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**The young man's book of amusement**

**Halifax, 1848**

The Illuminated Vacuum

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when it is electrified, the drops will fall very fast, and appear like small globes of fire, illuminating the basin into which they fall.

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*The Illuminated Vacuum.*

Take a tall receiver that is very dry, and fix through the top of it, with cement, a blunt wire: then exhaust the receiver, and present the knob of the wire to the conductor, and every spark will pass through the vacuum in a broad stream of light, visible through the whole length of the receiver, let it be as tall as it will. This generally divides into a variety of beautiful rivulets, which are continually changing their course, uniting and dividing again in the most pleasing manner.

If a jar be discharged through this vacuum, it presents the appearance of a very dense body of fire, darting directly through the centre of the vacuum, without touching the sides; whereas, when a single spark passes through, it generally goes more or less to the side, and a finger placed on the outside of the glass, will draw it wherever a person pleases. If the vessel be grasped by both hands, every spark is felt like the pulsation of a large artery; and all the fire makes towards the hands. This pulsation is even felt at some distance from the receiver, and a light is seen between the hand and the glass.

All this while the pointed wire is supposed to be electrified positively; if it be electrified negatively,

the appearance is astonishingly different; instead of streams of fire, nothing is seen but one uniform luminous appearance, like a white cloud, or the *milky way* in a clear star-light night. It seldom reaches the whole length of the vessel, but generally appears only at the end of the wire, like a lucid ball.

If a small phial be inserted in the neck of a small receiver, so that the external surface of the glass be exposed to the vacuum, it will produce a very beautiful appearance. The phial must be coated on the inside, and while it is charging, at every spark taken from the conductor into the inside, a flash of light is seen to dart at the same time from every part of the external surface of the phial, so as quite to fill the receiver. Upon making the discharge, the light is seen to run in a much closer body, the whole coming out at once.

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#### *The Illuminated Cylinder.\**

Provide a glass cylinder, three feet long, and three inches in diameter; near the bottom of it fix a brass plate, and have another brass plate, so contrived that you may let it down the cylinder, and bring it as near the first plate as you desire. Let this cylin-

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\* To shew this and the other electrical experiments of a like nature, the room in which they are exhibited ought to be completely darkened; the illuminated water, eggs, &c. will then appear to great advantage;—the discharge even of the Leyden Phial will appear with greater brilliancy under such circumstances.

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