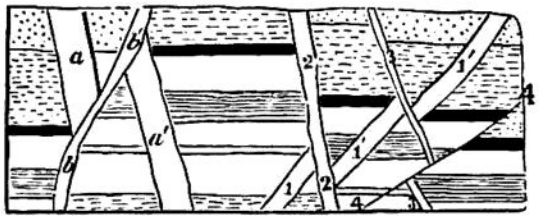
vein, where the rock in some places becomes a mica schist through the increase in the amount of mica; the intervals between the sheets of granite are all of mica schist or gneiss.

In the making of fissures, portions of the walls have often fallen into them. A foreign mass in a vein is called by miners a *horse;* while many masses may make it a *brecciated* vein.

Veins are often faulted (Fig. 296). The vein aa' is faulted by bb', and vein 1 is in three parts from other intersecting veins. The faulting shows that the vein bb' is of later origin than aa'; but not how much later, whether one year or a million. The following figures are from the same region as the large granite veins, Figs. 293–295.

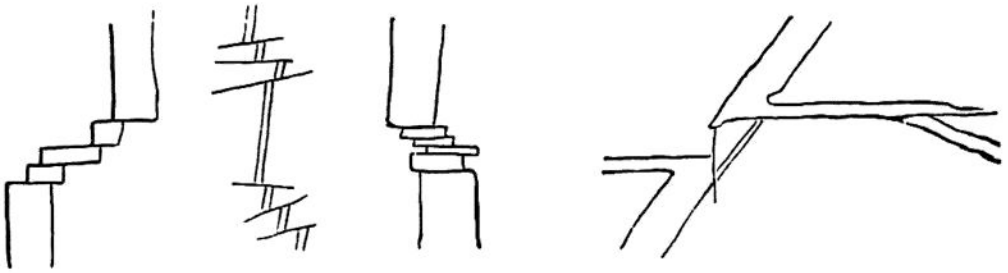
296.



In the pieces of the vein in Fig. 297, the width varies, but this is owing to an oblique shove in connection with the faulting, and to the fact that the vein-sheet varies in thickness. The parts in Fig. 302 may have connection inside the rock, or they may not. In Fig. 301, two parallel veins, six feet apart, are represented with somewhat similar, but still different, faulting.

Veins, as well as dikes, derive part of their irregularities from lateral displacements after the fracture is made. In Fig. 303, a fissure is reduced

297. 298. 299. 300.



301. 302.

Faulted veins from the vicinity of Valparaiso. D., '49.

to a series of independent open spaces by the downthrow of the side to the left, bringing the sides at intervals into contact. It may be illustrated in a piece of paper by cutting it across in the direction of the line a in Fig. 304; then, after opening it a little, and shoving one side first to the right and then to the left, the conditions in b and c will be obtained. The lesson taught is this: that an interruption in a vein, or in a trap ridge, does not prove interruption in the original fracture.