§ 2. Local Development

Britain.[249]—In England on a small scale, a representative is to be found of the two contrasted types of the European Permian system. On the east side of the island, from the coast of Northumberland southward to the plains of the Trent, a true "Dyas" development is exhibited, the Magnesian Limestone and Marl Slate forming the main feature of the system; on the west side of the Pennine chain, however, the true Permian or Russian facies is presented. The system is in this country most nearly complete in the north-western and southwestern counties of England. Arranged in tabular form the rocks of the western and eastern areas may be grouped as follows:

	W. of England	E. of England
Red sandstones, clays, and gypsum	600 ft.	50–100 ft.
Magnesian Limestone Marl Slate	10–30 "	600 "
Lower red and variegated sandstone, reddish brown and purple sandstones and marls, with calcareous conglomerates and breccias	3000 "	100–250 "

Lower Sandstone.—This subdivision attains its greatest development in the vale of the Eden, where it consists of brick-red sandstones, with some beds of calcareous breccia, locally known as "brockram," derived principally from the waste of the Carboniferous Limestone. These red rocks extend across the Solway into the valleys of the Nith and Annan in the south of Scotland, where they lie unconformably on the Lower Silurian rocks, from which their breccias have generally been derived, though near Dumfries they contain some "brockram." The breccias have evidently accumulated in small lakes or narrow

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[249] Sedgwick, Trans. Geol. Soc. (2) iii. 1835, p. 37; iv. 383; De la Beche, "Geology of Cornwall, Devon," etc. p. 193; Murchison, "Siluria," p. 308; W. King, "Monograph of the Permian Fossils," Palæontog. Soc. 1850; Hull, "Triassic and Permian Rocks of Midland Counties of England," in Mem. Geol. Surv. 1869; Q. J. Geol. Soc. xxv. 171; xxix. p. 402; xlviii. p. 60; Ramsay, op. cit. xxvii. p. 241; Kirkby, op. cit. xiii. xvi. xvii. xx.; E. Wilson, op. cit. xxxii. p. 533; D. C. Davies, op. cit. xxxiii. p. 10; H. B. Woodward, Geol. Mag. 1874, p. 385; "Geology of England and Wales," p. 210; T. V. Holmes, Q. J. Geol. Soc. xxxvii. p. 286; W. T. Aveline, H. H. Howell in various Memoirs Geol. Surv.