

rock occurs with trap, it is called *trap tuff*; and when with modern lava, *volcanic tuff*. If it contains large and angular fragments, it is called *volcanic breccia*. When the fragments are much rolled, the rock is a *tufaceous conglomerate*. The basaltic tuffs are denominated by the Italian geologists, *peperino*. A kind of mud is poured out of some volcanic craters, which forms what is called *trass*.

Sometimes, especially at the great volcano of *Kilauea*, on the Sandwich Islands, when lava is thrown into the air, the wind spins it out into threads, resembling flax, and drives it against the sides of the crater. This is called *volcanic glass*; and by the natives of Sandwich Islands, *Pele's hair*; *Pele* having formerly been regarded as the presiding divinity of the volcano of *Kilauea*.

Other substances ejected from volcanos are fragments of granite and other rocks, scarcely altered; cinders and ashes of various degrees of fineness, which are sometimes converted into mud by the water that accompanies them; also sulphur in a pure state; various salts and acids; and several gases, among which are the hydrochloric, sulphurous, and sulphuric acids; alum, gypsum, sulphates of iron and magnesia, chlorides of sodium and potassium, of iron, copper, and cobalt; chlorine, nitrogen, sulphuretted hydrogen, etc.

*Prismatic or Columnar Structure.*—One of the most remarkable characteristics of the trap rocks is their columnar structure. This consists in the occasional division of their substance into regular prisms, with sides varying in number from three to eight, usually five or six, whose length is sometimes several hundred feet. They are often jointed, that is, divided crosswise into blocks from one to several feet in length, whose extremities are more or less convex or concave, the one fitting into the other. Frequently these columns stand nearly perpendicular, and when worn away on the side they present naked walls, which appear like the work of art. They stand so closely compacted together, that though perfectly separable, there is no perceptible space between them. The diameter of the column varies from a few inches to more than five feet.

The columnar and trappose forms of basalt and greenstone have produced some of the most remarkable scenery on the globe. Fingal's Cave, in the island of Staffa, (one of the Western Islands of Scotland,) and the Giant's Causeway, in the north of Ireland, are almost too well known to need description. Staffa is composed entirely of basalt, with a thin soil, and its shores