Cornwall, the central zone (*e* in Fig. 315) is formed of quartz-crystals pointing as usual from the sides toward the centre of the vein, but it is only one of five similar zones, each of which marks an opening of the fissure and the subsequent closing of it by a deposit of mineral matter along the walls.[2] The occurrence of different layers on the two walls of a vein may sometimes indicate successive openings of the fissure. In Fig. 316 the fissure at one time, no doubt, extended no further than between 1 and 2. Whether the band of copper pyrites had already filled up the fissure, previous to the opening which allowed the deposit of the silica, or was introduced into a fissure opened between 2 and 3 after the deposit of the silica, is uncertain.[3]

The occurrence of rounded pebbles of slate, quartz, and granite in the lodes of Cornwall at depths of 600 feet from the surface, of gneiss in the vein at Joachimsthal at 1150 feet, and of Liassic land and freshwater shells at 270 feet in veins traversing the Carboniferous Limestone of the Mendip Hills and South Wales, seems to indicate that fissures may remain sufficiently open to allow of the introduction of water-worn stones and terrestrial organisms from the surface even down to considerable depths.[4]

Connection of veins with faults and cross-veins.—While the interspaces between any divisional planes in rocks may serve as receptacles of mineral depositions, the largest and most continuous veins have for the most part been formed in lines of fault. These may be traced, sometimes in a nearly straight course, for many miles across a country, and as far downward as mining operations have been able

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[2] De la Beche, "Geol. Obs." p. 698. [3] De la Beche, op. cit. p. 699.
[4] De la Beche, op. cit. p. 696. Moore, Q. J. Geol. Soc. xxiii. 483; Brit. Assoc. 1869, p. 360.