are those in contact with it, and therefore their number is as its superficial area." Now admitting it to be true that the number of material particles in contact with the plane, at any instant, is the same, whether it be perpendicular or inclined to the direction of the motion, it does not, we think, necessarily follow that the number of particles struck in any given time will be the same. But neither is it evident that the number of particles in contact with the plane is the same for every inclination of the plane. The burden of proof, however, seems to lie with Prof. W. He has *assumed* the general physical fact that the number of particles in contact with the plane, at any instant, is the same for any position of the plane, and he has deduced an inference, not formally expressed, indeed, but surely implied, otherwise the argument is worth nothing, that the number of particles struck in any given time is as the number in contact with the plane at any instant. Now we think the fact and conclusion may very safely be denied, and it becomes Prof. W. to shew that they are consistent with some hypothesis respecting the form and relative position of the ultimate particles of a fluid body. In any hypothesis, we believe the following positions will be found to hold:

First. Whether the number of particles, at any instant, in contact with the plane, in different positions, is the same, depends wholly on the hypothesis.

Second. If the number is the same in different positions, it will be found that the number of fluid strata struck in any given time is as the sine of the inclination.

Third. If the number is *not* the same, then it varies as the sine of the inclination, and the number of strata struck will, in any given time, be the same.

If Prof. W. can devise any hypothesis with which these positions do not agree, we will allow he can disturb our belief in the truth of the law of the square of the sines.

The wide difference between the results of observation and those of the old theory, would tend rather to dissuade us from admitting the truth of the new, when we consider what important physical circumstances are and must be omitted in the conditions.—*Silliman's Jour.*

¶ *The Bleaching Mania; from a Lecture delivered before the Chelmsford Mechanics' Institute.* By JOHN MURRAY, ESQ. F. S. A., &c.

Chlorine (from a Greek word signifying green) is the characteristic name given to a gas discovered by Scheele, in 1774, and called by him *dephlogisticated marine acid gas*. It was some time ago more generally known by the name of oxymuriatic acid gas, from a presumption (now considered to be erroneous) that it contained oxygen; and among manufacturers it goes by the name of the bleaching gas. The mode of obtaining it is very simple. We take black oxide of manganese and mix it with a small portion of muriatic acid, in a glass retort, and on the application of heat the chlorine is evolved. Either alone, or in combination with lime or magnesia, it may be, and is, employed for bleaching paper. I have no objection to its being used

by the manufacturer in bleaching his linen and calico, but against the practice of bleaching paper I do protest. The consequences of thus using chlorine—which has the property of destroying ink and other colours—are, that many valuable epistles become illegible, and some have even dropped to pieces on the road. Some of our best modern books are already tottering on their shelves; and numerous deeds and valuable writings, requiring to be kept a great number of years, will, ere a very few, become useless. I have in my possession the remnant of a royal octavo volume, one of an edition of 30,000 copies, printed at the University press in 1818, and it is a singular fact, that there is not a perfect copy now existing. We find that when any thing of a delicate colour is wrapped up in white paper the colour is destroyed. A silk manufacturer once told me he could not preserve his coloured silks; he used the whitest and cleanest paper he could procure to wrap them in, but the colours invariably faded, I told him for the future to wrap them in common coloured, or brown, paper—he did so, and the silks retained their delicate hues. Paper stainers have lost hundreds of pounds in value, in consequence of the destruction of their goods by chlorine. This gas has also the property of dissolving gold. I knew a button merchant, who sent a quantity of gilt button to London for sale; being an expensive article, he took care to have them securely packed in white paper that they might be kept perfectly clean. The consequence was that the gilt corroded, and the buttons were returned unsaleable. Every thing now-a-days—such is the rage for bleaching—must be bleached. Our linen must be bleached, though by that means we render it yellow; our calico must be bleached; our ginger must be bleached, although at the expense of destroying the very principle which renders it valuable; and by-and-bye, I suppose, we shall be bleaching our daily bread. Let us, however, view the case as we ought. If we have an inferior article, paper for instance, the fault is ours, not the paper makers.

We fix our prices, and if I am determined to have a quire of paper for 4d. the manufacturer knowing he cannot furnish it of sterling quality, is obliged to resort to the expedient of bleaching, for the purpose of giving a good exterior to a bad material. Perhaps the subject may be illustrated this way: Suppose I want a pound of confectionary, I walk into the confectioner's, and say, "if you let me have it for 4d. I'll take it, and if not, why I can obtain it elsewhere;" never, for a moment, recollecting that the very materials, or perhaps merely the sugar, costs double the sum. The consequence of this mode of proceeding is, that we have the privilege of swallowing with our confectionary a sufficient quantity of chalk. To such a pitch has the bleaching of paper been carried, that Government find themselves obliged to employ a person to watch the manufacture of the paper they require, for the purpose of securing it of a good quality. I know of two cases in which letters containing money have fallen to pieces by the road. One was directed to the post master of Sheffield, and it so happened that the check was found in the post bag—the person for whom the other letter was intended, was not so fortunate. Every

thing is now made up into paper, and in consequence of its being bleached, we do not so easily detect the inferiority. I have by me specimens of paper made not only from wool and leather, but from the bark of the willow, from hay and straw, potato peelings, wood shavings, saw dust, and in short, any thing can be made into paper, *such as it is*. [Lon. Mech. Mag.]

¶ Simple Perspective Delineator.

Sir,—It is a considerable time since I discovered, and reduced to practice, a ready method of putting plans into perspective, without drawing the usual lines, without finding vanishing points, and without any other trouble than using a very simple instrument with a little care. The following is a representation of the instrument, which is cheap, and is sold by the author.

Let A C B be a variable angle, to move in every position; H F a line for the plane of the picture; and L I a ground line parallel to it; other lines, parallel to the last, may be drawn for different elevations.

Let P be any point whose perspective is required; place C A at P, and also a T square, whose side is P D; this done, move the leg C B until the line, I K, falls in the angle P K B; now move the T square into the position G p, so that the line G F comes into the angle A G p; then the point p, so found, will be the perspective of P. The principle upon which the instrument is constructed is, that the elements of

perspective depend solely upon similar triangles.

In the year 1821, I invented and made public that description of horizontal perspective called by me the Horizontorium. The demand for it was such that it was sent for from all parts, and continued in request for four years. Very recently, this very invention has been reproduced by persons who would fain persuade the public that it has just come from France. Some have done even worse than this, for they have published new ones on false principles, and painted them in a manner which is a disgrace to science; any person desirous of seeing a specimen of this has only to look in at the Pantheon, in Oxford street. The horizontorium has nothing beyond common about it; the only peculiarity being that the view is projected on a horizontal plane, in lieu of a vertical one. One eye only should view the picture, and that eye be guided by a hole in a card. The same should be done in viewing every perspective representation, let its plane of projection be what it may.

I am, &c.

W. SHIRES.
[Ibid.]