to our own satisfaction and in such a manner as to command the respect of other colleges.

For the past two years the W. P. I. has
raised a team which, if it had had the backing and support which it was their misfortune not to have, would have been able to compete favorably with any of the college teams except those, such as Harvard, Yale, Holy Cross, and others, which stand out alone as models of excellence.

It is truly a pity that, in attempting to secure for the base-ball teams of the past two years such support and such equipment and such prominence which they by right and by virtue of their excellence ought to have had, the Association has been forced to allow the debts to pass by from year to year unpaid. The managers of the teams for the past two years have been blamed; but, although they have been guilty of mistakes,—which, however, could be laid to their zeal and fervent desire to obtain success and renown for the teams and the Institute which they represented—they have endeavored to do the utmost in their power for the cause of baseball at the Tech.

That the manager of the team last year was unable to make much progress in paying off the debt contracted by the manager of the '92 team, is not to be considered for a moment as an argument that it will be useless to attempt anything this year. Last year was only the commencement of the agitation; this year will see the effects of that agitation, coupled with the increased acclamation of all friends of athletics in the Institute, to clear away the debt. The debt, all will admit, is the greatest detriment to all branches of athletics that can exist outside of the Institute. The knowledge of all concerns, with which bodies of members or even single members of the Institute have to deal, of the fact that a debt has for so long a time remained unpaid, generates in them an inclination to refuse to give credit without something more than a man's word to back it up. Thus we have the several associations and clubs existing under difficulties; to the embarrassment of all concerned and especially of those who undertake the management of the money matters.

Perhaps it will be said that it is a good thing that nothing can be obtained except by a cash payment; that, therefore no more debts will be contracted. This may be regarded as a redeeming feature, but still the old debt remains. Besides, it often happens, especially in the management of the Athletic Association, that certain articles should be immediately obtained, and for the payment of which the money could not immediately be obtained. A delay of a few days depreciates the value of the articles, and hence it is desirable that a good credit be established for such instances.

For the payment of the debt every one should consider it his duty to co-operate with the manager in removing one of the greatest obstacles with which the cause of athletics has to contend. The Sophomore and the Freshman may say that he had nothing to do with contracting the debt; but these two classes, most of all, will reap the benefit of its cancellation. The Alumni, especially the classes of '92 and '93, should be appealed to. So, dear graduate, when you receive an earnest and respectful request to correct one of the greatest mistakes which the athletic history of the Institute records, do not be backward about sending along your little mite to our energetic manager.

Let us all combine our forces in a long, strong pull, and let us be able at the end of this year to look back and say, "There is one good work done, one disgraceful blemish removed, one mistake of our predecessors rectified."

The University of Michigan has a fraternity which admits both sexes to its membership.
A VISIT TO PULLMAN.

After about a half hour's ride from the 60th St. station, our little party of five '93 men alighted from the train at the city of Pullman, the home of the palace car and a suburb of Chicago. The visitor to Pullman must invariably be pleased with the city, for his first and last impressions—the view from the railroad station—cannot but be delightful. At his left, stretching away parallel to the railroad is a miniature lake, surrounded with turf banks and shrubbery, while behind it rises the imposing fronts of the great car-shops. To his right, reaching as far in the opposite direction, and broken here and there by some gracefully proportioned public building, extends a series of grass plats, flower-beds and beautifully laid out walks and drives, the whole bearing the same relation to the city itself that a lawn does to a private house.

The first building we visited was the Pullman Arcade. A large structure of brick and stone, it is traversed by two great passageways at right angles one to another; these are lighted from above, and lined with stores of every kind. This is the mart of the city; most of its buying, selling and discussion is carried on in these corridors, away from sun and rain. In the upper stories are libraries, public and society halls and offices. In one of these latter we found the gentleman to whom we had a letter of introduction, and from him we received a cordial welcome. After loading us down with various pamphlets and papers concerning Pullman, he led the way for a tour of the city; and we gladly followed for he was not only an engineer, but a newspaper man, and did not shrink from answering the questions of even K—da. Crossing the park we came at once into the city.

Right here it will be best to give a few explanations regarding Pullman and its history. The Pullman Company, which consists mostly of its President, Mr. Geo. W. Pullman, about thirteen years ago went out into the prairie a dozen miles from Chicago and purchased 4,000 acres of land. Here the entire city was built at once, sewers, streets, houses, hotel, arcade and shops, all complete, and according to one premeditated plan.

In January, 1881, the population of the city was 4; now it is over 15,000. Yet these 15,000 people have nothing to say about its government. It is ruled by an absolute monarchy. The Company owns the land and the buildings; and the person who attempts to open a saloon or dive, or who does not conduct himself as a good citizen, is allowed but ten days in which to pack up and move to other townships. The buildings are all rented. Even the churches are hired by their congregations. The Company supplies water and gas; maintains the fire department; pays the two men who comprise the police force; cares for the streets and parks; disposes of the sewage; maintains the library and public schools.

The streets are admirably kept up, the finest is Florence Boulevard, 100 feet wide, with grass plats and rows of shade trees upon either side of the roadway. Two other avenues are 80 feet wide. The average street is 66 feet in width, also bordered with double rows of trees and grass plats; and as the houses all stand back a little way with small lawns in front, there is no street in the city which does not present a shady and attractive vista. The dwelling-houses, built in long rows, are mostly of brick and stone and are constructed according to diverse styles of architecture. On this account the eye is not wearied by the sameness which in other cities is so common.

As we wandered along we could not help noticing the scrupulous neatness around us. The streets were perfectly clean; the grass was carefully trimmed. There were to be seen no slums, no back alleys, no rookeries. Unsightly back yards there were none. It seemed as if Bellamy must have gotten his ideas of Looking Backward, from Pullman. The first place visited was a new building, much smaller than, though similar to, the arcade, and which when completed was to contain the grocery and provision markets of the city. From there, after a glance at the large area reserved for the children's playground, base-ball, and cricket fields, we visited the laundry. In this building was cared for the washing for all the Pullman cars entering Chicago. The amount of this of course was greatly increased because of the World's Fair traffic, and the laundry was running day and night, washing and ironing every twenty-four hours 80,000 pieces of linen. While walking through the building and trying to dodge the coy glances of the girls, we had pointed out to us part of a sample order of linen from Germany amounting in value to $500,000.

From the laundry we turned into the great yards belonging to the car works. The lumber yards alone cover some 60 acres of ground and besides these there are great areas filled with damaged cars, trucks, car-wheels and piles of iron of all kinds. The building for the construction of freight cars was one of the most interesting which we visited. It is 1,350 x 200 in size, with an area of more than 6¼ acres. (This is an article of statistics.) Horses draw trucks loaded with lumber in at one end while from the other, engines pull out the completed cars. The lumber is not once turned back. After it has undergone one process it is slid along for the next and so on until it is piled up at the side of the
tracks waiting for the trucks to be rolled in and
and the construction gang to begin work. When
the shop is running at its ordinary capacity,
freight cars are completed at the rate of one
every twelve minutes, or three hundred per week.
The greatest day's work was when in nine hours
and fifty minutes, one hundred platform cars
were constructed.

It is almost impossible to describe fully the
other shops and would hardly be worth the
while. There can be seen, carried on on an im-
mensely large scale, all the usual processes in wood
and iron work. There are the departments for
making the electrical fixtures; for making mir-
rors and etching designs upon glass; for cutting
and polishing the marble used in the fittings of
the nicer cars; for upholstering, plating, and
so on.

At noon we stood by the gates and saw the
great crowds of men pour out and troop down
the shady streets. Then our guide left us for
an hour to our own devices. Accordingly we
strode over to the pretty Hotel Florence and
sat down to enjoy the delightful coolness of its
broad piazzas, meanwhile figuring up and mak-
ing estimates on the price of a dinner that would
suit all of us five. As a majority of four-fifths
was the most we could get, four of us filed in
dined at the hotel, while the fifth man,
triumphantly jeering at our aristocratic tastes,
betook himself to the Arcade restaurant. The
hotel is a model one in every respect and splen-
didly kept up, whether guests are many or few.

After a good dinner we again met our plebian
classmate, who dared not run into debt because
he expected never again to raise anything on his
locker-key, and with our good-natured guide re-
turned to the shops.

The passenger-car shops are admirably
arranged. They are a series of long, narrow
buildings, facing one another in two rows. Be-
tween these rows a large, low truck travels back
and forth, so that a car can be run out of one
shop onto the truck, carried anywhere up or
down the yard, and run into another shop. The
company, besides its freight cars, builds per
week about 18 or 20 street-cars, 8 or 9 ordi-
nary passenger coaches and about 3 fine sleep-
ing-cars. In a passenger-car there are about
1,000 bolts, besides 800 in the six-wheel trucks;
and the Pullman shops daily use some 60 tons
of metal in bolts alone.

The 2500 H. P. Corliss engine, which did
service at the Centennial Exposition, is now
quietly driving a large part of the machinery in
Pullman. It is mounted on a platform in the
middle of the engine-room and towers 40-ft.
from base to walking-beam. Though engines at
Chicago last summer eclipsed it in power, they
did not impress the observer with an idea of
their greatness as does this big Corliss with its
silently swinging walking-beam. It was Dom
Pedro who, at the Centennial, watching its 30-ft.
fly-wheel go round, remarked, "That beats our
South American revolutions."

Our afternoon rounds were disturbed by the
report that all the Fair buildings were being de-
stroyed by fire. So we hastened to the water-
tower and climbed to the top. This structure,
more than 200 ft. high, contains the largest tank
at that elevation in the world; and from this
tank the hydrants and elevators of Pullman are
supplied. From the upper windows of the build-
ing we could look out over the prairie to the
white domes of the Fair buildings and see pass-
ing out from their midst a great black smoke.
This was the fearful fire of the cold-storage
warehouse.

Our excitement became too great to let us
tarry longer in Pullman, so we hurried to the
depot. Just before our train arrived one from
the opposite direction pulled into the station,
and a rather short, thick-set man, with gray
beard, alighted. We took a good look at him,
for he was Geo. M. Pullman, the man who in-
vented the sleeping-car and whose masterly
ability had conceived and built up the great in-
dustries of the Pullman Palace Car Company.

**CHAPEL ATTENDANCE.**

For about two years the experiment of volun-
tary Chapel has been tried at the Tech, and it is
now time for us to look at the results and see if
they are beneficial to the life and progress of the
Institute. In looking at this matter the student
must lay aside that too prevalent feeling that
attendance at Chapel is a thing to be shunned,
simply from a popular standpoint.

Chapel exercises must, according to the state-
ment of the founder of the Institute, be held
daily, Saturdays and Sundays excepted. All
the students know how the number attending
Chapel rapidly decreased when compulsory at-
tendance was abolished, until now scarcely a
dozen are regularly present. And here is the
farce: that the assemblage of a dozen students
should be called the Chapel exercises of the
Institute. Even if a man attends worship on a
morning he feels he is doing rather the unusual
than the proper thing. Popular sentiment at the
Institute has apparently become antagonistic to
presence at Chapel. And this tends towards
distorting opinions in views of a similar kind.
The man, accustomed to hearing the religious
exercises of his college spoken lightly of, is quite
liable to think lightly of religion in other forms
and places.
In a majority of other colleges chapel is compulsory, and, in some places, the exercises are very formal. And now as to the advantages which we as a college would obtain from compulsory Chapel. In the first place the attendance would include the whole school, with the exception of the division at that time in the Shops. And what is more pleasant and more beneficial to a body, and especially to a body of young and free students, than a meeting of this kind? As we met thus in worship and sang hymns of praise to our God, would we not feel a bond of friendship and fellowship strengthen between us, and would not our minds be elevated and refreshed? And what would afford us more pleasure and profit than that the Faculty, each in his turn, should lead the exercises? Advancing to still more material advantages, here would be the only opportunity for a general announcement or notice to the students. Here affairs to be given to the individual classes could quickly and easily be explained.

Under the new system of cuts another method of compulsion of attendance would have to be devised. Monitors would have to be appointed as formerly, and attendance marked, with a ten per cent. cut allowed, but the restrictions of cuts must be brought about by some new means.

And with the matter in this light it appears a fit subject for good, sound thought. On the one hand are mental and spiritual elevation, increased social relations, increased college feeling, and an advantageous directness of communication to college or to class; on the other hand are the general lack of desire to attend Chapel, the loss of fifteen minutes before recitations each morning, and the liability of a repetition of the childish behavior of some few of the students during the exercises.

Indeed, why could not this matter of reinstating compulsory Chapel be brought up before the classes and the Faculty for serious consideration? Or, rather, here is the first duty for the new Conference Committee to perform. Surely no affair could be of more mutual interest. Given time and thought, why shall not Chapel again be filled as formerly, as the members of the different classes file into their seats, to perform what seems almost a duty.

CONFERENCE COMMITTEE.

After due consideration by the different classes and by the Faculty, a conference committee has been chosen. It is hoped that the student members will be careful in their action and place the good of the Institute first in all their decisions. The success of the whole thing, however, lies with the Faculty. It was at their suggestion that the committee was formed, and whether or not it continues to exist depends on its treatment by the Faculty. If proper weight is given to the decisions of this committee and if all reasonable matters are submitted to it before action is taken by the Faculty, there will have been taken a long step in the right direction.

The members of the committee are to be elected hereafter at the beginning of the Institute year and for one year. Each class chooses its three representatives and the Faculty choose the three members to represent them. The committee consists of the following: from the Faculty, Dr. Fuller, Prof. Sinclair and Prof. Conant; from the Senior class, E. B. Whipple, E. W. Davenport and A. L. Clark; from the Junior class, C. A. Harrington, G. A. Denny and A. W. Doe; from the Sophomores, T. H. Coe, J. B. Mayo and C. P. Ware; from the Freshmen, H. H. Morse, W. P. Edwards and R. N. Cundall.

GLEE CLUB.

The idea of forming a Glee Club at the Institute is by no means new, but until the past few weeks no one has gone ahead and pushed the matter.

After it was found impossible to repeat the burlesque this Spring, an energetic Senior endeavored to awake enthusiasm among some individual students, which resulted in a meeting of a dozen men, who were included in the chorus of the burlesque, at which a constitution was adopted and the following officers elected:

President, C. H. Dwinnell, '94.
Secretary, G. O. Sanford, '95.
Manager, H. P. Linnell, '94.
G. W. Heald, '94, was chosen temporary Leader.

The club is to start with seventeen members, which it is hoped will include the best talent at the Institute.

Opportunity has been given any who may wish to try for a position on the club, and it ought to be the duty of every one who can sing to offer what talent he has for the benefit of this organization. It is very probable that there is much good talent among the Sophomore and the Freshman classes, of which the promoters of the club have no knowledge, but it is hoped that they will not hesitate to make known their abilities in this direction.

If the club receives the necessary support, it is intended to give a concert later in the Spring, possibly in connection with the Banjo Club, for the benefit of the Athletic Association, and at which time those who cannot sing themselves will have an opportunity of manifesting their interest in this new organization.
ONE ADVANTAGE OF TECH EDUCA unexpectedly, a notice might have been seen in a window on Front street. The article, as read, meant that there were several problems to be done, and the person or persons who solved them correctly, and sent in the answers would be presented with the use of a box at the Front Street Musee, for the play of Saturday night, the 24th. Some '96 men happening along, spied this legend, and promptly made a request for the problems. After receiving them, they went to their rooms, and worked industriously until the answers were obtained. These they sent to headquarters with their names, and soon after received in reply a notification that the box was theirs.

It is supposed that they made use of the offer, and enjoyed the play, though nothing definite has been learned.

THE BANJO CLUB.

It is not the intention of the W P I to criticize the management of our social organizations, but when such a well founded and organized institution as the Banjo Club is likely to be dissolved, owing to the unwise actions of the leader in trying to run two clubs at once, we deem it necessary to interpose a word. As no man can serve two masters, no more can he serve two opposing organizations, and, as the facts show in the case cited, the outside club is getting the best of it. We are sorry to say that the present leader has deliberately overlooked the rules and regulations of the Tech Banjo Club in order to benefit his outside affair. It is regretted that such is the case, and it is hoped that he will either give up his outside club or resign his position as leader of the Tech Club.

'94's CLASS BOOK.

The work of gathering material for the class book which the Senior Class is to publish this year is now completed. It is expected that the book will be ready for distribution toward the end of March, the work of printing having been already begun. The editor-in-chief, together with his assistants, has worked incessantly to prepare the literary matter, while '94's famous artist has prepared illustrative matter which is a model in its way, and which may be used as a pattern for later geniuses to imitate.

The book, judging from the proof-sheets, will far out-class any such publications that have heretofore been issued by classes in the W. P. I. No expense has been spared, as it has been the desire of the class to show what it is capable of doing, and this could not have been done if the managers were hampered by being limited to a certain expenditure.

The reading matter contains the usual grinds, the stories of the classes, etc.; the new features are, however, very plentiful in the shape of humorous articles and recitals of '94's various escapades and adventures. The great feature of the book, and the one in which it surpasses all other books of the kind, is the character of the illustrations. These cannot be too highly praised, but words cannot describe the beauty of them. The photographs, too, are in abundance, and it is a fact that every student at the Institute will find a likeness of himself in the book.

A NEW SCIENTIFIC TOY.

One of the most interesting, and at the same time simple, inventions that have recently been made, is that of Prof. Münsterberg, head of the department of experimental Psychology at Harvard. It is especially interesting because it is concerned with scientific principles.

It is a well known fact, or at least it should be, that the reason we never mistake a picture for the real object itself, is because instead of one eye we have two. That is, every object is seen from two points of view; we see around it, hence it appears to stand out by itself. That is why everything in a stereoscope seems to stand out with remarkable clearness. The two sides of the stereoscope picture were taken with two cameras placed as far apart as one's two eyes. So when looking at the two pictures separated by the board division, each of the two eyes sees exactly the same view that it would in the real landscape, or whatever it may be, itself.

If, for instance, we hold a truncated pyramid directly in front of our nose and close the right eye, we see two squares, representing the base and top of the pyramid, one within the other, but with the inner one nearer the right side of the centre than the left. If the other or left eye is closed, the squares appear closest together on the left. If, now, we take two drawings representing these two views and hold each before the eye to which it belongs, allowing no cross view, we would apparently see the solid truncated pyramid.

Every one has seen the little toys sold on the street, in which the rapid revolution of a disc containing a series of pictures of some animal in different positions makes the animal appear as if in motion. Prof. Münsterberg's device is a combination of this toy and the principle of the stereoscope. The pictures of the animal or what- not are to be arranged along the periphery of a disc in two concentric circles. In the outer
circle will be the view for the right eye, in the inner, that for the left. At a short distance from this disc, and in front of it, is to be another, fastened to the same axis and containing slots so that the person looking through will see only the outer ring of figures with his right eye, the inner with his left. As these two discs revolve rapidly the figures in each circle will succeed each other and the impression left on the mind will be not that of a flat animal or picture in motion, but of a round, solid, animal. Hence the effect will be practically that of the appearance of a live animal. It is expected that this device will be found very useful in furnishing instruction in natural history and the like, and colored discs are now in process of manufacture at Springfield.

RAISING THE FLAG.

About nine o'clock on the morning of Washington's Birthday, one of the editors of the W P I started out for Boynton Hall in order to get the mail and exchanges of that illustrious publication. Little did he think as he entered the building that before he came out he would have performed the hardest manual labor that had ever fallen to his lot.

While standing in the corridor and hurriedly glancing over that paper which stands out as the brightest star in the firmament of college journalism, The Academic, he heard foot-steps and soon the janitor, wrench in hand, and three students appeared. The W P I man, ever mindful of the Institute's welfare, asked their intentions and was informed by the janitor that the flag was to be raised and that he had better accompany them, inasmuch as they needed another man. The editor could not well refuse since the policy of his paper has always been to have the flag raised on every occasion. Soon the tower was reached and one of the students had to stay on that floor in order to look after his part of the work. The remaining four then mounted another flight and were then among only cobwebs and dirt. The janitor went still higher and got out on the roof in order to attach the flag. It was upon the three who were among the cobwebs that the laborious part of the work was to fall. Let it be said here that hoisting a sixty-foot pole forty feet by a rope is no easy task.

The journalist and the two others got hold of the rope and pulled, but of no avail. Then a rest was taken and another pull was attempted, but the pole did not budge. Just then the journalist discovered that the end of the rope was attached to a hook firmly embedded in the wall overhead. So the task of pulling down the tower was given up and the right rope pulled. The pole moved slowly, but surely, as the three heaved together. Ten feet, twenty feet, thirty feet she rose, the W P I man at the same time feeling more and more like the "last rose of summer."

At last the pole was raised the full distance and the work was over. All the pullers—not wire, but rope—were correspondingly glad. The journalist trembled like a leaf and his hands were red, swollen and blistered. But these feelings gradually disappeared and in a few hours he had wholly forgotten his arduous labors. But alas! he was destined to be more forcibly reminded of them. The next morning on arising he found himself stiff and sore in every joint and immediately visions of rheumatic fever, grip, etc., passed before his mind. It is with difficulty that he has moved since and laughing is out of the question. So if the reader happens across a W P I man with a long face, he may be sure it is the one who hoisted a sixty-foot pole 40 feet.

MORAL.—Raise the flag more often, for thereby the work of doing it may be made less arduous, and the lives and happiness of the Institute's benefactors prolonged.

ELECTRICAL LABORATORY.

The two generators which Fish, '92, is building will soon be at the laboratory and ready for work. They are fitted up so that alternating and three-phase currents can be taken off. Among other things, they are to be used as subjects of thesis work, both for the Seniors and Post-graduate students.

THIS IS SOUND SENSE.

Mr. Editor:

Happening in the W P I room a short time ago, the list of student subscribers came under my notice. I was much surprised at the lack of supporters the paper has from the three lower classes. In fact, I am ashamed of the support my class is giving, although it is next to that of the Seniors, who, by the way, might increase their number of subscribers perceptibly. I do not know how it will sound for the paper to say it, but it appears to me that every man in the Institute with the least bit of patriotism about him should give his support to his college paper. The price of subscription is within the reach of all. The hard work that the editors put into the paper should at least be compensated by the satisfaction of knowing that their work is appreciated by the students. No college paper can live and thrive without support. Let us all help our fellow-students in their work by subscribing immediately to the W P I. '95.
AN INTERNATIONAL CONGRESS.

There will be held in Paris, next June, under the auspices of the leading athletic union of that country, an International Congress of Amateurs. The congress will be made up of delegates from the various countries, each of whom shall be thoroughly conversant with the different phases of athletics. A Princeton man is in charge of the interests of the congress in this country. The object of such a meeting is to express opinions upon the different questions submitted to them, and also to consider the advisability of international legislation regarding athletics.

The following are the subjects to be discussed by the congress:

1. Definition of an amateur; reasons for the definition. Possibility and utility of an international definition.
2. Suspension, disqualification and rehabilitation. Facts which respectively sustain them, and the means of proof.
3. Can we justly maintain a distinction between different sports, in regard to what constitutes an amateur, especially in racing (gentlemen riders), and pigeon shooting? Can a professional in one sport be an amateur in another?
4. The value of medals or other prizes. Must it be limited? What steps are to be taken concerning those who sell prizes won by themselves?
5. Gate-money. Can it be divided between the associations interested or the contestants? Can it be used toward the expenses of the visiting association? Within what limits can the expenses of teams or their members be borne, either by their own or the opposing association?
6. Can the general definition of an amateur be applied to all sports? Must it comprise special restrictions for cycling, rowing, track athletics, etc.?
7. Does betting on amateur sports lead to professionalism? Does betting on himself disqualify an amateur? Means to arrest the development of betting.
8. The possibility of re-establishing the Olympic games. Under what conditions would they be feasible?

JACKETING A BIG GUN.

Guns are not jacketed every day. In fact there have been but ten of the big 13-inch guns subjected to this process since the gun plant was established in the Washington navy yard. The tenth of these was embraced by its steel casings Wednesday in the presence of half a hundred people, mostly naval officers and the families of those stationed in the yard. There is no particular secrecy about this delicate operation in the manufacture of the big guns, but the presence of a crowd is always an inconvenience to the workmen and there is never any notice given of the entertainment in advance.

The "jacketing" of one of the big guns consists in slipp ing over the long inner tube of the big cannon a steel casing that has been bored out a very few thousandths of an inch smaller than the tube that it is to cover. This casing or jacket is gradually heated until it expands enough to slide over the cold inner tube, and upon cooling it contracts until it grips the gun-barrel in a pressure that can be imagined from the fact that it decreases the bore of the inner tube about .012 of an inch. All of the fine work about the guns is calculated on the basis of a thousandth of an inch, which is represented by the thickness of a fine cigarette paper. This thin tissue paper, in fact, is largely used in the measuring of the gun-shop work, one, two, or three thicknesses of paper under the points of the fine gauges serving to accurately estimate the progress of the cutting and boring where the eye would not appreciate the change.

The scene of the jacketing operations is the centre of the main gun-shop, where the big annealing-pit, twenty-five feet square and twenty-five deep, with two walls, twenty-five feet deeper in the corners, is filled with the fire-proof furnaces in which the gun-jackets are heated by a hot-air blast. These furnaces, though twenty feet high, do not come up level with the edge of the pit. They look like immense tea-canisters made of asbestos, plaster and fire brick, and the roar of the hot-air blast within them is like the sound of a good-sized waterfall.

In the well at the corner of the pit the great gun-barrel, thirty-eight feet long and thirteen inches in bore, is swung, its top just lifting above the railing of the pit and its lower end in the water of the well. It weighs 48,000 pounds and is .025 of an inch larger than the jacket that is to cover it, but the latter has been for nearly twenty-four hours heating in the close-covered white furnace only a few feet away and under the exhilarating influence of the petroleum blast has, like the famous Calavaras frog, been gradually "larging bigger" until it is .075 of an inch larger than the inner tube. This means only .0375 of an inch play all around the inner
tube, and to lift the great jacket, a mass of steel seventeen feet long and weighing 38,000 pounds and to drop it into place without mishap is an operation as onerous as anything that could well be imagined.

The annealing-pit is divided into stages, one below the other, like eireoles of descent in Dante's vision, and, in truth, on going down the steep stone steps the rapid increase in temperature heightens the illusion. There is a maze of pipes, hot and rugged stone walls, the dry burning heat of the glowing furnace, tiers of perforated stagings overhead, the steady roar of the hot-air blast, and the "chug," "chug" of the steam-pump driving cool water up through the bore of the great shining inner tube.

By 3 o'clock, the water was in sight of the top of the tube. Several times the big 40-ton crane has swung down and whisked off the lid of the furnace in which the jacket is resting. The foreman of the pit plunges in a slender iron rod, like a housewife testing the sponge-cake with a broom-straw. At the end of the rod is a pair of cross-arms that are ground to just the required size of the jacket when it is at full heat. At the last trial, the points barely scrape the sides of the bore.

The heating is done. The 40-ton crane whisks the lid of the furnace into the air and slides off with it down the shop, and the monster 110-ton crane slides down the overhead track and drops a pair of monster chains into the top of the furnace. Four workmen perched around the rim of the furnace adjust the links over the projections at the top of the jacket, the perspiration streaming down their faces and steaming as it strikes the hot iron below.

The foreman whistles to the man in the cage of the crane overhead and the monster machine swings the great mass of steel out of the pit as easily as though it were that much cork. As it hangs in the air, the foreman runs the cross-pointed gauge into the bore for the last time, smiles warmly as he says "good expansion," and then with a long, wet gun-swatch wipes out the inner bore of the tube. This is a piece of juggling work worthy of Herman, or the elder Schaffer, the foreman sending the 20-foot swab up into the tube with a peculiar rotary motion that cleans out the last speck of dust, and the crane runs the jacket up high in the air and poises it over the top of the cold inner tube.

The mass of steel is not red-hot. It is only between 500 and 600 degrees, just a dark blue, but it heats a radius of fifty feet hotter than—well, summer-time. A level is touched to the side of the tube to see that it is perfectly plumb, and the men, their hands protected with wet cloths, gather round to guide the jacket to its final resting-place.

At the wave of the foreman's hand to the man in the crane, the jacket begins to settle, slowly, but surely, and without a hitch. Both the foreman's hands are engaged in guiding the jacket—talking is of no avail in the roar of the shop, and he devotes himself to making expressive faces at the man in the crane and the men around him, a system of occult telegraphy that is apparently understood, for in less than five minutes the jacket is slid into place, and by the time it has cooled a couple of thousandths it is there to stay, and it would be a good deal easier to go out and mine the ore to make a new gun than to try getting the jacket off the old one.

It is a tender piece of work, and when it is over the foreman and all the workmen, and more especially Lieut. Key, under whose charge the 13-inch work is done, breathe a sigh of relief and disperse. The men in the big gun-shop, that have been perched on the tops of their machines watching the process, drop back to their places, and the work of the shop goes on as though jacketing a 13-inch gun were an every-day affair.

The 13-inch gun is the largest that is made in this country, and there are not many more that will be made of this size. It requires a charge of five hundred and fifty pounds of powder, and throws a shell weighing 1,100 pounds a distance of thirteen miles at extreme elevation. At point-blank range it will penetrate twenty-six inches of solid steel. The gun, when finished, weighs sixty-five tons, or 130,000 pounds, but when mounted, can be moved throughout its extreme range with the pressure of a single hand.

The steel of which the gun is made is known as "gun steel," and is the very toughest that can be produced. The mountings are from the Bethlehem Iron Works, and have to undergo the inspection of a rigid board of army experts before they are accepted. So perfect is all of the work that there has never been an accident with any of the guns turned out from the yard, so that it is safe to say that the work is about as flue as can be produced.

After the present order for 13-inch guns is turned out from the gun-plant at the navy yard the maximum size will probably be reduced to twelve inches, as with the high-power guns it is found that as much execution can be done with the smaller calibre. The Iowa, which is to be the largest of the battle-ships owned by the government, is to be equipped with 12-inch guns, which is sufficient indorsement for them. Some idea of the resisting power of the jacket-guns can be had from the fact that a pressure of fifteen tons to the square inch is developed in firing them, and they would stand thirty tons without bursting.
ALUMNI NOTES.

To Alumni:—This column is devoted to your interests. It rests almost wholly with you, individually, whether or not this department of the W. P. I. is to continue to be a success. Therefore, you are respectfully requested to forward such information concerning yourself or any other alumni as is generally recorded in these columns.

'91, A. D. Lunt, who has been Ass't Examiner in the Patent Office, Washington, in the Textile Department, has recently been promoted to that of Electricity.

'92. Wm. Nelson, who is with the Westinghouse Electric Co., has charge of a room in which seventy girls work. He inspects their work.

'93. A. C. Higgins, Ass't Examiner in the Patent Office, is engaged on Clutches.

A. D. Butterfield is in the office of the U. S. Light House Service, Boston.

The W. P. I. takes great pleasure in announcing the engagement of C. W. D. Dyer to Miss I. Ellen Dudley of Holyoke.

REMARKS OF CRITICUS.

Sad to say, but nevertheless it is true, that a modification of the library rule is again in force. A week or so ago, just as the students were beginning to appreciate more than ever the unrestricted use of the library, and while Criticus was congratulating himself as a leader in reform, a notice was again posted on the library door which caused indignation among the under-classmen and amused the upper-classmen not a little. This rule, however, as it is now daily posted, is only about two-thirds as bad as the original one; inasmuch as the Juniors are now accorded the use of the library. But why the authorities will persist in enforcing a rule which is distasteful to the students, and at the same time resulting in no gain, is more than Criticus can see.

*   *   *   *   *

Pursuant to a recent ruling of the Post-Office department at Washington, it will be necessary hereafter for all college and fraternity publications to pay third-class rates or nearly ten times as much as if admitted to the mails as second-class matter as formerly. It is difficult for Criticns or any other fair-minded person to see why such a rule should have been enacted. In this country education and educational institutions are more fostered than elsewhere and it seems strange to think that they should be the first to be so exorbitantly assessed. No one will deny that college papers are educational in nature and that it is for this reason that they are published and not for financial gain.

But setting aside any educational reasons, Criticus still fails to see why a college publication should not be accorded the same privileges as Harper's and other leading papers of the day. Certainly such a publication as the W P I, in fact any college journal, is of far more value than the Police News and other publications of that stamp, to say nothing of dime novels and those papers which are published semi-occasionally for the sole purpose of advertising; all these papers are nevertheless admitted to the mails as second-class matter, while the college sheet is refused such admission. The injustice of such action on the part of those who are chosen to represent the people is self-evident.

It does not appear, however, that such a law will be enforced without a struggle. Senator Manderson and Representative Hainer, both of Nebraska, have introduced a bill to repeal the existing law and providing that publications issued from any incorporated institution of learning shall be accorded second-class rates as heretofore.

These Congressmen have the hearty sympathy and support of all college men, and of none more than those who have charge of the college papers, for these men realize more than any others that the enforcement of the present law means disaster to many a college journal whose footing is at best none too sure.

COLLEGE NOTES.

Wesleyan has 272 students.

There are 350 students at Tufts.

Voluntary Chapel is being agitated at Amherst.

Yale's first catalogue appeared in 1714.

The plan of student government at Dartmouth has been given up.

The average weekly attendance at the Yale gymnasium is 1700.

Amherst gives scholarship aid to a greater or less extent to 133 students.

Brown alumni number 4200, less than half of whom are living.

Of 189 American colleges, having an enrollment of 200 or over, 120 are co-educational.

The proposed fencing tournament between Yale, Harvard and Columbia, has been abandoned.

Handsome Dan, Yale's mascot, won the hundred-dollar cup, at the New York dog show, offered for the best bull dog in America.

Several sophomores at Tufts have been recently expelled for stacking the freshmen's rooms.
The Bryn-Mawr-Vassar debate has fallen through owing to Bryn-Mawr's withdrawal.

The Williams banjo and glee clubs take a trip, going as far west as Omaha, during the Easter recess.

The University of Vermont basketball team makes an extended southern trip during the month of April.

A museum of Classical Archaeology costing $20,000, has recently been dedicated at Cornell University.

A new dormitory for the exclusive use of Princeton Freshmen will be ready for occupancy next September.

A Harvard junior died last week from injuries received while indulging in a friendly bout with a classmate.

The Harvard and Yale football teams were lately given a dinner in New York by the resident Yale alumni.

Mr. and Mrs. Cornelius Vanderbilt intend to build a dormitory at Yale in memory of their son who died while attending the University.

The six colleges or universities having the largest number of alumni are: Harvard, 18,950; Yale, 15,784; U. of Penn., 15,004; Columbia, 13,889; U. of Mich., 10,876; Dartmouth, 8,100.

The faculty of the Boston University have voted to permit work on the college paper to count as work in the regular course, seven hours being allowed the editor-in-chief, while his assistants are allowed two hours each.

Two new dormitories are being erected at Harvard. The estimated cost of one of them is $100,000; of the other $150,000.

In the early days of Yale, and until 1776, the names of the graduates were arranged not alphabetically, but in order of the social rank of the family to which they belonged.

Of the 45 editors, from the senior and junior classes, who are on Yale's four college papers, all but ten hold appointments.

The campus of the University of Syracuse covers more than fifty acres.

A Cornell freshman was poisoned with ferrous sulpho-cyanate while at work in the chemical laboratory there.

TECHNICALITIES.

A large number attended chapel exercises on Monday, February 19th, Rev. Mr. Garver conducting the service.

John Jernberg, our popular blacksmith, had a horse and team and a kit of blacksmith's tools stolen recently.

The Y. M. C. A. meeting for March 7th will be a special meeting, the subject of which has not yet been announced. For Tuesday, March 13th, the topic is, "The Lord hath need of thee."

A party of forty Juniors attended the Worcester Theatre, Wednesday evening, Feb. 28th. The play was "Faust" which the Juniors have recently been translating.

Professor—How is a merchant able to impart value to an article?
Student—Well-er, I don't know.
Professor—that is not well; next.
Professor—for your next lesson read pages 244 and 245.
Student (with mind far away)—Inclusive?
(General collapse of the class follows.)

At the opening of the Rink for the training of W. P. I. men, on Monday afternoon, much enthusiasm was evinced. About fifteen were present and ready to do their duties. This is just what we want, a lot of enthusiasm, and plenty of men to run.

Professor (in steam engineering)—What do we mean by the eccentricity of an engine?
Student (vaguely)—Wall-er, it has something to do with the eccentric, hasn't it?
Professor—Well, yes, perhaps so; but be a little more specific.
Student (positively)—The eccentricity is that part of the engine which causes the eccentricity.

Overheard in steam engineering:
Student—Are lap and lead proportioned to each other?
Professor—not necessarily.
Student—Why, I thought every lap had its lead.
Professor—that depends on circumstances.

A meeting of the officers and directors of the Base-ball Association, was held Monday, Feb. 26. Various schemes were discussed as to raising more money, and a committee consisting of Dwinnell, '94, A. H. Warren, '95, and Riley, '96, was appointed to revise the Constitution.

The class of '97 held a meeting in room 19 last Saturday noon and elected the following, as members of the Conference Committee: H. H. Morse, W. D. Edwards and R. N. Cundall. A supper and class sleigh-ride were proposed and many opinions expressed. After much discussion, a committee of five was selected to look up the matter and report at the next meeting. O. W. Lundgren was elected Athletic Director, to serve in place of T. L. Nelson, for the remainder of the year.
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