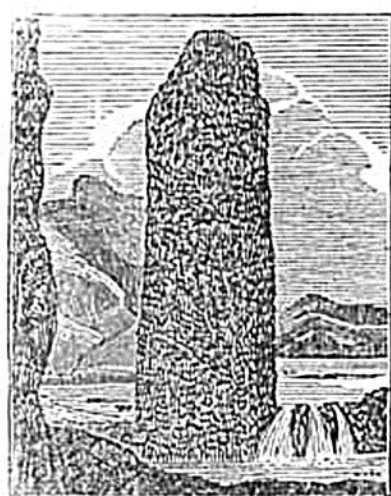


The shale in this place is indurated; and the limestone, which at a distance from the trap is blue, and contains fossil corals, is here converted into granular marble without fossils.

Masses of trap are not unfrequently met with intercalated between strata, and maintaining their parallelism to the planes of stratification throughout large areas. They must in some places have forced their way laterally between the divisions of the strata, a direction in which there would be the least resistance to an advancing fluid, if no vertical rents communicated with the surface, and a powerful hydrostatic pressure were caused by gases propelling the lava upwards.

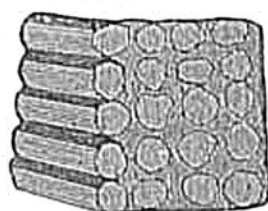
Columnar and globular structure.—One of the characteristic forms of volcanic rocks, especially of basalt, is the columnar, where large masses are divided into regular prisms, sometimes easily separable, but in other cases adhering firmly together. The columns vary in the number of angles, from three to twelve; but they have most commonly from five to seven sides. They are often divided transversely, at nearly equal distances, like the joints in a vertebral column, as in the Giant's Causeway, in Ireland? They vary exceedingly in respect to length and diameter. Dr. MacCulloch mentions some in Skye which are about 400 feet long; others, in Morven, not exceeding an inch. In regard to diameter, those of Ailsa measure 9 feet, and those of Morven an inch or less.* They are usually straight, but sometimes curved; and examples of both these occur in the island of Staffa. In a horizontal bed or sheet of trap the columns are vertical; in a vertical dike they are horizontal. Among other examples of the last-mentioned phenomenon is the mass of basalt, called the Chimney, in St. Helena (see fig. 633), a pile of hexagonal prisms, 64 feet

Fig. 633.



Volcanic dyke composed of horizontal prisms. St. Helena.

Fig. 634.



Small portion of the dyke
in Fig. 633.

high, evidently the remainder of a narrow dike, the walls of rock which the dike originally traversed having been removed down to the level of

* MacCul. Sys. of Geol. vol. ii. p. 137.