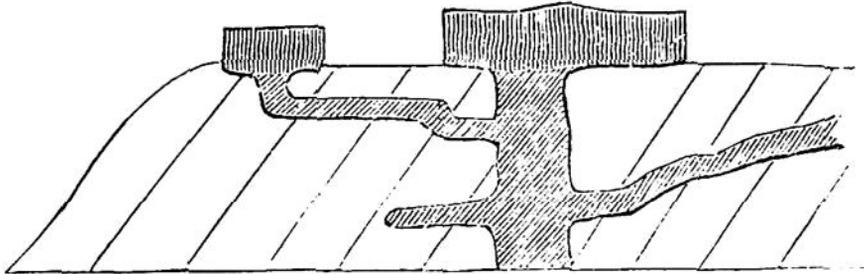


they proceeded, but this may be done in the majority of cases, though in others, as may be readily imagined, the mass is too deeply seated beneath the surface of the earth.

The size of these veins is exceedingly various both in length and breadth. They have been seen to decrease in breadth from many yards to a few inches, while they differ in length between miles and feet; but it may be taken as a general rule that trap veins are much more extensive than the granitic, and it may also be mentioned that they are usually more vertical.

Veins also differ in another particular. Some are, as it were, immensely thick walls, and divide the strata without turning either to one side or the other. But there are oth-



Section of Trap Veins.

ers that diverge from side to side, and are characterized by extensive ramifications; this is generally the feature of granitic veins, and of the trap occasionally.

#### METALLIC VEINS.

Other substances besides the unstratified rocks occur in veins, and particularly the metals, though they do not always appear in this form. Sometimes they are disseminated through the mass, as tin is in granite; sometimes they are found in bunches, as in the copper mines of Ecton, in Staffordshire; at other times they occur in beds, as in Thuringia; but in England they are commonly found in veins, called lodes by the miners. It must not, however, be supposed that these veins are entirely filled with metal, for, generally speaking, the ore occupies only a portion of the vein, and the other part is either entirely empty, or filled with broken earthy substances, called deads.

Veins differ considerably in thickness. Humboldt observed a vein of spar in the Alps of Switzerland, which was one