and are marked, in a manner yet more strong perhaps than in any other instance which can be adduced, as the results of a distant and different order of causes.

In treating of this district we shall pursue the arrangement before adopted in our description of the Penine chain, first giving an outline of the principal facts relating to the coal-formation in the several basins, and then in succession of the mill-stone-grit, the mountain lime, and the old red sandstone.

I. COAL BASIN OF SOUTH WALES.

First then as most important we may enter on the coal basin of South Wales.

The *Great Coal-field of South Wales*, extending from Pontipool on the east to St. Bride's Bay, south of St. David's head, on the west, belongs to the independent Coal-formation; and is situated in a large limestone basin. The limestone crops out at the surface all round the coal, except where its continuity is interrupted by Swansea and Caermarthen bays. The deepest part of this basin is in the neighbourhood of Neath, which is near its centre: and below Neath, or a little to the west of it, the lowest strata of coal are nearly 700 fathoms lower than the outcrop of some of the superior strata in the more hilly parts of this district. The bed of coal which is nearest to the surface, lies, (near Neath) about 60 fathoms beneath it, and rises to it about a mile north and south, and also a few miles east and west of the deepest part of the basin. So that we are to imagine the inferior beds of coal rising to the surface all round the outcrop of the superior stratum, and between it and the basset edges of the limestone basin. If a line be drawn from Pontipool on the east to St. Bride's bay on the west, it may be said that all the beds of coal on the north of that line crop out on the north of it, at distances proportionate to their depth beneath the surface: so also those on the south of it, except near Pontipool, where they rise towards the east.

It appears however that, though the lowest bed of coal is so far beneath the greatest elevations of this district as near 700 fathoms, the miner finds it without any very considerable descent: for the whole country is intersected by deep vallies in a north and south direction, which consequently cut the strata of the coal. The miner therefore, taking advantage of this circumstance, drives levels into the hills, and there finds the beds of coal and ironstone; there are however many mines in vallies and low places.

There are (according to Mr. Martin) 12 beds of coal from