

by means of a rake vein ; when without this kind of connexion, the nearly horizontal deposits is termed a *flat-work*, which is rare. The direction of the veins containing ore, appears to be nearly east and west, and their hade or underlie beneath the surface, towards the north or south ; but in this respect, it is said that a vein will change two or three times from north to south : these veins are crossed by others whose direction on the surface is nearly north and south. The east and west veins in descending, are always *cut off by the strata of toadstone*,* which therefore pass through and divide them ; and it is worthy of note, that when the vein is again found in the stratum of limestone beneath the toadstone, it is not *immediately on a line* with the upper part, nor exactly of the same nature ; in this case a vein is said to have *squinted*. The toadstone is said sometimes to assume the consistence of clay. It has been before noticed that the limestone strata contain thin beds of clay, termed by the miner *way-boards* ; these sometimes pass through and divide the veins of ore in the same manner as the toadstone does : and so complete is the separation of the veins of ore by the clay and the toadstone, that not even the water in the upper part of the vein penetrates through them into the part beneath. The sides or walls of a rake vein are commonly lined by fluor, or cawk, or calcareous spar, termed by the miner *vein-stuff* ; between, or against these, lies the ore, which sometimes fills up the space between them, and is then termed a *rib of ore*. But it sometimes happens that the vein-stuff of each wall of the vein is nearly compact, both so completely occupying the vein, that they meet together in close contact in the middle ; forming what might be termed from its appearance, a vertical crack down the vein. The two faces in contact, appear as though they had been polished, and are ribbed or somewhat fluted horizontally ; and the face of each is sometimes covered by a remarkably thin coating of lead ore ; these plaues, when separated, are the *slickensides* of the mineralogist. This circumstance is altogether remarkable in itself, but an extraordinary effect ensues when one side of the vein-stuff is removed. The other side then cracks, especially if small holes be made in it, and fragments fly off with loud explosions, and continue so to do for some days ; as is the case in the Gang mine in Cromford,

* We must, however, exercise some caution in adopting this opinion ; for since the publication of the works whence the above information was extracted, indications have in some instances been found of the passage of the lead veins, into the toadstone. The subject is yet veiled in some obscurity, but it is certain that the ore generally stops where the vein descends into the toadstone, in which the lead has hitherto been found only in very small quantities, chiefly in strings.