

That earthquakes are experienced over regions far from volcanic mountains is easily ascertained by consulting the imperfect records which have been preserved of these phenomena in Europe. For it thus appears that in Norway, Scotland, England, Belgium, and many parts of Germany and France, considerable earthquakes have occurred, not only at a distance from European volcanos, but also without any definite relation of time to the eruptions of the Icelandic or Mediterranean volcanos. In a long catalogue which we have drawn up for the purpose of comparing the dates of earthquakes in Great Britain with the recorded eruptions of those volcanos, &c., the last 1000 years, we have found scarcely any accordance.

The movement of the ground during an earthquake is described variously, — as a vibration, a rolling, an undulation, a shock; but it is to be regretted that these terms do not always convey a definite and exact notion of the kind of disturbance which really takes place. Some observers speak only of *vertical* movements, such as were experienced during the Lisbon earthquake by a vessel far west in the Atlantic; others mention *horizontal* movements, as during the Chilian earthquake of 1835. In general, there is an impression that the movement of the ground travels in one certain direction, like a wave upon water; this direction was remarked to be different in the northern and southern portions of country shaken in Chili in 1822. There is sometimes one shock, in other cases several, seldom many successive impulses from below. The most violent movements appear to have been experienced on the sea-side, and in the sea itself, which, retiring and returning with mighty waves, 10, 20, or even 60 feet high (in the Lisbon earthquakes of 1755), produce incalculable mischief and destruction of life and property.

Were the globe a solid mass at great distances from the seat of the original disturbance, these effects could not happen. If considerably elastic, it must on that supposition be subject to a succession of tremors, grow-