

### New Way of Producing Water Gas.

*Explanation of the Phenomena of Thunder and Lightning.*—Mr. Appleby, apothecary in Central square, East Boston, in a communication to the *East Boston Ledger*, thus describes a manner of involving gas from water, which he has discovered, and to which he invites the attention of scientific men. He says:—

"I produced the gas from cold water, without a battery, without a helices of copper, zinc, or brass, and without the use of mercury. I fill a proof bottle with water immediately from the Cochiate pipe, carburet it in the same bottle, and then, by adding the necessary chemicals, separate hydrogen from the oxygen. I now attach a tube, made upon the principle of the safety lamp, to the mouth of the bottle. To prevent an explosion, a certainty quantity of the gas is allowed to pass over, thus removing what atmospheric air may remain in the bottle. A lighted match now applied to the tube produces a pure, bright and beautiful flame. I have exhibited this light in my shop for the last four months, to the entire satisfaction of a number of intelligent gentlemen who have seen it.

In the course of my experiments with the water gas, an idea struck my mind which seems to me to explain more fully than has ever been done before the phenomena of thunder and lightning. It was not till after several explosions that I succeeded in producing the light. When a number of these had occurred, the idea flashed across my mind, that the explosion of the cloud is caused in the same way through the ignition of the hydrogen it contains by the contact of electricity.—Electricity, the most powerful chemical agent known, and the only one which will decompose water, separates the hydrogen from the oxygen, and in combination with atmospheric air, explodes the former, and produces the sublime phenomena which we witness every summer in the clouds."

### Beet Root Sugar.

The following is from the *Cork Examiner*:—Some portion of the attention which is now generally turned towards the promotion of manufactures would be usefully directed to the production of sugar from beet root. Already it is carried on to a considerable extent in France and Belgium where vast numbers of people are employed in it, and large establishments erected for the purpose. We have seen a specimen of Sugar made from beet root in the latter country, which was exhibited at a large meeting of the Dublin Society, and which naturally excited much curiosity. It is of the purest appearance, of strong sweetening quality, and in colour resembling the species of sugar known as crushed lump. The most singular part of the matter is, that it was manufactured in a space of about forty-five minutes, the entire time occupied from taking of the root out of the ground and putting it into the machine to the production of the perfect article. Some reluctance was evinced to tell the price at which it could be made; and in reply to a question on that point, it was said that it could be produced at the market rate for sugar of a similar quality in this country, about 6d per pound. We have ascertained, however, that the article could really be made for 2½d per pound. An acre of ground is calculated to yield fifty tons of Silesian beet, which in France and Belgium give three tons of sugar, worth about £59; the refuse being useful for feeding cattle, and in those countries being actually used for that purpose. But from the superior fitness of

the Irish soil, as shown by experience to be the case, it is confidently affirmed by persons competent to form an opinion, that eight per cent of sugar could be obtained here on the raw bulk."

**WONDERFUL STRUCTURE OF THE HEART.**—An anatomist (as Dr. Paley observes) who understood the structure of the heart, may say beforehand that it would play, but he would expect, I think, from the complexity of its mechanism, and delicacy of many of its parts, that it would soon work itself out. Yet shall this wonderful machine go night and day, for eighty years or more together, at the rate of a hundred thousand strokes every twenty-four hours, having at every stroke a great resistance to overcome; and shall continue this action for this length of time, without disorder and without weariness. Each ventricle will at least contain one ounce of blood. The heart contracts four thousand times in one hour; from which it follows, that there passes through the heart, every hour, four thousand ounces, or 350 pounds of blood. In the human body there is said to be about twenty-five pounds, so that a quantity of blood, equal to the whole mass of blood, passes through the heart 14 times in one hour; which is about once every four minutes.—*Buck's Practical Expositor.*

**NEW SELF-CENTERING AND SELF-REGULATING LATHE.**—Mr. Thomas R. Bailey, of Lockport, N. Y., has made a very valuable improvement in lathes for concentric turning, such as for broom handles, &c., for which measures have been taken to secure a patent.—The live spindle has a sliding cone mouth into which the rough material is placed, and the slide spindle has also a cone mouth in a line with the other. The rough material is placed within these cone mouths, and must be centred, as the spindles always bear a fixed relation to one another, and the cone mouths guide the rough material to lie in a true central line with both spindles. When the slide has run its length, it strikes a cam upon the frame, and the broom handle, or whatever it may be that is turned, is thrown out from the spindles, and drops down. The turning tool can be guided by a fixed side pattern to turn out many different irregular forms. This lathe is easily attended and is very simple. It is a good, new, and useful improvement.—*Sci. American.*

**LEATHER CLOTH.**—A new article of boots and shoes has just come up in England. It is called the Panama Corium, the leather cloth, and was invented by a person named Hull. The material is cotton, but has the mass and general appearance of leather, and receives a polish from ordinary blacking, and in the same way. It is used only for the upper, the sole being leather. It is said to be as durable as leather, never cracks or splits, and possesses the advantage of no drawing the foot.—*Sci. American.*

**ACKNOWLEDGING THE CORN.**—The *Maine Farmer* acknowledges the receipt of a bag of 'popping corn' which was sent to their office accompanied by the following rhyme:—

"Corn for the richman—corn for the poor;  
Corn for the chickens around the barn door;  
Corn for the master—corn for the dog—  
Corn for his cattle—corn for his hog;  
Corn for the grist-mill—corn for the shop;  
Corn for the "Maine Farmer" devils to pop!"