

The Student Record.

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THE FOURTH DIMENSION.

[Extract of lecture delivered by Professor Thurtell at the Teachers' Institute.]



THE object of this article is to discuss some of the arguments, based upon analogy, that point to the existence of a fourth direction at right angles to the other three known directions of space. First consider a point. It has neither length, breadth nor thickness. It is space of no dimension. Call it Pointland. Suppose an individual lived in this point. It would be a creature having no dimensions, and furthermore, having no notions of direction or dimension. It could have no thought of anything outside of its little universe, of which it would be the sole monarch.

Having performed this rather painful effort of the imagination, change the scene and consider space of one dimension, a line; call it Lineland. Suppose an individual or a number of individuals to exist in this line. Such a creature can have but one dimension—length. Suppose an eye to be placed at each end of the creature, and suppose it to be able to see its fellow. All it could see would be a point, and the only way one individual could differ from another would be in length. It might have a motion to and fro in the line, but could have no motion to one side or the other of the same. If an obstacle impeded its path it would have no alternative but to stop or run back. Furthermore, it could have no notion of space at one side or the other of its line of motion. It could form no conception of any direction except the two backwards and forwards. It would be infinitely superior to the individual of Pointland, and still a very inferior creature. It might be conscious of its length, but would be unable to see itself. Its two surfaces would be its two ends. Suppose now an individual to exist in what we will call Flatland. Space of this kind contains two dimensions and would allow an individual of this order considerable freedom of motion. Suppose him to be a square or a triangle and to have an eye at each vertex. The borders of the figure would be its external surfaces, those that would be observable by its fellow creatures. The interior of the square would be hidden from its own eyes and those of its fellow creatures, as the length of the line would be hidden from the inhabitants of Lineland. Such an individual could observe the creature of Lineland crawling back and forth in its own

narrow universe, and in compassion might speak to the Lineman of a direction to this side and that. Its voice would come from an entirely new direction to the Lineman, and he would not be able to understand anything about the new direction spoken of. Should the square push himself across the line of motion of the Lineman, that creature would see a point, nothing more, and that point would appear to come from nowhere and vanish into nowhere. It would appear like a creature of Lineland, but would seem to be possessed of a power that the Lineman had not, that of vanishing and reappearing at its own pleasure. The man from Flatland would have the power of looking over his fellow creatures and comparing their sizes and shapes with his own, although to do this he would have to travel round them and observe them from all sides. He would only with a single eye be able to see one line at a time. He would have no notion of a direction up or down and could form no conception of a creature whose shape extended into space of three dimensions. Infinitely superior in order to the Lineman in that he is able to move in two directions instead of one, he is yet a creature of very inferior order compared to the one from what we will call Spaceland.

Let the individual from Spaceland be represented by a cube, an object having length, breadth and thickness. Its surfaces are planes or spaces of two dimensions. Suppose it to be provided with eyes at all of its vertices, it will be able to look down with ease upon the creatures of Flatland, to talk to them from the realm of space and tell them of a direction up and down, as the Flatlander did to the Linelander. Like the Lineman, they will not understand the words of the man from Spaceland, and should the cube appear among them they will only see a square, a figure similar to their own, and when the cube rises it to them will appear to vanish mysteriously into a realm of which they know nothing. Suppose the cube took one of the Flatlanders up with him and showed him the homes of the Flatlanders below him and explained to him the true state of affairs, and then took him back to his home and left him. The Flatlander, conscious then dimly of all that lay above and about him might attempt to teach his fellows of the wonderful land he had visited, the realm of space. His countrymen would probably laugh him to scorn, and perhaps shut him up in a madhouse for what they considered his craziness.

Now, do the analogies necessarily stop here? May there not be still a fourth direction which three dimensional creatures cannot see any better than the Linelander can see into Flatland or the Flatlander into space? If there is it undoubtedly lies all around and about this space, and may be peopled by creatures as much above humanity as they are above the man of Flatland. As a man can look down upon a flat surface and see the inside of these squares and triangles, possibly the being from the fourth dimensional space can look down upon him, see his heart and mind, perhaps discern his thoughts and wishes. As a cube appearing among the Flatlanders could only appear as a square, one like themselves, so a fourth dimensional creature could only appear among men as a three dimensional creature like themselves, but able to go and come, appear and disappear at will.

Let us try to form an idea of a fourth dimensional solid. We begin with a point, a space of no dimension. If we assume the point to move it will generate a line, a space of one dimension, consisting of two ends, external surfaces that are points and one line.

Now assume the line, a space of one dimension, to move in a new direction. It will generate a square, a space of two dimensions. Each point generates a line, and there will be also the first position of the line and the second in the new figure, making four lines the bounding surfaces of the two dimensional space. Each point has its first position and its second, making four points to the square. The line will generate a space, and one square then consists of four bounding lines which constitute the outside; four terminal points, the angles and one space. The number of points has been doubled over what it was in the line. We have a line for every point, and two lines for every line of the first figure. Also we have a space for each line.

Now let the square move in a new direction, up, it will generate the cube. Each point will generate a line and each line will generate two making in all twelve lines in the cube. Each point will generate two, making in all eight points, each surface of which we have, but one will generate a solid and two surfaces and each line will generate a surface, making in all six surfaces to the cube. The cube then has one solid, six surfaces, twelve lines and eight points. Now suppose the cube to move in an entirely new direction at right angles to all three of the directions of space. The new object generated we will call the four square. Since there are eight points to the cube, and each point has its first and its second position the square has sixteen points. Each point generates a line, making eight, and each of the twelve lines of the cube has its first and second position, giving twenty-four, which with the eight generated by the points make thirty-two lines in all. Each of the twelve lines generates a surface, and each of the six surfaces has its first and second positions, making twelve more or twenty-four surfaces in all. Each surface generates a solid, and the solid itself has its first and second positions, making eight solids in all. The four square consists of then eight solids, cubes, twenty-four surfaces, squares, thirty-two lines and sixteen points. Were such an object introduced into our Spaceland it is evident that a single eye would see only a cube. A space of one dimension, a line, is bounded by points. A space of two dimensions, a triangle square or polygon, is bounded by lines. A space of three dimensions, as a cube, is bounded by surfaces and an object of four dimensions is bounded by solids. With a single eye in Pointland one could see nothing. There is nothing to see. In Lineland a single eye can see but points; in Flatland only lines and points; in Spaceland only surfaces, lines and points, and in land of four dimensions the eye can perceive solids, surfaces, lines and points. As each section of a line is a point, each section of a plane is a line, each section of a solid is a plane, so each section of a fourth dimensional object must be a solid. Each section of a cube is a square, so each section of the four square must be a cube. Each section of a sphere is a circular plate or slice, so each section of the corresponding object in fourth dimensional space must be a sphere.

Suppose something falls across the Lineman's line of motion, he is completely stopped in that direction. If something also crosses his path on the other side he would be completely blocked for he would have no motion known by which he might go round the object as the Flatlander would. So too suppose the Flatlander surrounded by a ring or square escape would be prevented entirely for he could have no notion of surmounting the obstacle as the Spacelander would at once proceed to do. So if a three dimensional creature should be placed inside a shell or closed room it would have no notion of how to escape without penetrating the walls of the shell or room; while a fourth dimensional creature would immediately start out upon a new direction, and without the necessity of breaking the walls would come out and settle down into space on the outside with as much ease as a man can climb a fence or a bird fly over a hill. Now this looks unreasonable, does it not? But are all your conceptions reasonable or real? Ever

since you began the study of algebra you have been considering imaginary quantities. Unreal quantities. Such are the indicated even roots of all negative quantities. The square root of -1 is an example. There is no rational number that you can picture even in your thought which multiplied by itself will produce -1 . Again ask one of the children in the First, Second or Third Grades to subtract seven from three, he will undoubtedly answer that the larger of two numbers can not be taken from the less. The child is right from his point of view. The algebraic subtraction of 7 from 3 leaves -4 , but a child has not been taught the theory of negative quantities, and in his mind there exists no number which added to 7 produces 3. We say that $-7 \times -3 = +21$, but one can not from a realistic conception of such an operation. It is impossible to think of -7 quantities taken -3 times and giving 21, a conceivable number. Yet we find that this algebraical law, invented by mathematicians, that the products of quantities with like signs are plus quantities is a law that produces correct results. The realistic conception of the operation is impossible for us. Yet we accept the law and use it with never a doubt of its correctness. This is necessary to the development of the highly useful science of algebra. So also the admission of a fourth inconceivable but possible direction is necessary for a profound knowledge of modern analytic geometry. Take the equation of a circle $x^2 + y^2 = a^2$. This is the equation of the bounding curve of the circle. Using three co-ordinates and three directions represented by x , y and z we can readily obtain the equation $x^2 + y^2 + z^2 = a^2$. The equation of the sphere, not true of points inside the sphere, but of points upon its surface. The bounding surface of a solid. Now shall analytic geometry stop here? Are we allowed to use but three co-ordinates and three directions? If so, who shall stop us? Every student knows that by the consideration of higher algebra many of the problems, principles and truths of the elementary part of the subject are made plainer. Also by the consideration of the geometry of space, that concerning the plane is made more clear. Let us then take the equation $x^2 + y^2 + z^2 + u^2 = a^2$ in representing a new direction at right angles to the other three. We can not picture such a direction, but we can assume it. Our equation then represents the bounding solids of a fourth dimensional object. Such an equation is entirely capable of mathematical treatment. Why should it not represent something, have some geometric meaning? And if by the consideration of fourth dimensional objects we can make the geometry of space more clear, it is then the mathematicians duty to use the fourth dimensional assumption.

Given the equations of two lines we can by considering them simultaneous equations solve them and determine their points of intersection. Given the equations of two surfaces we can eliminate one variable and obtain the equation of their curve of intersection. Given the equations of the bounding solids of two fourth dimensional objects we can eliminate one variable and obtain the equation of the bounding surface of the solid in which they intersect. Lines intersect in points; surfaces intersect in lines; solids intersect in surfaces, and fourth dimensional objects intersect in solids.

Again let x represent a line; x^2 will represent a surface, an area of a square of which one side is x ; x^3 will represent the solid contents of a cube, one edge of which is x . Now what does x^4 represent? Either it has no geometric meaning or else it represents some function of the fourth dimensional object which we will call four square. Whatever that function is, it is to solid contents as solid contents is to area or as area is to length.

The preceding reasoning is intended to show that the fourth dimensional assumption is consistent and useful. Whether the fourth direction exists in fact or not no one knows nor ever can know. Whether such a space, if it exists, is peopled or not is a matter of but speculation and fancy. The analogies drawn do not even hint that such is the case. There are no Pointlanders, Linelanders or Flatlanders. All animated objects are inhabitants of space. The consideration, however, of the possible relations between beings of one order and those of the next higher order forms a pleasing recreation and is a subject worthy of the thought of every studious mind.

GOOD BREEDING.

GOOD breeding has been defined as the result of much good sense, some good nature, and a little self-denial for the sake of others and with a view to obtain the same indulgence from them.

Good manners vary with persons, places and circumstances and can only be acquired by observation and experience, but their substance is everywhere the same, and is everywhere the cement and security of good society. There are certain rules of civility universally adopted to enforce good manners and punish bad ones. Mutual complaisances, attentions and sacrifices of little conveniences are as naturally an implied compact between civilized people as are protection and obedience between kings and subjects. Whoever, in either case, violates that compact justly forfeits all advantages arising from it. This relates to good breeding in general.

Few are wanting in the respect which should be shown those whom they acknowledge to be their superiors, such as persons of eminent positions. It is the manner of showing such respect which is different. The man of fashion expresses it in its fullest degree, but naturally easily and without concern, while one who is not used to cultured society expresses it awkwardly. No well bred man will be guilty of lolling, whistling, scratching his head and such like indecencies in company. In society observation and experience must teach one to manifest respect in an easy, graceful way.

In mixed company every one is supposed, for the time at least, to be on a footing of equality with the rest, but some take a greater latitude in their behavior than they should. These ought to remember that there are certain bounds which at no time must be exceeded. On these occasions, though no one is entitled to distinguished marks of respect, every one has a right to civility. In company ease is allowed, but carelessness and negligence are strictly forbidden. If one accosts you and talks ever so frivolously, it is rudeness to show him, by manifest inattention to what he says, that you think him a block-head, and not worth hearing. One should not usurp to himself those conveniences and gratifications which are of common right, such as the best places, the best dishes, etc; but on the contrary should always decline and offer them to others, who in turn will offer them to you, so in the long run you will enjoy your share of the common right. There is no end to the particular instances in which a well-bred person may show true politeness in good company. Good sense will point them out, good nature will recommend and self-interest enforce their practice.

"Say, mamma, we ought to have one of those buck-wheat cakes in our nine."

"Why, my dear."

"Cause it's the heaviest batter in town."

Mamma makes a base hit.—*Ex.*

EXCHANGE.

—The Harvard *Crimson* issued ten thousand extra copies on the day of the Yale-Harvard football game.

—At Harvard, for fifty years, no smoker has graduated with the honors of his class.

—The University of Cairo, founded in A. D., 973, has an attendance of ten thousand students.

—Yale, Harvard and Princeton debating clubs are discussing the advisability of forming an inter-collegiate league.—*Occident.*

—Walter Henry, '93 classman of the U. C., holds the world's amateur record for the 120-yard hurdle race of 15¾ seconds.—*Occident.*

—A committee of the faculty at Harvard has been appointed to inquire into the game of football, and determine whether it should be modified.—*U. of M. Daily.*

—At Cornell three students took successive examinations in the name of a sub-Freshman. Two of these have been discovered by the faculty and suspended for one year.—*U. of M. Daily.*

—At Boston University the faculty has voted to permit work on the college paper to count as work in the course, allowing seven hours per week to the managing editor and two hours to each of his assistants.—*Ex.*

—At the University of Illinois credit for work on the college paper will be given under the following conditions: The editors or associates will enter as students in one of the classes in English composition and do the work of the class. For the required themes, however, printed matter or manuscript for the college paper will be substituted.

On December 22d the Adelphi Society will give the following literary entertainment:

Song.....	Choir
Recitation.....	H. E. Stewart
Oration.....	W. H. North
Solo.....	Miss G. Hironymous
Discussion.....	F. Walts, O. T. Williams
Reading.....	Miss H. K. French
Solo.....	Miss M. Stanaway
Declamation.....	T. W. Clark
Remarks.....	F. C. Frey

The faculty, students and friends of the University are cordially invited. Exercises will commence at 7:30 P. M.

A great many of the University students attended the plays given by Mr. Foote for the benefit of the Nevada exhibit at the Midwinter Fair.

THE STUDENT RECORD

BUSINESS STAFF:

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Editorial Comment.

OUR ideal of college life includes a proper sense of what we term college spirit. To uphold the honor of the school and diligently work for its best interests should be the self-imposed duty of every student. Though we strive for class supremacy and are rivals in that sense, yet when the merits of the whole are in question, class feelings and factions must be forgotten. Let all students feel that their support is necessary and demanded for the accomplishment of such ends as are of common interest. The future ought to be considered as well as the present, and a project should be pushed with ardor though we know that its benefits will not be derived until long after we have left college. There should be no hesitancy on the part of any student to contribute freely his share of the expense for any college undertaking. We would see college customs, if firmly established, faithfully kept by each succeeding class, not that these customs are of any real benefit in themselves, but that they are the spice of college life. Permeating all should be a feeling of brotherly love. The tie of friendship should bind the whole. College spirit as here portrayed, though not fully exemplified in the University, is fast gaining headway, and if we may judge from the enthusiasm of the present Sophomore and Freshman classes, it will not be long until we have college life as it should be.

* * * *

THE chief topic of conversation at present is the approaching Midwinter Fair. While this promising exposition is likely to attract many people from distant parts, it will surely be visited by a large portion of the people of the Pacific States. Nevada is acting wisely in preparing to exhibit the products of her farms, workshops and mines, and to bring to the attention of visitors her latent resources, which only await the coming of capital for their profitable development. For every dollar expended in this work she may expect ten in return. But what about her educational institutions? Will nothing be done to call the attention of home seekers to these? The Experiment Station will, no doubt, make a creditable exhibit at the Fair. This will, in some measure, advertise our University. However, more should be done. Why not, in the Spring, send the Cadet Corps to camp on the grounds? This would not only be a very practicable way of bringing the University to the notice of the public, but would also place within the reach of the cadets an education that could not be otherwise obtained.

SEVERAL attacks upon the University and its management have lately appeared in some of the papers of the State. One acquainted with the true condition of affairs knows that these criticisms are ill-founded. The writers, knowing little about the school, have formed their conclusions either upon the authority of irresponsible and ill-informed persons, or from a mere cursory examination. Several of these attacks, and we are sorry for the honor of the school to be obliged to say it, were inspired by students, or rather ex-students, who seemed to think that they could atone for their own failings by maligning the institution which they had disgraced. The Regents and Faculty wisely left these articles unanswered, as such misstatements imposed upon no one acquainted with University affairs. But there are comparatively few who have the opportunity of observing for themselves the true state of things.

Since one bad report more than counteracts a dozen good ones, the papers which have printed the criticisms in the past, should not, in the future, publish anything calculated to harm the University until they have proven its truth by investigation. They should not think because one mistake is made that the entire management is wrong; or because one of the students has fallen by the way, that all are accustomed to indulge in drunken carousals.

The University is not a reform school. It is impossible in a school of this kind to keep every student under strict surveillance. They are advised and restrained, and all misconduct is severely punished, but in all things the students are placed upon their honor. If a boy is not honorable enough to comply with the regulations, the University is no place for him. There is less riotousness and misconduct in this College than in others on the coast where there are greater restraints. They are far away, and as we hear little of their doings, we look upon them as better than our own. In fact, this school is comparatively free from those contaminating vices so prevalent in others.

We do not claim that the actions of the students have in all cases been above reproach. But one mistake does not justify a sweeping condemnation.

It has even been charged that the Regents have allowed politics and personal interests to interfere with the management of the University. These indictments have been made with many comments and an air of suppressed knowledge that would do credit to a Freshman, yet not a single specific case has been mentioned to support them. It is significant that these charges are ridiculed by the students and professors who have had the opportunity and the interest to thoroughly canvass every action of the Regents. The truth is, that the Regents have always endeavored, without regard to factional spirit or personal interests, to make the University of Nevada an institution of which the State might well be proud. It has made wonderful progress during the last six years, and there is every indication that its advance will continue. No one can desire better authority than that of Professor Cook of Michigan, who said after a visit to the school, "Nevada has builded better than she knew."

JUSTITIA.

THE ELECTIVE SYSTEM.

IN the last issue of the *STUDENT RECORD* an article appeared advocating the elective system in colleges. I do not believe that it possesses all the advantages that "Satis" claims. The curriculum of nearly every college consists of several regular courses, any one of which a student may choose. In my opinion, he should be required to pursue one of these courses. What if he does spend time on studies which, in his estimation, will not be of immediate benefit in the profession he intends to follow? The student in a literary course should not be allowed to neglect mathematics, chemistry, etc., any more than the student with a choice for mathematics should be permitted to slight language and literature.

At our own University I believe that the elective system would not be as beneficial as the one now in force. Our students are younger than those of other colleges, and we know that opinions formed while young do not always stand unshaken with the addition of age and experience. For this reason a certain number of studies should be prescribed for him. The young man entering college has, perhaps, no definite idea of what profession he will follow for his life work. Allow him to elect his own subjects, regardless of courses, and he is apt to adopt a class of studies for which he has a particular liking. In this way he becomes a specialist, neither knowing nor wishing to learn much outside of his hobby. But these should not be the results sought. The young man should endeavor to obtain a broad education, and after this if he wishes to specialize let him do so. But until he reaches the age of discretion require him to take that class of studies which will prepare him for the battles of life and the duties of citizenship.

STET.

"The Oldest University."

The prevalent idea that the oldest University is in Europe is incorrect. In the tenth and eleventh centuries the University at Fez, Africa, was almost the only seat of Arabic and Christian learning in the world. Before Universities existed in Paris, Oxford, Cambridge, Padua or Bologna, students flocked to Fez from Andalusia, France, and even England, and Fez is to-day the principal western seat of Mohammedan theology.—*Inter-Ocean*.

There is another place where some people fail in manifesting good manners, and that is among familiar friends and acquaintances. Of course a greater degree of ease is allowed here, which contributes much to social enjoyment; but ease and freedom have their limits, which must not be passed. Careless deportment is inexcusable and tends to destroy the respect on which all true friendship is based.

Not half the University students take the *RECORD*.

LOCAL ITEMS.

Exams next week.

I'll flunk! I know I'll flunk.

What's become of the funny snaps?

Little interest is taken in tennis this term.

There was company inspection last Friday.

The present term will close on the 21st. inst.

D. W. Dillard paid us a visit a few days ago.

Miss Kate Lewers was on the Camp last week.

Wm. Tucke will go to Heald's Business College next term.

Some needed repairs have been made in the boys' dormitory.

The Regents had their monthly meeting a week ago last Saturday.

Prof. Miller is delivering a series of lectures to his Geology class.

The Adelphi Society will hold its monthly social meeting next Friday night.

Judging from reports, the University will have many new students next term.

The Juniors took a final examination in Descriptive Geometry last Saturday.

One of the attractions at the ball game last Friday was a small boy with a big horn.

H. S. Swan, B. S., '93, will spend the holidays with his parents at Halleck, Nev.

Alameda Simpson, an ex-student of the U. N., is a local editor on the *Napa Classic*.

The Varsity nine will practice Tuesday and Thursday of each week if the weather permits.

The ball game played between the Varsity nine and the Reno nine was won by the former.

The great trouble with the Sophs in the ball game was that they got to bases "After the Ball."

The ball players are endeavoring to secure the Pavilion, in which to practice during the Winter.

Prof. Hillman's lecture on "The Microscope," delivered in General Assembly last Friday, was very interesting.

The class in practical mechanics is making handsome frames for pictures of all the U. S. cruisers that have been built on the Pacific Coast. These pictures, when framed, will adorn Stewart Hall.

Mr. P. Howard, manager of the Varsity boarding hall, deserves great credit for the royal treatment accorded his guests. The boarders all speak in praise of the menu, also of the kindly efforts of their host to make everything seem as home-like as possible for the students.

Bits * of * Fun,

The College Graduate.

He sent his son to college to store his head with knowledge.

"I need a smart young fellow in my business [house," he said,

'And when he's educated, why, bein' so related, He's just the one to take the reins and drive up to the head.

"They say he quite surpasses all the fellows in his classes, And I reckon he'll think nothin' of my rather taxin' load.

I'm gettin' old and weary, but it makes the future cheery

To think of leanin' on my son adown life's western road." Well he trod a path of glory, did this student of my story,

And they dined him and they wined him on his final college day,

But he broke each rule of grammar when he spoke as with a hammer,

And his knees they knocked together if you mentioned algebra.

But he shone forth as a sprinter, and he trained the livelong winter

For the spring and summer races, where his record was most fine,

And the old man looks reflective and thinks college rules defective,

While his son goes round the country with a jolly baseball nine.

—*Ella Wheeler Wilcox in Truth.*

The Sophs contended with the wind's desire

Their fuz on upper lips to wave,

Thought not their days of grace must soon expire

And Juniors then would shave

What they, the Sophomores, fain would save.

Their last request we grant,

That we upon their lonely grave

A bunch of whiskers plant.

The farmer sat in his easy chair

Smoking his pipe of clay,

While his son in college, with lordly air,

Smoked dollar cigars of a flavor rare,

For which the old man had to pay.

—*Exchange.*

Senior—I know why you won the game.

Freshy—Why?

Senior—You had a Soph snap on second. X. Y. Z.

When cigarettes their vapors blow
In people's throats and choke them,
It is some comfort slight to know
They kill the dudes that smoke them.

Gresham—Let's annex the Islands.

Cleveland—Why not let Liliuokalani have Her-way-eh?
X. Y. Z.

CIRCUMSTANCES ALTER CASES.

One chair will do, on a pinch, for two,

For love will find a way;

But one kiss won't do, nor will a few,

For love don't work that way.

—*Polytechnic.*

KNOWING HOW.

INTERESTING is the future of the person, who, turning the leaves of the past, notes opportunities wasted and says, "I will try to do better." It is only by learning and doing that great things are accomplished. If to-day finds one in advance of yesterday then all is well, but if to-day's character is not strengthened by some occurrence of yesterday one has lived to little purpose.

To always do the things or follow the path we know to be right requires courage. Without this quality ultimate success cannot be attained. No doubt Webster knew the evils of slavery, but because of timidity in expressing his opinion concerning them he lost the nomination for the Presidency of the United States, while Lincoln, who was bold and fearless, won it.

Knowledge commands the premium in markets of the world. A good story is told of a Brooklyn manufacturer who paid a bill without a murmur because of the way it was worded. His engineer found that the hot water pump would not work. A machinist was sent for. After working with it about three hours he concluded it would have to be taken apart, which would necessitate the stopping of the factory for a time. A neighboring machinist, who was a genius, was called to examine the pump. He came, and after giving the pump three sharp raps, said, "I reckon she'll go now," and it did go. The next day he sent his bill, which read thus: "Fifty cents for fixing pump; twenty-five dollars for knowing how." The manufacturer, after examining the bill, cheerfully paid it, recognizing the value of knowledge. There is room in this world for all such men as this machinist. To those who make the most of their opportunities success will surely come.
S. Y.

Last Friday's game between the Sophs and Freshies was the most exciting one played this term. The latter won by a score of 13 to 11.

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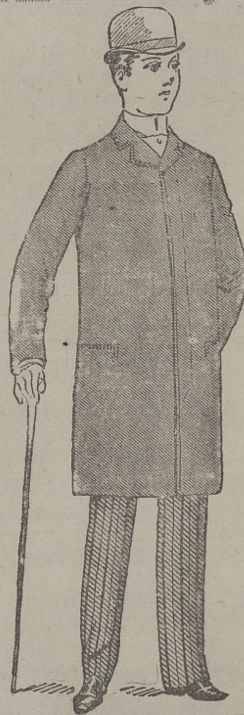
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