

When all movement had ceased, there were seen on the floor of the house, at the bottom of each rent, small heaps of fine brickdust, evidently produced by trituration.

In some of the veins in the mountain limestone of Derbyshire, containing lead, the vein-stuff, which is nearly compact, is occasionally traversed by what may be called a vertical crack passing down the middle of the vein. The two faces in contact are slicken-sides, well polished and fluted, and sometimes covered by a thin coating of lead-ore. When one side of the vein-stuff is removed, the other side cracks, especially if small holes be made in it, and fragments fly off with loud explosions, and continue to do so for some days. The miner, availing himself of this circumstance, makes with his pick small holes about 6 inches apart, and 4 inches deep, and on his return in a few hours finds every part ready broken to his hand.* These phenomena and their causes (probably connected with electrical action) seem scarcely to have attracted the notice which they deserve.

That a great many veins communicated originally with the surface of the country above, or with the bed of the sea, is proved by the occurrence in them of well-rounded pebbles, agreeing with those in superficial alluviums, as in Auvergne and Saxony. In Bohemia, such pebbles have been met with at the depth of 180 fathoms. In Cornwall, Mr. Carne mentions true pebbles of quartz and slate in a tin lode of the Relistran Mine, at the depth of 600 feet below the surface. They were cemented by oxide of tin and bisulphuret of copper, and were traced over a space more than 12 feet long and as many wide.† Marine fossil shells, also, have been found at great depths, having probably been engulfed during submarine earthquakes. Thus, a gryphæa is stated by M. Virlet to have been met with in a lead-mine near Sémur, in France and a madrepora in a compact vein of cinnabar in Hungary.‡

When different sets or systems of veins occur in the same country, those which are supposed to be of contemporaneous origin, and which are filled with the same kind of metals, often maintain a general parallelism of direction. Thus, for example, both the tin and copper veins in Cornwall run nearly east and west, while the lead-veins run north and south; but there is no general law of direction common to different mining districts. The parallelism of the veins is another reason for regarding them as ordinary fissures, for we observe that contemporaneous trap dikes, admitted by all to be masses of melted matter which have filled rents, are often parallel. Assuming then, that veins are simply fissures in which chemical and mechanical deposits have accumulated, we may next consider the proofs of their having been filled gradually and often during successive enlargements. I have already spoken of parallel layers of clay, quartz, and ore. Werner himself observed, in a vein near Gersdorff, in Saxony, no less than thirteen beds of different

* Conyb. and Phil. Geol. p. 401; and Farey's Derbysh. p. 243.

† Carne, Trans. of Geol. Soc. Cornwall, vol. iii. p. 238.

‡ Fourquet, Études sur les Dépôts Métallifères.