

MAI... AND SCIENCE

These Adjuncts to the Higher Education Ably Discussed Before Bethel Literary.

Mathematics in the Common Affairs of Life—Mental Strength Produced by Study of Exact Sciences. Some Apt Illustrations by Means of Changeable Prisms.

The recent symposium on the "Higher Education," presented under the auspices of Bethel Literary and Historical Association, attracted wide attention at the hands of the scholars and thinkers of this community, and proved to be a valuable contribution to the rich fund of knowledge that is being stored up by the nation's banner literary and scientific organization.

Prof. Warder, discussing the subject of "Mathematics," and showing its important relation to the higher education, spoke in part as follows:

Mankind has been divided into two classes, the mathematical and the non-mathematical; the former including but a small proportion. A woman takes the whites of ten eggs, a glass of flour, a glass of sugar, a spoonful of baking powder—and when the mixture comes from the oven, it is "angel's food."

When eggs are dear she uses one; adding it (with a half cup of butter and a cup of milk) to a cup and a half of flour and a cup of sugar, with two spoonfuls of baking powder, and the result is "one egg cake." Now what are the mathematical relations?

Are the whites of ten eggs equal to the white and yolk of one? In a sense, they seem less, for they are used to enrich a less quantity of flour. But, what of the milk and butter in "one egg cake?" How many eggs do they represent, in their enriching breadstuff? The invaluable cook-book gives a rough and ready process to reach certain ends by various means. An accomplished cook will modify the details, in accordance with resources or special needs.

I give us the philosophy of it will show us the smallest flour that will keep the cake long, or give us the extreme limit of enrichment and delicacy compatible with the desired physical texture, and the laws of hygiene? If there were as many mathematicians as cooks, fundamental dietary equations, based on nutritive ratios and coefficients of digestibility might be supplemented by numerous equations of observation, equations of condition etc., discussed and discussed by the theory of least squares.

No, the majority of mankind are non-mathematical in their habits of thought, and cannot readily estimate how long a ton of coal will last, even if they use two buckets a day; and yet, mathematical relations must hold in regard to the common operations of all our daily toils and pleasures.

How much waste we see, because of taking too much or too little to accomplish the end desired. Common sense seeks to strike a happy mean, uncommon sense succeeds in doing so, mathematical sense substitutes for suspicion the eternal principles of truth.

Mathematical studies are progressive, succeeding one another in logical order; yet they are closely related, and mutually helpful. We pass from the study of whole numbers to fractions, and from arithmetic to algebra; yet the algebraic equation, with its conciseness and precision of terms, affords the most convenient language for the solution of many arithmetical problems; while geometric terms, with simple relations, afford illustrations of many difficult laws in mathematical physics.

Let us illustrate with these cubical blocks, and a few experiments in elementary physics. Here is a square prism, with 3 blocks in each side of the base, and 4 blocks in height; 36 blocks in all. If it is successively layered and they are laid side by side to make a new square prism, with 6 blocks in each side, and one block high. Again, we may divide this into squares of 4 blocks each, and make the pile 9 blocks high. In imagination, we can divide this into 4 parts by vertical planes, and construct a square prism 36 blocks high. In all these changes, we have used 36 blocks. If we use the symbol N to express the number on one side of the base, and L for the number in one vertical row, the whole number is NxL equal 36 and this product is an unchanging number. With our 36 solid blocks of wood, just four square

prism, differing in the ratio of base to altitude, can be constructed; but with a fixed quantity of plastic material (as clay, or putty) the change from each to the next could proceed by imperceptible degrees. Our solid blocks afford a study in arithmetic, for here the numbers are distinctly shown. Here, also, is a geometrical figure with commensurable parts. But the plastic prism, undergoing similar transformations by varying the pressure on the several faces, is not so easily dissected; the edges may be incommensurable. We thus pass from the domain of arithmetic to that of algebra. The symbol NxNxL still expresses the volume of the prism, but the symbols have a new meaning; no longer are they numbers, but the lengths of the several edges: L now take a ball, suspended by a wire, and swinging as a pendulum. The length represents the height of our 36 blocks, in one vertical row. Another pendulum represents the height of our square prism where two blocks are seen on one side of the base; and while the first pendulum makes one swing, the second makes two. A third pendulum, whose length represents the prism 4 blocks high, makes 3 swings in the same time; and if the length of the pendulum equals the height of a single block, it also is found to make as many swings as the number of blocks in one horizontal row, of the corresponding prism. These simple experiments illustrate a very important law of mechanics, which may be expressed with the aid of our formula, thus: NxNxL equal constant; but here, N expresses a number and L a length; N is the number of vibrations made by the pendulum in a given time, while L is the length of the pendulum; when one increases, the other diminishes, but the product of L by the square of N is unchanged. What is here true in an arithmetical sense, for values expressed by numbers, is true also in an algebraic sense, for incommensurable values; the geometric conception may serve as emblem of the physical law. [At this point, the second law of motion was illustrated by experiments with a pulley running down an inclined wire, with increasing velocity.]

Pure mathematics deals with abstract conceptions, which cannot be fully realized in practice. The walls of a room are nearly plumb; the angles are nearly right angles, the height of the ceiling is about as many feet and inches. Absolute precision in time, size or measurement is unknown; for as the mechanic increases his skill in fashioning the materials, the mathematician also increases his skill in the precision of his measurements. The idealist, soaring amid infinitesimals of this Nth dimension, may forget the amenities of polite society, and even the duties of home life. The professor of applied mechanics may come to grief if he thinks he can manage better than a well trained horse in conducting a wagon down a steep hill. To a large extent, the mathematician lives in a different world of thought, and speaks a language all his own. The function of higher mathematics on the one hand, is to cultivate the ideal in pure thought; that which is absolutely true, and can be true, only when the conditions are ideal, impossible of attainment; yet the realm of mathematics touches home life at a thousand points; as in the size and shape of your building lot, the capacity of all your closets, the fitting of the carpet, the figure on the wall paper, the tuning of your piano, the colors of the rainbow, and the problems of socialism. The study of mathematics demands scrupulous attention to details. A misplaced decimal point may change sense to nonsense; and a reversed sign, it is said, plunged that train of passenger cars through the rail road bridge at Ashtabula.

In the development of mind, as of body, a mixed diet is needed. If other branches of study were out of reach, however, mathematics in conjunction with the varied applications to time, place, matter, force and energy, as determined by experiment—deductive and inductive reasoning combined—would embrace sufficient variety for a liberal education.

[Prof. Foster's paper on "Science" will appear in our next.—Ed.]

Thanksgiving in "The Park."

Among the many Thanksgiving parties given in town, none was more enjoyable than that given by Mr. and Mrs. Gen Harris at their cozy home, 3rd and Oak, in LeDroit Park, in honor of Miss Turner of Baltimore, sister of Mrs. Harry Williams. A company of nearly two score, very pleasantly whiled away the evening with dancing, singing, card playing and doing full justice to a bounteous repast. Though recently married, Mr. and Mrs. Harris are adepts at providing a jolly good time for their friends.

The Way to Do It.

The Negroes of Barrow county won the prize of \$1,000 at the Georgia State Fair last month for showing the finest exhibits of any county in the State.

Right Over the Plate.

No intelligent being would say the editor of The Washington Bee has brains.—Topeka Plaindealer.

TROUBLE AT FT. RINGGOLD

The Facts Leading up to the Recent Outrage Candidly Presented by an Eye-Witness—Troops Should Not be Removed.

Fort Ringgold, Texas, Special.—On the night of October 16, 1899, several troopers of Troop D, Ninth Cavalry, went to Rio Grande City, Tex., which is three hundred yards from the Fort. Its population is chiefly made up of Mexicans. The soldiers entered a gambling den to play, and during the course of the game the Mexicans cheated them out of their money. The soldiers resented the unfair deal and this angered the Mexicans. About fifty of them drew revolvers and Winchesters and shot two soldiers, but not seriously, and arrested three others who were mere onlookers. They were tried according to such crude courts as they have, and ten were fined \$95.00, or four months at hard labor, and one was set at liberty, from what evidence we can not say, as the soldiers were without fault and the fine imposed was outrageous. They decided to serve their sentences.

Mexicans constitute the larger part of the population of the city, and they are ignorant, indolent, poor and destitute, and were it not for the military post near them, they would starve to death and the city would cease to exist. A few of the intelligent portion of the population seem to recognize this dependence upon the post. They are peaceful and law-abiding citizens, and are wont to respect the colored soldiers stationed in the vicinity. Only the strong arm of the government, however, can bring the lower and vicious classes to this spirit of decency and order. Ever since the Ninth Cavalry has been stationed at the Post, trouble of some kind or other has been going on between the soldiers and deputy marshals, who are made up of border out-throats, out-laws and escaped convicts from Mexico, whose former reputations if made known, would sentence them to the gallows without trial. They do not even respect the U. S. mail. Laws are ruthlessly violated and soldiers that are sent there to protect the community are hooted and insulted.

The town is destitute of business facilities and the means of procuring a livelihood are meager. The men in control are aware of this; therefore become parties to a plot to agitate soldiers and force an arrest when they make an effort to protect themselves, and then exact a fine of from fifty to sixty dollars. It is learned that whenever a soldier pays his fine the money is distributed among the deputies as their salaries. Such acts of violence only occur on pay days or just before or just at the time they suspect money is in circulation among soldiers. The writer learns that such acts of violence are not only perpetrated on Troop D, Ninth Cavalry, but upon every preceding troop or company of soldiers that have been stationed at Fort Ringgold. It is said that the sheriff of the county encourages his men to commit these depredations.

The Mexicans carry concealed weapons of all sorts, such as horse pistols, jack-knives, and other foul weapons, known to the Texas rangers and border ruffians; but if a soldier carries a weapon of any kind, or even suspected, he is hunted and if found is thrown into jail, and a tremendous fine imposed.

The ragged and half starved Mexicans have a hatred toward Negro soldiers, for what reason we do not know, but we suppose it is on account of previous condition of servitude. If there is any other reason we are at a loss to understand it, for we have Negroes that could buy the entire Rio Grande City, and not hurt their purse in the slightest respect. We also have Negroes also who are far superior to the majority in intelligence, business faculties and industriousness.

The recent trouble, widely published was the outcome of a shooting scrape on October 16th. The Mexicans made threats that they were going to whip all of the Negro soldiers on payday November 20, and word was also sent to the garrison to that effect. An order was issued five days before November 20th that no one should leave the post. During the day of the 20th, Mexicans were seen prowling around the garrison and in chapparal bushes, heavily armed, and from all indications appeared to be planning an attack. The suspicion became a reality and the assault was made. The soldiers and commander of the garrison being aware of what was about to take place prepared to defend themselves. Extra guards were placed on duty about 6 o'clock p. m. The sentinel placed on duty at Post No. 3, was fired on from ambush. Following the firing on of the sentinel, five shots were fired in the northwest corner of the garrison. Things had begun to get so serious, defensive measures became necessary. Troop "D" and scouts were placed on guard, and awaited the enemy's second attack, which was made about 7 o'clock and from then on, there was a continuous stream of fire from both opposing forces, at intervals of thirty minutes each. Finally a galling gun was brought into play and silenced the fire of the enemy, who were ambushed

in gullies and behind chapparal bushes. Several buildings of the garrison were hit a great many times by misdirected volleys, but fortunately none of the soldiers were hurt. One man reported wounded at Rio Grande city. During the battle, Troop "L," stationed at Fort Brown, Texas, was telegraphed for and it came on a forced march, but when they arrived everything was quiet. The enemy being covered by the sturdy resistance gave up their dastardly assault and withdrew, some going, we are told, over into Mexico and others are still in hiding. The reason for attacking the soldiers is unknown, other than they were angry because the soldiers were not allowed to go to the city and lavishly spend their money as they have been doing.

The War Department is considering whether to move the troop or not. If the officers are careful in granting leaves to those who wish to visit the city, and at the same time give the cowardly ruffians to understand that the entire force of the government will be brought to bear to protect a single soldier who is unjustly interfered with, there will be a cessation of the practices complained of. The thieves and looters have been encouraged by the inactivity of the National authorities where Negroes' rights are concerned, and thought they could do as they pleased with these soldiers without fear of punishment. The troops should not be removed!

AN EYE WITNESS.

Charlottesville News.

Charlottesville, Va., Special.—A union Thanksgiving service of all the churches of the city was held at the First Baptist church, of which Rev. R. C. Quarles is pastor. At 11 a. m., Rev. Tolliver, pastor of the Shiloh Baptist church, preached an able sermon for the occasion. A hymn, composed especially for the occasion by Miss Lizzie Coles, one of our teachers in the city public schools, was sung by the congregation. In the pulpit were the pastors of all the colored churches in the city. The marriage of Miss Eliza Virginia Carter to Mr. Louis M. Heskell took place at the home of Mr. and Mrs. Hudson Jenkins, Wednesday night, November 29, at 8:30 o'clock, Rev. R. C. Quarles officiating. Miss Lizzie Coles was bridesmaid, with Mr. C. H. Bullock as best man. After the marriage, a grand reception was given. The presents were numerous and useful. The weekly service attending the 4th anniversary of the pastorate of Rev. R. C. Quarles of the First Baptist church, were well attended last week. Rev. C. N. Harris, pastor of Ebenezer Baptist church, though a young man, is making wonderful progress with his church work in the city. The men's meeting of the Y. M. C. A. was very interesting last Sunday afternoon. Meetings are held every Sunday afternoon at 4:30 o'clock. Entertainments were given at several of the churches this week. We are sorry that space will not allow us to mention them fully. Miss Leona M. Anderson, of Staunton, Va., spent Thanksgiving in the city, the guest of her cousin, Miss Lizzie Coles on South 5th street. Several of the county teachers were in the city last week, among whom we noted, Misses Cora Brown and Eva Coles, Mrs. Gertrude Heskell, Mrs. Egbert Terry, Messrs. D. A. Smith, S. B. Jackson. Mr. James H. Heskell is home from Hot Springs, Va. He has just completed a handsome residence on South 6th street. The city schools closed Wednesday for the holiday, and opened up again last Monday morning, Mr. G. W. Lawson, teacher in the city schools, visited Greenwood, Va., last week. The American can be gotten at Pollard & Noble's barber shop, or at the rooms of the Y. M. C. A., or from Mr. A. F. Angel, canvassing agent.

MONTICELLO

Election Day in Boston.

(Continued from First Page.)

held at Odd Fellow's Hall last Monday evening. Edward H. West presided and introduced Rev. B. W. Faris, who made an interesting address along business lines, and spoke of the wonderful progress the race is making in their co-operative associations in the South. He gave some pretty sound advice to the members of the race in the Hub for their negligence to provide employment for the coming generation of young Negroes. His remarks were attentively listened to.

At the meeting of the John Brown Council last Monday evening, the singing of "John Brown's Body Lies A'Moulding in the Clay," by several young Masters and Misses under the direction of the President, Mrs. A. H. Jewell. The solos rendered by Miss Nana Varrs and the paper read by John E. Bruce (Bruce Grit), were important features, adding much to the evening's pleasure.

Fred C. Hawley of Bridgeport, Conn., is now located in Boston. He has secured a position in one of the largest printing establishments in the city, and is at present residing with his sister, Mrs. J. Henderson Alston, 31 Holyoke street.

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