

CHAPTER XX.

ON SUBTERRANEAN RIVERS AND CURRENTS, AND ON CAVERNS.

Occurrence of Subterranean Currents and Rivers in various Parts of the World.—The Principal Agents in the Formation of Caverns.—Remarkable Cavern and Cascade in the Speedwell Mine, Derbyshire.—Subterranean Currents and Caverns generally in Calcareous Mountains.—The reason explained.—Subterranean Currents connected with the Surface Water, deposit Animal and Vegetable Remains between ancient Strata, proved by Facts.—Caverns with bones of extinct Species of Animals in Germany and France, intermixed with Human Bones, and Implements of Industry.—Bones introduced into Caverns by Subterranean Currents and other causes, and at different Epochs.—Cavern at Kirkdale, in Yorkshire.—Bones found in the Clefs and Fissures of Rocks forming Osseous Breccia in various Parts of Europe, and in New Holland.—Epochs of their Deposition supposed to be different in distant Parts of the Globe.

BESIDE the fissures and spaces filled with metallic matter, that occur in the older rocks, as described in the preceding chapter, there are empty spaces or caverns, that sometimes extend far into the interior of mountains, and sometimes descend to considerable depths. Almost all large caverns occur in limestone rocks, chiefly of the transition and the secondary class. Caverns, in some instances, may have been formed by the upheaving or subsiding of rocks; but they have, most frequently, been excavated by subterranean currents of water, which have enlarged original fissures, or carried away the beds of soft clay or loose sand that were interposed between hard strata. Many large caverns have streams of water constantly running through them; and, after heavy rains, they are often gorged with water, which issues with violence from their mouths. This is the case with the great Peak Cavern, near Castleton, in Derbyshire.

The action of subterranean currents of water, has scarcely been attended to by geologists; but were it better understood, it might probably afford a satisfactory explanation of several facts in geology that have been regarded as anomalous, particularly that of the occurrence of bones in caverns which have no opening to the surface. In the third edition of this work, I stated some instances of these currents in mountain limestone.

The mountain or transition limestone of Craven, in Yorkshire, forms, in many parts, a nearly flat elevated surface of table land, covered with vegetation, but intersected by numerous fissures or chasms of vast length and depth, varying from a few inches to a foot or more in width. Many of these fissures widen as they descend; and at the bottom, streams of water may be, frequently, heard running. During snow, it is not uncommon for sheep to be lost in these chasms, and the whole surface is extremely dangerous, to traverse in the dark. Limestone plains, intersected by such fissures, may be regarded as natural traps for herbivorous animals, into which, when