

my surmise is, that this same westerly and north-westerly tilting of the Chalk of England *formed a gentle slope towards the mountains of Wales*, as shown in fig. 102, and the rivers of the period of the middle and south of England at that time flowed westerly. *This first induced the Severn to take a southern course between the hilly land of Wales and Herefordshire and the long slope of Chalk then rising to the east.* Aided by the tributary streams of Herefordshire, it began to cut a valley towards what afterwards became the Bristol Channel, *and established the beginning of the escarpment of the Chalk, e, fig. 102*, which has since gradually receded, chiefly by atmospheric waste, so far to the east. If this be so, then the origin of the valley of the Severn between *e* and *l* *is of immediate post-Miocene date, and is one of the oldest in the lowlands of England.*<sup>1</sup>

The course of the Avon, which is a tributary of the Severn, and joins it at Tewkesbury, is, I believe, of later date than the latter river. It now rises at the base of the escarpment of the Oolitic rocks east of Rugby, and gradually established and increased the length of its channel in the low grounds now formed of Lower Lias and New Red Marl as that escarpment retired eastward by virtue of that law of waste which causes all inland escarpments to retire away from the steep slope and in the direction of the dip of the strata.

If the general slope of the surface of the Chalk of this part of England had been easterly instead of westerly at the post-Miocene date alluded to, then the initial course of the Severn would also have been easterly, like

<sup>1</sup> Many of the valleys of Wales must be very much older.