

from 5 to 7 feet in width, which will afford a scale of measurement for the whole.

In the Hebrides and other countries, the same masses of trap which occupy the surface of the country far and wide, concealing the subjacent stratified rocks, are seen also in the sea cliffs, prolonged downwards in veins or dikes, which probably unite with other masses of igneous rock at a greater depth. The largest of the dikes represented in the annexed diagram, and which are seen in part of the coast of Skye, is no less than 100 feet in width.

Fig. 623.



Trap dividing and covering sandstone near Sulshnish in Skye. (MacCulloch.)

Every variety of trap-rock is sometimes found in dikes, as basalt, greenstone, felspar-porphry, and trachyte. The amygdaloidal traps also occur, though more rarely, and even tuff and breccia, for the materials of these last may be washed down into open fissures at the bottom of the sea, or during eruptions on the land may be showered into them from the air.

Some dikes of trap may be followed for leagues uninterruptedly in nearly a straight direction, as in the north of England, showing that the fissures which they fill must have been of extraordinary length.

In many cases trap at the edges or sides of the dike is less crystalline or more earthy than in the centre, in consequence of the melted matter having cooled more rapidly by coming in contact with the cold sides of the fissure; whereas, in the centre, where the matter of the dike is kept longer in a fluid or soft state, crystals are slowly formed. But I observed the converse of the above phenomena in Teneriffe, in the neighborhood of Santa Cruz, where a dike is seen cutting through horizontal beds of scoriæ in the sea-cliff near the Barranco de Bufadero. It is vertical in its main direction, slightly flexuous, but about one foot thick. On each side are walls of compact basalt, but in the centre the rock is highly vesicular for a width of about 4 inches. In this instance, the fissure may have become wider after the lava on each side had consolidated, and the additional melted matter poured into the middle space may have cooled more rapidly than that at the sides.

In the ancient part of Vesuvius, called Somma, a thin band of half-vitreous lava is found at the edge of some dikes. At the junction of greenstone dikes with limestone, a *sahlband*, or selvage, of serpentine is occasionally observed. On the left shore of the fiord of Christiana, in Norway, I examined, in company with Professor Keilhau, a remarkable dike of syenitic greenstone, which is traced through Silurian strata, until at length, in the promontory of Næsodden, it