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

**Halifax, 1848**

The Hand fixes by Air

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of a bottle be sealed so close that no air can escape; then place it in the receiver, and exhaust the air from its surface. The air which is confined within the bottle, when the external air is drawn off, will act so powerfully as to break the bottle into pieces.

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*Water boiled by Air.*

Take water made so warm that you can just bear your hand in it, but that has not been boiled; put it under the receiver, and exhaust the air. Bubbles of air will soon be seen to rise, at first very small, but presently become larger, and will be at last so great, and rise with so much rapidity, as to give the water the appearance of boiling. This will continue till the air is let into the receiver, when it will instantly cease.

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*Glass broken by Air.*

Lay a square of glass on the top of an open receiver, and exhaust the air. The weight of the external air will press on the glass, and smash it to atoms.

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*The Hand fixed by Air.*

If a person hold his hand on an open receiver, and

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the air be exhausted, it will be fixed as if pressed by a weight of sixty pounds.

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*The Floating Stone.*

To a piece of cork tie a small stone that will just sink it; and putting it in a vessel of water, place it under the receiver. Then exhausting the receiver, the bubbles of air will expand from its pores, and adhering to its surface, will render it, together with the stone, lighter than water, and consequently they will rise to the surface, and float.

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*Feather and Guinea.*

It is sometimes imagined that mass for mass, a pound of gold would be heavier than a pound of feathers; and hence the paradoxical experiment of "which is heaviest?" And yet we may place a guinea and feather under such circumstances that they will both arrive at the ground at the same instant of time when discharged from a proper apparatus. Fig. 16 shews the glass receiver and plate of the Air-Pump by which the air must be withdrawn, and it will then be seen that it is the air alone that makes the difference in their descent.