

It is in the lower beds of mountain limestone that enormous natural caverns frequently occur : such are the well-known cavern near Castleton, and Pool's-hole, near Buxton in Derbyshire ; and Yordas Cave, under Whernside, in Craven. Gordal Scar and Weathercote Cave, in the same district, cannot properly be called caverns, as they are open to the day ; but the latter was probably once a cavern, of which the roof has fallen in. In all these caverns, and others that I have observed in this limestone, there is a stream of running water, which is more or less copious in rainy or dry seasons. I am inclined to believe that the caverns have been formed by the agency of water, percolating through natural fissures, and in the lapse of ages excavating the softer or more broken parts of the rock. The prodigious force with which these subterranean streams rush through the openings of some of these caverns, after continued rains, suggests the probability of this mode of formation. The whole of that enormous mass of limestone in Craven, from Ingleborough and Whernside to Gordal, is intersected by perpendicular fissures, which are narrow at the top, and become wider as they descend, through which the water may be heard to run at a vast depth below. These unseen but ever-active streams are slowly but progressively wearing down the internal parts of these calcareous mountains, and depositing them in the sea.

The mountain limestone of Derbyshire demands particular attention from the interesting geological phenomena which it presents ; though it has been much visited and frequently described, I believe the accounts hitherto given have been in some respects erroneous. I revisited the country round Matlock soon after my return from the Continent, and was then convinced that the structure of the calcareous mountains had been mistaken, but the state of my health did not permit me to pursue the enquiry. Since the publication of the third edition of this work, I have examined this part of the country carefully, and shall briefly state the result of my observations. Mr. Whitehurst has the merit of being the first observer who discovered some of the leading features of the geology of this district : he boldly pronounced that the beds of trap and amygdaloid, provincially called *Toadstone*, which are interposed in the limestone, were volcanic lava, or at least had an igneous origin. This opinion was much opposed at the time ; it is now confirmed by such a weight of evidence, as to leave little doubt respecting its correctness, (See Chap. IX.) though the facts and arguments by which Mr. Whitehurst's views were then supported were in some respects fallacious.

Mr. Farey, who followed Mr. Whitehurst, adopted the same views of the general structure of the country, though his opinions respecting the formation of the toadstone were entirely different ; he considered it to be an aqueous deposition, forming regular strata, like those of sandstone in the coal measures.

Mr. Whitehurst and Mr. Farey describe three beds of toadstone, and four of limestone, in a descending series.