

stone, and so forth, differing in many respects from each other, but agreeing in one essential character, that they are composed of fragmentary or detrital material, derived from rocks older than themselves. He saw that these various strata could be exactly paralleled among the accumulations now taking place under the sea. The pudding-stones were, in his eyes, only compacted gravels, the sandstones were indurated sand, the limestones were in great part derived from the aggregation of the remains of marine calcareous organisms, the shales from the consolidation of mud and silt. The wide extent of these strata, forming, as they do, most of the dry land, seemed to him to point to the sea as the only large expanse of water in which they could have been deposited.

Thus corroborating the deductions of previous observers, the first conclusion of the Scottish philosopher was that the greater part of the land consists of compacted sediment which, worn away from some pre-existing continents, was spread out in strata over the bed of the sea. He realised that the rocks thus formed are not all of the same age, but, on the contrary, bear witness to a succession of revolutions. He acknowledged the existence of a series of ancient rocks which he called Primary, not that he believed them to be the original or first-formed rocks in the structure of the planet, but that they were the oldest that had then been discovered. They included the various schists and slates which Werner claimed as chemical precipitates, but in which Hutton could only see the hardened and altered mechanical sediments of a former ocean. Above them, and partly formed out of