Although most frequent in soft alluvial plains, serpentine water-courses may also be eroded in solid rock if the original form of the surface was tolerably flat. The windings of the gorges of the Moselle (Fig. 117) and Rhine through the table-land between Trèves, Mainz, and the Siebengebirge form a notable illustration.

Abrupt changes in the geological structure or lithological character of the rocks of a river-channel may give rise to water-

Fig. 116.—Meandering course of a brook.

falls. In many cases, this feature of river-scenery has originated in lines of escarpment over which the water at first found its way, or in the same geological arrangement of hard and soft rocks by which the escarpments themselves have been produced. The occurrence of horizontal, tolerably compact strata, traversed by marked lines of joint, and resting upon softer beds, presents a structure well adapted for showing the part played by waterfalls in river-erosion. The waterfall acts with special potency against the softer underlying materials at its base. These are hollowed out, and as the foundations of the superincumbent more solid rocks are destroyed, slices of the latter from time to time fall off into the boiling whirlpool, where they

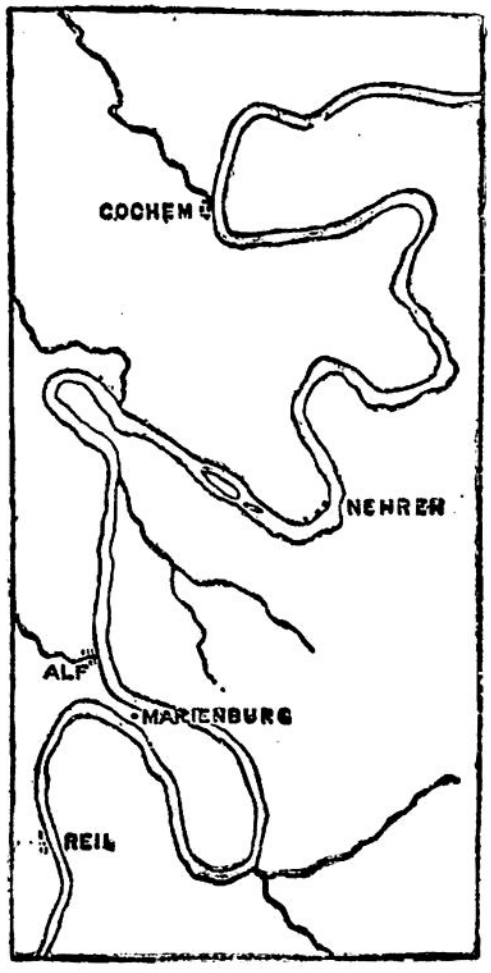

Fig. 117.—Windings of the gorge of the Moselle above Cochem.