above, in the earthquake of Rio-Bamba (1797), produced all the effects of the explosion of a mine : the dead bodies of a number of individuals were hurled as far as an opposite hill, more than four hundred and eighty feet in height. When the three kinds of shocks occur at the same time, nothing can escape the devastation. Such undoubtedly was the case in 1783, when all Sicily and Calabria were ravaged. So violent and so complex were the movements, that the tops of the tallest trees were bowed to the ground. According to Dolomieu and Sir William Hamilton — both conscientious observers—houses were lifted off the ground, and then returned to their former sites ; and one saw even the summits of the Apennines balancing in the air :—

" Insolitis tremuerunt montibus Alpes."—(*Virgil.*)

It has frequently been pretended that the great mountain-chains—especially when, like the Apennines, they are granitic, or, in other words, composed of primary rocks, and thrusting their roots, so to speak, down into the very depths of the terrestrial crust—arrest the propagation of the earth-wave, which seems to die away at their feet. But this assertion is controverted by undeniable facts.

EFFECTS OF THE CONFIGURATION OF THE SOIL.

The effects of earthquakes are not limited to the ruin of entire cities and the destruction of the work of men's hands : the surface of the earth also undergoes more or less extensive modifications. It may be upheaved, as was the case in the terrible Chilian earthquake of 1822, when the American coast was raised above its former level throughout an extent of three hundred leagues. New mountains may thus make their appearance ; while often, on the other hand, the ancient hills — so erroneously called " everlasting " — crumble away in a mass, filling up the valleys with their débris. Sometimes the ground yawns wide, leaving after the catastrophe—as if to keep men's minds in constant remembrance of it—enormous crevasses of several leagues in length. When referring, in a former chapter, to