

# THE COLUMBIA DEMOCRAT.

"I have sworn upon the Altar of God, eternal hostility to every form of Tyranny over the Mind of Man."—Thomas Jefferson.

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BLOOMSBURG, PA.

SATURDAY, JANUARY 12.

For the Columbia Democrat.

## DIALOGUE

Between a Teacher and his Pupils, on the NATURE OF LIGHT.

Scene—A School-room at the close of a Holiday.

Tutor.—Well my young friend you have been to see the strolling Necromancer!

William.—Yes Sir, we saw him perform several very amusing exploits, but the whole pleasure of the jaunt has been destroyed by an unfortunate quarrel between George and James.

Tutor.—A quarrel! how so? I thought you better taught. It grieves me, but let me hear the particulars.

James.—I will tell you and when I have done, I presume you will be surprised at the unprovoked wickedness of George. Even he does not pretend to say I did any harm to him.

George.—I admit he did no mischief to me and I did nothing to him.

James.—If he did no injury to me, then I must believe in witch-craft, and you sir, have always told us that no such thing exists; and that all things can be accounted for on rational principles.

Tutor.—I told you so: but moderate your anger and tell your story, and William and Levi can say whether you state the case fairly.

James.—As we came home from the village, we took the path across Mr. Jones's meadow. A little before we came to the creek we crossed over the the mill-race on a slab which lay close to the water. While we stood on the slab George did he saw a crab crawling along the bottom amongst the stones and asked me to let him have my long Cossack Spear to catch it with. I gave it to him, but told him to be very careful and not break it, because my Uncle gave it to me, and would be offended if it were broken. The moment he had the spear in his hands he thrust it into the water and I expect it must have struck the bottom, for it bent very much.

George.—It did not touch the bottom.

James.—It must have struck something for I say it bent and we do not see straight sticks bend of themselves. Well Sir, the further the crab moved from him the more violently he forced my spear in the ground for it bent almost double. The more I begged him to quit, the more determined he seemed to break the spear.

George.—I say again it did not touch the ground, and when I had done I returned him the spear straight and sound. When I gave it to him he struck me on the head with it and said I was a wicked wretch.

Tutor.—Well Levi, has James stated the case fairly?

Levi.—Yes Sir.

Tutor.—Was the spear bent?

Levi.—It was: And the louder James begged to save his spear the more George bent it until the crab got under a big stone and thus escaped from him.

George.—I protest it did not touch the bottom.

Will.—I did not see the spear hit any thing but it was certainly very crooked, and grew worse the longer George had it.

George.—They may say what they will, I did not see that the spear was bent at all, and I'll engage if James produce it now, it is neither broken nor bent.

(Spear produced and examined by the Tutor and all the boys)

Tutor.—The spear is both sound and straight.

James.—It is not through George's carelessness or good will if it is.

Tutor.—Hush! James. Perhaps George learned so much slight of hand from the Showman that he witted it crooked.

James.—Then Sir, We have learned your lessons in vain, if every wicked fellow can play tricks as he pleases.

William.—I thought it very naughty to bend the stick so, because it might break and then James's Uncle would be angry with him.

Tutor.—George has done nothing wrong. The spear was not bent. I will explain this matter as well as I can, and when you understand the science of natural philosophy better I will explain it more fully.

Levi.—I shall be glad to hear it explained.

Tutor.—Every thing we see is brought to our senses by means of light. Light comes from the sun or from a flame. It may come in a secondary way by reflection. That is, a dark body such as a piece of metal or a looking-glass, may throw back the light of a candle or the sun so as to make it shine in a place which is in the shade of some object which stands between that spot and the body from which the rays of light come. The moon shines only by reflection. That is, the light which we call "Moon-light" is really the light of the sun thrown upon us by the moon, intercepting the sun's rays and throwing them back, or to one side, on us. Light or Rays of light fly straight and never bend except when turned aside by striking something. The rays may be turned precisely back to the object which gave them out, or more or less to one side, according to the position in which you hold the looking-glass that is to reflect them. If you hold the glass square across the straight line of rays, it will throw them exactly back to the point that gave them; but if you turn the glass to one side, then the light will be thrown to that side. The more obliquely you hold the glass, the more the rays will be cast to one side. This you can prove when you please by means of a looking-glass; and by using two a boy may see the back part of his own head.

Levi.—This subject is very pleasing and I shall be glad if you will assist us in trying the experiments; but I do not see what this bending of light has to do with giving George a right to break James's spear.

Tutor.—It gives no such right. But listen. Light passes straight except when turned aside. Now if something crosses a straight line drawn from your eye to any object at a distance you cannot see that object.

Levi.—That I understand very well. If William goes behind the door I cannot see him.

Tutor.—The cause of that is, that the rays of light thrown off or reflected by his body pass in a direct line and hence strike the door and come no further. But when these rays pass through a medium that is dense they are more obstructed than if the medium be more rare. By medium I mean any substance or matter which lies round about the object seen, or between you and that object as air, water &c. Dense means thick or more easily perceived and Rare means thin or less easily perceived, thus water is more easily perceived if you pass a stick thro' it than Air and hence it is said to be more dense. Now the rays of light in passing from a dense to a thinner medium are bent or as philosophers say refracted—and the more obliquely or slant they pass from one to the other the more they bend.

William.—I begin to see now what you will make of it.

Tutor.—George thrust the spear into the

water almost perpendicularly at first, you say, and at that time the spear was not much bent.

James.—So it appeared to me, and I suppose he did not push so hard at first.

William.—As the crab ran away he leaned the staff over more and then it bent very much.

Tutor.—True. The light in passing from so much of the staff as was under water passed through the water in passing to your eye; and when it came to the top of the water it came into the air (a thinner medium) and hence, though the stick remained perfectly straight, the rays sent off from it were bent, conforming to the image of a crooked stick all seen through one medium. The more you leaned the stick the crookeder it seemed to be, because the rays coming from it passed from the one medium into the other more obliquely. This fact can be proved by laying a piece of silver in a bowl, then walk backwards from the bowl until the silver totally disappears behind the edge of the bowl. Let some one pour water into the bowl and the silver will re-appear.

James.—I see how it is now. When George first put my stick in the water it was straight down and then appeared straight because all the rays came out of the water from the stick at once; but when the crab ran away of course he reached after it and then some of the rays had to pass further through the water than others, and so represented or reflected it crooked. I now perceived that the stick seemed to be bent owing to its position, but was really straight as ever. This singular matter is now accounted for without witch-craft. George, I ask your pardon, and am sorry I struck you.

George.—It is granted. I knew it did not touch the bottom, but I was puzzled to account for the bending which you all declared took place, and therefore did not believe you. I did not notice it myself because I only watched the crab.

Tutor.—Your conclusion is correct James, though your reasoning differs from received opinion and is somewhat erroneous.

(Enter William with a bucket of clear water and a straight stick.)

William.—See here James; this stick is straight or crooked according as I hold it upright or inclined.

Tutor.—I am happy to see you reconciled. From this incident we may learn to deliberate before we decide.

## PART SECOND.

Levi.—The show-man performed some tricks that I think will puzzle you to account for.

Tutor.—That may be, but it only proves my ignorance of that branch of science, but does not prove any supernatural agency, but let us here you describe one performance.

Levi.—He had a swan in a large basin of water; and though the fowl was only an image artificially made yet it moved about the basin just as he told it or directed it, with his wand.

William.—I can account for that myself. There was a magnet in the Swan's bill and the fellow had a piece of iron fastened on the stick which he called his wand. Of course the swan drew towards the iron because of the magnet.

James.—You have not explained it after all. Why does a magnet run towards Iron?

Tutor.—That is hard to explain. But it is true that a piece of steel rubbed with a stone called "Load Stone" will attract iron or steel. A piece of Iron standing long on the same end becomes magnetic; and long rubbing two pieces of iron together in a certain way, makes the one attract other Iron. The steel when magnetised and hung on a centre pin immediately assumes a north and south position.

William.—This is the way the needles for mariners and surveyors' Compasses are made I believe.

Tutor.—It is; but as the matter is hard to explain in words, here is a magnet with which you may try the experiments.

(Magnet produced and William picks up needles &c.)

George.—Another of his tricks is now explained. He caused a needle to dance on a pewter plate while he beat a tune on the opposite side with a nail. That nail I suppose was a magnet.

Levi.—I suspect you will find it pretty difficult to tell how he enabled us to see the time of day by Mr. Jones's watch when a piece of Iron an inch thick was placed between us and the watch.

James.—That I think I understood.—You know we looked through a long tube, shaped somewhat like a carpenter's brace for boring. The tube went straight, about six inches and there went out a branch to the right hand, which turned and ran some distance parallel with the main tube and then turned a square corner and joined the main tube again about six inches from the end. The main tube was cut off in the middle and had about two inches of it taken out. The iron bar was placed in this gap.

When any thing was held at the farther end of the tube we saw it just as plainly as if the iron were not there. When Mr. Jones's held his watch there we saw the time as well as if nothing had been in the way. I believe however we did not see Mr. Jones's watch at all, but saw another watch in the tube between us and the iron.

Levi.—In that you are mistaken, for the watch disappeared when Jones took his away. Besides how could we see any thing else if a watch had been in the tube.

James.—True. I did not think of that.

Tutor.—The sight of the watch was in consequence of a looking glass placed obliquely at each angle of the crooked tube so as to bend the rays and throw them along three sides of the square, you spoke of, instead of allowing them to pass straight thro' the main tube as they would do if left undisturbed. Every object you saw through the tube was seen through the three sides, and not through the one; so that shutting up the main tube made no difference. In fact, it was shut all the time, because you cannot see through a looking glass.

George.—I have some idea of it now. But how miserably the fellow lied! He said the power of that tube was such that he could see things hid in the bowels of the earth, locked up in drawers, or at the bottom of the sea, as well as when plainly in view. He said he could see men's hearts as well as they could see their own hands, and that his ability to tell fortunes depended on that fact:

Tutor.—The tube is a simple instrument that any carpenter, with a few minutes instruction, can make, and with its aid, either of you can tell fortunes as well as he: As to his seeing invisible things, his assertion is a falsehood: And his fortune telling is merely telling ignorant people any thing which he supposes will please them, for the purpose of swindling them out of their money.

William.—He had a box into which we put our heads, and he covered us up quite dark. When we were ready to look he opened a hole by means of which we saw persons walking, riding, working, &c. and saw towns, woods, rivers, and many other things. He said he was showing us the city of Jerusalem during the building of Solomon's Temple, and I really saw men working at a very great building.

Tutor.—All he showed you was the village and the people in it by means of reflected light. The building was the new church, and no doubt the mystery he threw about the matter raised your expectations so high that you failed to notice that the objects shown you were the same that you saw before you entered the box.

Levi.—Although the fellow has cheated us, I do not begrudge my shilling seeing it has led to an explanation of the matter so as to prevent being cheated again. I should like to have some further explanation.

Tutor.—You shall have it at the proper time. It is too late now. In the mean time you may gain much information by reading a treatise on natural philosophy.—You will find a description of the way in which the city and temple was shown under the head of Camera Obscura.

Catawissa, January 1, 1839.

## POLITICAL.

### ADDRESS TO THE FREEMEN OF PENNSYLVANIA.

Fellow Citizens—

The Committee of Safety embraces this occasion to announce to you the peaceful and satisfactory termination of the disorders, usurpations and dangers, at the capitol of the state, which menaced the purity of the elective franchise—threatened to subvert the constitution and laws, and to prostrate our republican government, at the date of its last address to the people. This happy result, is the fruit of the firmness, union and moderation of the democratic members of of both houses of the legislature sustained by the approving plaudits of the entire democracy, and a respectable portion of the federalists, of the state. The disgraceful proceedings of the secretary of state, and other officers of government of Pennsylvania, on the 4th inst. in the senate and house of representatives, produced a burst of indignant condemnation from every county and township within the borders of this commonwealth, which struck the governor and his confederate conspirators against the liberties of the people, with the deepest dismay. They faltered in their high-handed usurpations, but refused to recede. The military forces were called here to stimulate the friends of the Governor, as well as to overawe the people. It was hoped that the voice of censure would be hushed, and the hearts of the wavering friends of the administration be inspired with new courage by the gleaming of a thousand bayonets, and the intimidations of a battery of cannon.

The pretext, that an "infuriated armed mob," was in possession of the capital, used to justify the assembling of soldiers in Harrisburg, is considered too idle and ridiculous for refutation, by all honorable and candid men even of the federal party. It is known to be false, by every individual who was in the capital during the scenes described, and it is a subject of painful and mortifying contemplation to all, that the governor of Pennsylvania should have condescended to give his official sanction to such groundless attacks upon that portion of the people, whom accident curiosity, or an anxious devotion to the cause of the constitution and laws, convened in the borough of Harrisburg on the 4th of December. Whatever violence of proceeding occurred in the senate on that day, is immediately attributable to the lawless, unconstitutional and unreasonable conduct of the secretary of state, and his political friends and associates. They alone produced, and are answerable for, the consequences. There was "no mob," armed or unarmed, organized in the senate chamber, to overawe the members or subject their actions to his will. The confusions that followed the unscrupulous usurpations of the secretary of state and his political adherents in that body, on the day referred to, were the sudden and uncontrollable emotions of honest freemen when they beheld the constitution and laws trampled on and insulted, by the party whose organ, the present printer of the senate, had proclaimed, a month before the meeting of the legislature, that the minority federal candidates for the senate and house of representatives from the county of Philadelphia, "would have their seats—peaceably if they could, forcibly if they must."

It was manifest from the proceedings of the senate, that this threat was intended to be carried into execution, and if disapprobation was expressed, even in the senate chamber, by the citizens there assembled, it should not surprise those who are proud to emulate the example of their patriotic fathers and who hope if they err in so doing that "something will be pardoned to the spirit of liberty."

But if it was even true, as alleged, that the proceedings of the people in the senate chamber on the 4th inst. were so riotous and violent as to interrupt the action of the senate, it would not justify the assembling of the military forces at the capital, for it is not pretended by any man who had a "con-