solution has been introduced, so as to bind together materials previously incoherent. The constituents of some beds have probably set and become hard when they emerged from beneath the water, as the marl of Lake Superior, which incloses freshwater shells, and which is no sooner exposed to the air than it becomes solid, so as only to be broken by a smart blow of the hammer. Organic remains have sometimes suffered a singular transformation, as, for example, where shells, corals, and wood are silicified, their calcareous or ligneous matter having been replaced by nearly pure silica.

But, on the other hand, we observe in certain formations now in progress, particularly in coral reefs, and in deposits from the waters of mineral springs, both calcareous and siliceous, that the texture of rocks may sometimes be stony from the first. This circumstance may account for exceptions to the general rule, not unfrequently met with, where solid strata are superimposed on others of a plastic and incoherent nature, as in the neighbourhood of Paris, where the tertiary formations, consisting often of compact limestone and siliceous grit, are more stony than the subjacent chalk.

It will readily be understood, that the various solidifying causes, including those above enumerated, together with the pressure of incumbent rocks and the influence of subterranean heat, must all of them require time in order to exert their full power. If in the course of ages they modify the aspect and internal structure of stratified deposits, they will give rise to a general distinctness of character in the older as contrasted with the newer formations. But this distinctness will not be the consequence of any original diversity: they will be unlike, just as the wood in the older trees of a forest usually differs in texture and hardness from that of younger individuals of the same species.

Transition texture.—In the original classification of Werner, the highly crystalline rocks, such as granite and gneiss, which contain no organic remains, were called primary, and the fossiliferous strata secondary, while to another class of an age intermediate between the primary and secondary he gave the name of transition. They were termed transition because they partook in some degree in their mineral composition of the nature of the most crystalline rocks, such as gneiss and mica-schist, while they resembled the fossiliferous series in containing occasionally organic remains, and exhibiting evident signs of a mechanical origin. It was at first imagined, that the rocks having this intermediate texture had been all deposited subsequently to the series called primary, and before all the more earthy and fossiliferous formations. But when the relative position and organic remains of these transition rocks were better understood, it was perceived that they did not all belong to one period. On the contrary, the same mineral characters were found in strata of very different ages, and some formations occurring in the Alps, which several of the ablest scholars of Werner had determined to be transition, were ultimately ascertained, by means of their fossil contents and position, to be members of the Cretaceous, and even of