does not materially affect the next question to be considered; for if they did spread over part of these Carboniferous strata, they must have thinned away to a feather edge in times long before the Oolitic escarpment began to be formed.

Taken as a whole, from the great escarpment of Carboniferous Limestone that overlooks the Vale of Eden on the east, all the Carboniferous strata from thence to the German Ocean have a gentle eastern dip; so gentle, indeed, that, on Mallerstang and other high hills overlooking the Vale of Eden, outlying patches of Millstone Grit, still remain to tell that once the whole of the Coal-measures spread across the country as far as the edge of the Vale, and even far beyond in pre-Permian times, for the Carboniferous Limestone on both sides of the Vale of Eden, now broken by a fault, was once continuous, and the Whitehaven coalfield was then united to that of Northumberland. These gentle eastern and south-eastern dips, caused by upheaval of the strata on the west and north-west, gave the initial tendency of all the rivers of the region to flow east and south-east. Thus it happens that the Tees, the Wear, the Derwent, the Tyne, the Blyth, the Coquet, and the Alne, have found their way to the German Ocean, cutting and deepening their valleys as they ran, the sides of which, widened by time and subaerial degradation, now often rise high above the rivers in the regions west of the Coal-measures, in a succession of terraces of limestone bands, tier above tier, as it were in Titanic steps, till on the tops of the hills we reach the Millstone Grit itself.

I now turn to the western-flowing rivers, about which there is far less to be said.

First, the Eden:—This river flows along the whole