the time when that basin had already acquired its present outline of hill and valley. I allude to the deposit provincially termed *loess* in part of Germany, or *lehm* in Alsace, filled with land and freshwater shells of existing species. It is a finely comminuted sand or pulverulent loam of a yellowish gray color, consisting chiefly of argillaceous matter combined with a sixth part of carbonate of lime, and a sixth of quartzose and micaceous sand. It often contains calcareous sandy concretions or nodules, rarely exceeding the size of a man's head. Its entire thickness amounts, in some places, to between 200 and 300 feet; yet there are often no signs of stratification in the mass, except here and there at the bottom, where there is occasionally a slight intermixture of drifted materials derived from subjacent rocks. Unsolidified as it is, and of so perishable a nature, that every streamlet flowing over it cuts out for itself a deep gully, it usually terminates in a vertical cliff, from the surface of which land-shells are seen here and there to project in relief. In all these features it presents a precise counterpart to the loess of the Mississippi. It is so homogeneous as generally to exhibit no signs of stratification, owing, probably, to its materials having been derived from a common source, and having been accumulated by a uniform action. Yet it displays in some few places decided marks of successive deposition, where coarser and finer materials alternate, especially near the bottom. Calcareous concretions, also inclosing land-shells, are sometimes arranged in horizontal layers. It is a remarkable deposit, from its position, wide extent, and thickness, its homogeneous mineral composition, and freshwater origin. Its distribution clearly shows that after the great valley of the Rhine, from Schaffhausen to Bonn, had acquired its present form, having its bottom strewed over with coarse gravel, a period arrived when it became filled up from side to side with fine mud, probably deposited during river inundations; and it is also clear that similar mud and silt were thrown down contemporaneously in the valleys of the principal tributaries of the Rhine.

Thus, for example, it may be traced far into Würtemberg, up the valley of the Neckar, and from Frankfort, up the valley of the Main, to above Dettelbach. I have also seen it spreading over the country of Mayence, Eppelsheim, and Worms, on the left bank of the Rhine, and on the opposite side on the table-land above the Bergstrasse, between Wiesloch and Bruchsal, where it attains a thickness of 200 feet. Near Strasburg, large masses of it appear at the foot of the Vosges on the left bank, and at the base of the mountains of the Black Forest on the right bank. The Kaiserstuhl, a volcanic mountain which stands in the middle of the plane of the Rhine near Freiburg, has been covered almost everywhere with this loam, as have the extinct volcanoes between Coblentz and Bonn. Near Andernach, in the Kirchweg, the loess containing the usual shells alternates with volcanic matter; and over the whole are strewed layers of pumice, lapilli, and volcanic sand, from 10 to 15 feet thick, very much resembling the ejections under which Pompeii lies buried. There is no passage at this upper junction from the loess into