

century, have given so rapid an impulse to the science. In his system he distinguishes, resting on primitive schists, thirteen subformations, which in modern phrase, range between the *rothe todte*¹ and the *Muschelkalk*, each being characterised by a distinctive assemblage of fossils, or peculiarities of marine and fluviatile deposition, the carbonaceous strata being attributed to exotic plants of marshes and forests, the accumulation of which, by means of river floods, has produced coal.² As these formations contain remains of land plants and animals, the seas in which the strata were formed must have surrounded an ancient continent, which at an earlier date was also formed of strata after the manner of those he described, and this again by a continent older still, for he taught that the physical phenomena of the earth are constant and unchangeable.

Rather later, Werner, by his enthusiasm, eloquence, and skill as a mineralogist, also lent some aid to the cause; but his ignorant and bigoted adherence to the dogma that all rocks are aqueous, did much to retard the advance of truth. His far greater opponent, Hutton (1788), in his *Theory of the Earth*, expounded the true doctrine, which may be summed up as follows:—

1st. That, in the known geological history of the world, the course of events has never been disturbed by universal paroxysmal catastrophes, but that the course of change has been similar to that of the existing economy of nature.

¹ The passage is a little obscure: the words *rothe todte* would seem to imply that the strata are of Permian age, while the statement that the strata lie beneath the *formation houillère*, would bespeak strata perhaps equivalent to our Old Red Sandstone.

² 'Journal de Géologie,' 1830, p. 192.