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The young man's book of amusement

Halifax, 1848

Voltaic Pile

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ment. In this way the plates are very perfectly cemented at the bottom, and when this cement is sufficiently cool, a slip of thin deal is to be slightly nailed on the top edge of one of the sides of the trough, so as to overhang the inner surface about a quarter of an inch. The trough being about three quarters of an inch deeper than the diameter of the plates, there will be an interval between their top edges and the deal slip; and when the side of the trough to which the slip is attached is laid flat on the table, this interval forms a channel into which very hot cement is to be poured, and it will flow between each pair of plates, so as to cement one side of all the cells perfectly. As soon as the channel is quite full of fluid cement, the strip of deal is to be torn off, and the trough inclined so as to admit of the superfluous cement to run out. When this is effected, and the cement cool, a slip of deal is to be nailed on the opposite side, and the same process pursued with that. The instrument will then be cemented in the most perfect manner, and it may be cleaned off and varnished.*

Voltaic Pile.

The Voltaic Pile was invented towards the close of

* The zinc end of a battery is considered to be plus or positive: the silver end, (or copper end, when copper is used with the zinc,) is considered to be minus or negative.

The effect of the galvanic battery is considered much greater in oxygen than in atmospheric air, and it ceases entirely in azote or hydrogen.

the last century, and since that period, the science of Voltaic electricity has done more towards the progress of chemical research, than any other apparatus yet discovered. The Voltaic Pile consists of a series of plates composed of zinc and copper, in alternate layers; it is found that when a pile is thus raised, each alternate pair of plates being separated by a piece of moistened flannel, that smart shocks will be received by any person who may make a communication between the top and bottom of the pile. An electrical arrangement of this kind usually consists of about fifty pair of plates.

Vegetable Galvanic Pile.

A galvanic pile has been constructed by a scientific gentleman, entirely of vegetable substances. For this purpose, he cut discs of horse-radish and beet-root of two inches in diameter. He then prepared equal discs of walnut-tree wood, which were raised at their edges, to contain a little solution of acidulous tartrate of potash in vinegar, in which they had been previously boiled, to free the wood from rosin. Sixty pairs of discs were employed in the following order; viz. horse radish, beet root, discs of wood. The spinal marrow of a prepared frog was connected with the pile, by means of a leaf of *cochlearia*; the muscles of the frog were connected with the top of the pile by means of a double band of grey paper, wetted with vinegar; and, as often as this circuit was completed, contortions were excited in the animal.

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