(4) By the disruptive or expansive action of vapors: as of vapors attending volcanic action; resulting not only in fissures, but also in vesicles or cavities in an ejected igneous rock, or along the walls of the dikes.

(5) Corroding vapors or solutions rising in a fissure have sometimes enlarged the fissure in some parts or made open spaces, especially when the rock was a limestone; thus large chambers have been excavated in this yielding rock for the reception of minerals and ores.

- (6) Porous strata have taken in vein-material in proportion to their porosity.
- (7) Caverns, however made, have become occupied with vein-material.

2. Forms and Kinds of Fissures.

Fissures intersect strata vertically or obliquely or make a network. The angle which the plane of a vein makes with the vertical is called the *hade* of the vein; the *hanging wall* is the upper wall in an oblique vein, and the opposite is the *foot wall*. 287.



VEINS. — Fig. 285, two simple veins; 286, two veins, one faulted; 287, a network of quartz veins intersecting schist, the slab 5 feet square.

In the case of *upturned* rocks, veins may either cut across the beds, or occupy spaces between them. Such interstitial veins (Figs. 287, 288, 290) are very common in slaty and schistose rocks, because forces below can more easily open such spaces than make fractures across the beds; for it is fol-



Interstitial veins.

lowing the grain of the rock. Such an opened space may continue for some distance between the bedding, and then cut across to another plane of bedding, and so on, the mean direction being that which the space would have