

tion. The dotted line and open spaces show where the limestone has been quarried away: 1, 2, are deep galleries over each other, along which the limestone is also quarried; the lower is near the level of a canal which penetrates the hill to convey the limestone away: c, represents the outcrop of the thirty feet bed of Staffordshire coal, which comes to the surface near Wren's Nest Hill; b, represents the arrangement of the limestone strata at Dudley Castle Hill, similar to that at Wren's Nest Hill; and d, a hill capped with rudely columnar basalt in the vicinity. In this section the proportion of distance has been disregarded, in order to comprise the different objects in one view: the distance between Dudley Castle Hill and Wren's Nest Hill, is about two miles. The strata at Dudley Castle are what is called saddle shaped, declining on each side of the hill.

The transition limestone of Dudley is not covered by any beds of the upper-transition or mountain limestone, but by strata about seventy-six yards in total thickness, composed of imperfect limestone and sandstone, which separate it from the lowest coal measures. It is therefore to be particularly noticed, that the coal strata, which in most of the coal districts in England rest upon the upper transition or mountain limestone, in this part of Staffordshire, rest upon the lower transition limestone. The remarkable fossil, the trilobite, called the Dudley fossil, occurs principally if not entirely, in a stratum under the first limestone. There are shells in what are called the wild measures, but they are in a soft and decomposing state.

The lower transition limestone in England and Wales, is not a very extensive formation: it skirts the granite of Dartmoor, and part of the Malvern Hills; it extends in a narrow belt from Wenlock, in Shropshire, to Caermarthen, in Wales, and is generally accompanied with soft greenish schistose strata, called dye earth, which contain numerous impressions of shells. A few patches of this limestone occur in various parts of the slate districts in Wales, and Cumberland. This part of the transition limestone series is remarkable chiefly for its organic remains; it is rarely metalliferous.

The upper transition or mountain limestone is, as I have before stated, the limestone to which the French geologists gave, *par excellence*, the name of *Calcaire de transition*. It is by many English geologists considered as a distinct formation from the lower, or what they call the true transition limestone; and it is said to be "separated from it by the important formation of the old red sandstone:" but the latter is only a variety of greywacke, and is acknowledged, even by those who make it a distinct formation, to graduate into greywacke, and to possess all the general characters of that rock, except that it is colored red. The old red sandstone contains, in some situations, beds of imperfect limestone, which may be said to connect the lower transition and mountain limestones in one formation, together with the associated beds of greywacke, red sandstone, and gritstone.