

shallower, and is soon destined to be raised so high as to form an addition to the alluvial plain, and to be only occasionally inundated. In this way, after much encroachment on cliff or meadow at certain points, we find at the end of centuries that the width of the channel has not been enlarged, for the new made ground is raised after a time to the average height of the older alluvial tract. Sometimes an island is formed in midstream, the current flowing for a while on both sides of it, and at length scooping out a deeper channel on one side so as to leave the other to be gradually filled up during freshets and afterwards elevated by inundation mud, or 'brick-earth.' During the levelling up of these old channels, a flood sometimes cuts into and partially removes portions of the previously stratified matter, causing those repeated signs of furrowing and filling up of cavities, those memorials of doing and undoing, of which the tool-bearing sands and gravels of Abbeville and Amiens afford such reiterated illustrations, and of which a parallel is furnished by the ancient alluvium of the Thames valley, where similar bones of extinct mammalia and shells, including *Cyrena fluminalis*, are found.

Professor Noeggerath, of Bonn, informs me that, about the year 1845, when the bed of the Rhine was deepened artificially by the blasting and removal of rock in the narrows at Bingerloch, not far from Bingen, several flint hatchets and an extraordinary number of iron weapons of the Roman period were brought up by the dredge from the bed of the great river. The decomposition of the iron had caused much of the gravel to be cemented together into a conglomerate. In such a case we have only to suppose the Rhine to deviate slightly from its course, changing its position, as it has often done in various parts of its plain in historical times, and then tools of the stone and iron periods would be found in gravel at the bottom, with a great thickness of sand and overlying loam deposited above them.