

vulgar are ever ready to indulge when relating these wonderful occurrences.

It is impossible to suppose that these waves, which are described in Italy and other regions of earthquakes as passing along the solid surface of the earth in a given direction like a billow on the sea, have any strict analogy with the undulations of a fluid. They are doubtless the effects of vibrations, radiating from some deep-seated point, each of which on reaching the surface lifts up the ground, and then allows it again to subside. As the distance between the source of the subterranean movement and the surface must vary according to the outline of the country, so the vibratory jar will reach different points in succession.

The Academicians relate that in some of the cities of Calabria effects were produced seeming to indicate a whirling or vorticose movement. Thus, for example, two obelisks (fig. 56.) placed at the extremities of

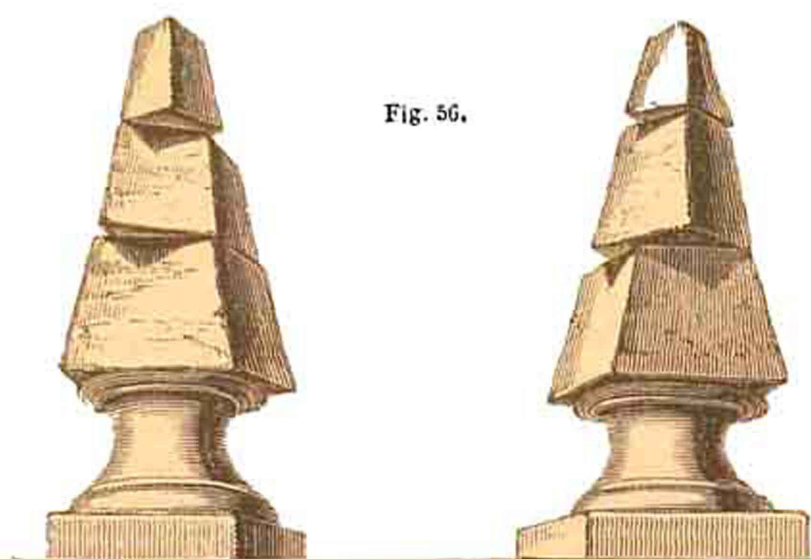


Fig. 56.

Shifts in the stones of two obelisks in the Convent of S. Bruno.

a magnificent façade in the convent of S. Bruno, in a small town called Stefano del Bosco, were observed to have undergone a movement of a singular kind. The shock which agitated the building is described as having been horizontal and vorticose. The pedestal of each obelisk remained in its original place; but the separate stones above were turned partially round, and removed sometimes nine inches from their position without falling.

It has been suggested by Mr. Darwin, that this kind of displacement may be due to a vibratory rather than a whirling motion\*; and more lately Mr. Mallet, in the paper already cited, has offered a very ingenious solution of the problem. He refers the twisting simply to an elastic wave, which has moved the pedestal forwards and back again, by an alternate horizontal motion within narrow limits, and he has succeeded in showing that a rectilinear movement in the ground may have sufficed to cause an incumbent body to turn partially round upon its bed, provided a certain relation exist between the

\* Journal of a Naturalist, p. 376, and ii. ib. 308.