

the angle of declivity of its banks, and in the details of its erosion. On a small but instructive scale these phenomena are revealed in the operations of brooks. Thus, one of the most characteristic features of streams, whether large or small, is the tendency to wind in serpentine curves when the angle of declivity is low, and the general surface of the country tolerably level. This peculiarity may be observed in every stream which traverses a flat alluvial plain. Some slight weakness in one of its banks enables the current to cut away a portion of the bank at that point. By degrees a concavity is formed round which the upper water sweeps with increased velocity, while under-currents tend to carry sediment across to the opposite side. The outer bank is accordingly worn away, while the inner or concave side of the bed is not attacked, but is even protected by a deposit of sand or gravel.¹⁵⁹ Thus, bending alternately from one side to the other, the stream is led to describe a most sinuous course across the plain. By this process, however, while the course is greatly lengthened, the velocity proportionately diminishes, until, before quitting the plain, the stream may become a lazy, creeping current, in England commonly bordered with sedges and willows. A stream may eventually cut through the neck of land between two loops, as at *a*, *b*, and *c*, in Fig. 116, and thus for a while shorten its channel. Instances of this nature may frequently be observed in streams flowing through alluvial land. The old deserted loops¹⁶⁰ are converted, first into lakes, and by degrees into stagnant pools or bogs, until finally, by growth of vegetation and infilling of sediment by rain and wind, they become dry ground.

¹⁵⁹ J. Thomson, *Proc. Roy. Soc.* xxv., 1876, p. 5.

¹⁶⁰ "Aigues-mortes," or dead waters. See p. 680, note.