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

**Halifax, 1848**

How to Work a Pump without Manual Labour

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grees; immerse this apparatus about an inch in a basin of water, and the water will rise between the plates, and form a beautiful geometrical figure, called an hyperbola.

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*How to raise Water several Feet above its ordinary Level.*

The syphon is employed by distillers and others, for the purpose of emptying casks, and it may be advantageously used to decant wine, as the wine may be raised from the most turbid ground without mixing with the sediment beneath. To make this instrument, it is merely necessary to bend a glass tube by the application of heat; and if a second tube be attached, and the air sucked out, the fluid will continue to flow as long as any water remains in the upper vessel.

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*How to Work a Pump without Manual Labour.*

Captain Leslie, of the American vessel the *George and Susan*, invented, in his voyage from North America to Stockholm, the following simple method of keeping the ship's pumps at work, when the sea runs high, and when the crew are not sufficient, or are already fatigued:—About ten or twelve feet above the pump, he fixed a spar, or small mast, one end

of which projected overboard, while the other was fastened as a lever to the machinery of the pump. To the end which projected overboard, was suspended a water butt, half full. By this simple contrivance, every coming wave, as it raised the water butt sunk with it, and raised the piston again; thus, without the aid of the crew, the ship was cleared of water in four hours' time.

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*Exposition of a Paradox.*

It is a vulgar paradox, "that when water is boiling in a vessel the bottom is cool, but the moment it ceases to boil the bottom becomes hotter." The whole of the paradox appears to be founded on an error of sense. When a person applies his finger to the vessel, though he applies it for a considerable time, it is not heated more than he can endure, for the blood in the course of its circulation loses some of its heat before it arrives at the extremities: and till the blood in the extremities is heated to the same degree with that of the heart, we feel no pain from burning; but as soon as this is effected, the least degree of heat becomes painful. When the finger is first applied to the bottom of the vessel, after it is taken off the fire, the heat is endured for these reasons. When the boiling ceases, it is natural to take the same finger (for, having dirtied one, people seldom choose to take another), and that finger being already heated almost as much as it could bear, now