

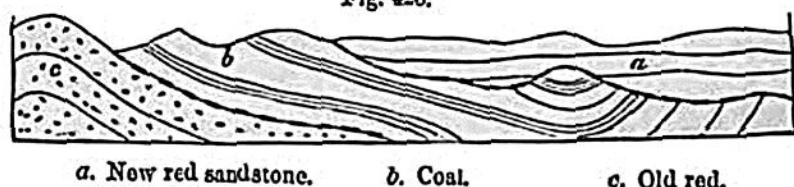
CHAPTER XXII.

TRIAS OR NEW RED SANDSTONE GROUP.

Distinction between New and Old Red Sandstone—Between Upper and Lower New Red—The Trias and its three divisions—Most largely developed in Germany—Keuper and its fossils—Muschelkalk and fossils—Fossil plants of the Bunter—Triassic group in England—Bone bed of Axmouth and Aust—Red Sandstone of Warwickshire and Cheshire—Footsteps of *Cheirotherium* in England and Germany—Osteology of the *Labyrinthodon*—Identification of this Batrachian with the *Cheirotherium*—Triassic mammifer—Origin of Red Sandstone and Rock-salt—Hypothesis of saline volcanic exhalations—Theory of the precipitation of salt from inland lakes or lagoons—Saltiness of the Red Sea—New Red Sandstone in the United States—Fossil footprints of birds and reptiles in the Valley of the Connecticut—Antiquity of the Red Sandstone containing them.

BETWEEN the Lias and the Coal, or Carboniferous group, there is interposed, in the midland and western counties of England, a great series of red loams, shales, and sandstones, to which the name of the New Red Sandstone formation was first given, to distinguish it from other shales and sandstones called the "Old Red" (c, fig. 423), often identical in mineral character, which lie immediately beneath the coal (b).

Fig. 423.



The name of "Red Marl" has been incorrectly applied to the red clays of this formation, as before explained (p. 13), for they are remarkably free from calcareous matter. The absence, indeed, of carbonate of lime, as well as the scarcity of organic remains, together with the bright red color of most of the rocks of this group, causes a strong contrast between it and the Jurassic formations before described.

Before the distinctness of the fossil remains characterizing the upper and lower part of the English New Red had been clearly recognized, it was found convenient to have a common name for all the strata intermediate in position between the Lias and Coal; and the term "Poi-kilitic" was proposed by Messrs. Conybeare and Buckland,* from ποικιλος, *variegated*, some of the most characteristic strata of this group having been called *variegated* by Werner, from their exhibiting spots and streaks of light blue, green, and buff color, in a red base.

* Buckland, Bridg. Treat. vol. ii. p. 89.