

on the Lelantine plains near Chalcis.\* The intelligent geographer of Amasea, to whom we are indebted for the notice of this circumstance, further remarks: "Since the craters of Ætna have been opened, which yield a passage to the escape of fire, and since burning masses and water have been ejected, the country near the sea-shore has not been so much shaken as at the time previous to the separation of Sicily from Lower Italy, when all communications with the external surface were closed."

We thus recognize in earthquakes the existence of a volcanic force, which, although every where manifested, and as generally diffused as the internal heat of our planet, attains but rarely, and then only at separate points, sufficient intensity to exhibit the phenomenon of eruptions. The formation of veins, that is to say, the filling up of fissures with crystalline masses bursting forth from the interior (as basalt, melaphyre, and greenstone), gradually disturbs the free intercommunication of elastic vapors. This tension acts in three different ways, either in causing disruptions, or sudden and retroversed elevations, or, finally, as was first observed in a great part of Sweden, in producing changes in the relative level of the sea and land, which, although continuous, are only appreciable at intervals of long period.

Before we leave the important phenomena which we have considered, not so much in their individual characteristics as in their general physical and geognostical relations, I would advert to the deep and peculiar impression left on the mind by the first earthquake which we experience, even where it is not attended by any subterranean noise.† This impression is not,

\* Strabo, lib. i., p. 100, Casaub. That the expression *πηλοῦ διαπύρου ποταμόν* does not mean erupted mud, but lava, is obvious from a passage in Strabo, lib. vi., p. 412. Compare Walter, in his *Abnahme der Vulkanischen Thätigkeit in Historischen Zeiten* (On the Decrease of Volcanic Activity during Historical Times), 1844, s. 25.

† [Dr. Tschudi, in his interesting work, *Travels in Peru*, translated from the German by Thomasina Ross, p. 170, 1847, describes strikingly the effect of an earthquake upon the native and upon the stranger. "No familiarity with the phenomenon can blunt this feeling. The inhabitant of Lima, who from childhood has frequently witnessed these convulsions of nature, is roused from his sleep by the shock, and rushes from his apartment with the cry of *Misericordia!* The foreigner from the north of Europe, who knows nothing of earthquakes but by description, waits with impatience to feel the movement of the earth, and longs to hear with his own ear the subterranean sounds which he has hitherto considered fabulous. With levity he treats the apprehension of a coming convulsion, and laughs at the fears of the natives; but, as soon as his wish is gratified, he is terror-stricken, and is involuntarily prompted to seek safety in flight."]—*Tr.*