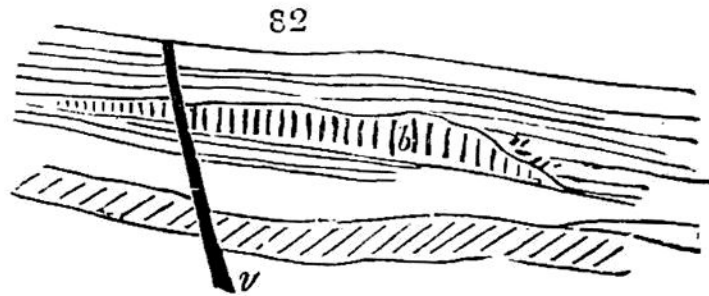


haps forcibly injected. The diagram No. 82. shows the manner in which the basaltic mass (*b*) grows thinner



in one direction (towards the west), and also the occurrence of a mineral vein (*v*) (yielding sulphuret of lead) in a fissure which divides equally the limestone and the “whin sill,” and yields valuable metallic ores in each.

*Overlying Masses.* — In the preceding instances, igneous rocks are included *between* sedimentary strata; overlying masses, as they are called, spread irregularly *over* a surface of other rocks without being themselves covered by any. The same overflow of melted rock may, in one part, appear an overlying mass, and, in another, an interposed bed, as in the Clee Hills, in Salisbury Craig, near Edinburgh, &c. The porphyritic summit of Ben Nevis is an overlying mass, which has burst up through the granitic base of the mountain; the porphyritic mass at the lower end of St. John’s Vale, Cumberland, is similarly circumstanced in relation to the slate rocks of that region; and the phenomenon is common. It is perfectly paralleled by what happens in many eruptions of lava, and was well illustrated by the great Icelandic lava currents in 1783.

*Fissures.* — In all these cases the situation of the once melted rocks is easily explicable by supposing, what in some cases is known to be the fact, that the horizontally extended masses of igneous rocks have been forced upwards through tubular passages or fissures, as happens at this day at the summit or on the sides of active volcanos. Such fissures or tubular passages occasionally appear connected in one long or in several short parallel lines; as, for example, among the silurian strata the line of eruptions marked by the trap rocks of the