

bably, of the labors of Strachey in England. He divided mountains into three classes; ⁸ *primitive*, which were formed with the world;—those which resulted from a partial destruction of the primitive rocks;—and a third class resulting from local or universal deluges. In 1759, also, Arduine,⁹ in his Memoirs on the mountains of Padua, Vicenza, and Verona, deduced, from original observations, the distinction of rocks into *primary*, *secondary*, and *tertiary*.

The relations of position and fossils were, from this period, inseparably connected with opinions concerning succession in time. Odoardi remarked,¹⁰ that the strata of the Sabapennine hills are *unconformable* to those of the Apennine, (as Strachey had observed, that the strata above the coal were unconformable to the coal;¹¹) and his work contained a clear argument respecting the different ages of these two classes of hills. Fuchsel was, in 1762, aware of the distinctness of strata of different ages in Germany. Pallas and Saussure were guided by general views of the same kind in observing the countries which they visited: but, perhaps, the general circulation of such notions was most due to Werner.

Sect. 2.—Systematic form given to Descriptive Geology.—Werner.

WERNER expressed the general relations of the strata of the earth by means of classifications which, so far as general applicability is concerned, are extremely imperfect and arbitrary; he promulgated a theory which almost entirely neglected all the facts previously discovered respecting the grouping of fossils,—which was founded upon observations made in a very limited district of Germany,—and which was contradicted even by the facts of this district. Yet the acuteness of his discrimination in the subjects which he studied, the generality of the tenets he asserted, and the charm which he threw about his speculations, gave to Geology, or, as he termed it, *Geognosy*, a popularity and reputation which it had never before possessed. His system had asserted certain universal formations, which followed each other in a constant order;—granite the lowest,—then mica-slate and clay-slate;—upon these *primitive* rocks, generally highly inclined, rest other *transition* strata;—upon these, lie *secondary* ones, which being more nearly horizontal, are called *flötz* or flat. The term *formation*,

⁸ Lyell, i. 70.

¹⁰ Ib. 74.

⁹ Ib. 72.

¹¹ Fitton, p. 157.