

d'acqua"), which flow according to the slopes of the ground, and cover up cities, and fill lakes and valleys. To this cause a part of the accumulation covering Herculaneum has been ascribed, while Pompeii was overwhelmed in dry ashes. It is easy to perceive that alluvial accumulations will from this cause spread over a large extent of country round the base of an ignivomous mountain, the arrangement of which is purely the effect of water, though the materials are exclusively the products of heat. Such *volcanic sediments* will be arranged in a consistent geological classification as *aqueous deposits*; they may contain as well as cover many organic productions, wood, shells, bones, &c., and be thus, in some cases, referred to their true geological age.

"Volcanic sandstones," as Mr. Murchison calls the marine deposits of ashes and disintegrated trap rocks, which are interlaminated among the rocks of the silurian system, may have had, in some instances, a similar origin.

Another mode of aggregation of similar ingredients is exemplified by some part of the "trass" deposit, as it is called, in the country near Andernach, where it abounds on the borders of the Eifel volcanos. Showers of ashes falling in lakes would be arranged therein exactly as other sediments from a different source, except that the areas and depths of the distributed substances must vary according to the circumstances of their admission to the water. Much of the trass in the Valley of Brohl is, however, in too irregular a state of arrangement to admit of this view. It probably was deposited rather as a mass of liquid mud, bursting from some old crater, and bearing the spoils of the surface (wood and rock fragments) with it. The wood in this trass is carbonised. The puzzolana of Naples is of similar nature to the trass, and contains shells and bones, with fragments of pumice, obsidian, and trachyte. It forms considerable hills round Naples, some of which have regular craters.

When, as in the case of Graham Island, a new volcano bursts up in the sea, and scatters ashes and scorix,