other counties, which have been described as veins, are in reality beds; the distinction between beds and veins not being well understood, they are both called veins by working miners. The manganese mines at Doddiscombe Leigh, in Devonshire, are irregular beds of oxide of manganese, in red sandstone. The iron mine at Dannemora in Sweden is an enormous bed, which has swelled out to the thickness of one hundred and eighty feet, of nearly compact ore. Copper pyrites sometimes occurs in beds; mercury has also been found, disseminated in beds of clay and sandstone. Black oxide of cobalt is found in beds, at Alderly Edge in Cheshire.

Metallic Veins.—Perhaps the reader may obtain a clearer notion of a metallic vein, by first imagining a crack or fissure in the earth, a foot or more in width, and extending east and west on the surface, many hundred yards. Suppose the crack or fissure to descend to an unknown depth, not in a perpendicular direction, but sloping a little to the north or south. Now, let us again suppose each side of the fissure to become coated with mineral matter, of a different kind from the rocks in which the fissure is made, and then the whole fissure to be filled by successive layers of various metallic and mineral substances; we shall thus have a type of a metallic vein. Its course from east to west is called its *direction*, and the dip from the perpendicular line of descent is called in miners' language the *hading* of the vein. Thus, it is said to *hade* or dip to the south or north, &c. Now it is obvious, that if the direction of the vein were changed, or its width increased or diminished, and the hade or dip were increased or diminished also, we should still have all the essential conditions of a metallic vein remaining. Let us now proceed to describe existing metallic veins. They appear to have been, originally, fissures cutting through different beds of rock, that have been subsequently filled with metallic ores, intermixed with other mineral matter, of a different nature from that of the rock which is intersected. Metallic veins are, therefore, considered to be of posterior formation to the rocks in which they are found: and where a vein cuts through different rocks, it is evident that its formation must have been more recent than that of the rocks which it intersects; but, where a vein is found only in one bed of rock, the fissure may have been formed and filled at the period when the rock was consolidated. Metallic veins are found principally in primary and transition rocks, or in the very lowest of the secondary strata: they are often separated from the rocks they intersect, by a thin wall or lining of mineral substances distinct from the rock, and sometimes also by a layer of clay on each side of the vein. The same substance which forms the outer coat of the vein, is also frequently, intermixed with the ore, or forms layers alternating with it: this is called the matrix, gangue, or veinstone. It appears as if the ore and the veinstone had at different times, been formed over each other, on the sides of the vein, till they met and filled up the fissure.