

only the relic of an average general gentle slope, represented by the straight line (*b b*) drawn from the inland heights towards the sea.’<sup>1</sup> Mr. Jukes applied and extended the scope of the same kind of reasoning to the south of Ireland, with great success. In various parts of Europe, notably in those regions that have been longest above the water—on the banks of the Moselle and of the Rhine, and in the great coalfield west of the Appalachian chain in North America—we find unnumbered valleys intersecting tablelands, of a form that leads us to believe that they also have been made by the long-continued action of atmospheric waste and running waters; and I believe that the valleys of South Wales have been formed in the same way, and in their origin are even often of latest palæozoic dates.

Nothing is more remarkable in the history of rivers than the circumstance that very frequently they run straight through bold escarpments, which at first sight we might suppose ought to have barred the course of the streams.<sup>2</sup> The Wye in South Wales, for example, runs through a bold escarpment of Old Red Sandstone hills; and the same is the case with the Usk.

For long it was customary to attribute such breaches in escarpments, and indeed valleys in general, to disturbances and fractures of the strata, producing a wide separation, and actually making hills. But when we realise that thousands of feet of strata have often been removed by denudation since the great disturbances of the Welsh strata took place, it becomes clear that the present valleys are in no way immediately connected with them; for even if there be dislocations or faults

<sup>1</sup> Reports, British Association, p. 66, 1847.

<sup>2</sup> This has already been alluded to in the case of the rivers of the Wealden, pp. 108–119.