

the red conglomerates, which might be supposed little likely to contain organic remains, are occasionally found to be full of detached scales, plates, and bones of fishes.

The Old Red Sandstone of Britain, according to the author's researches, consists of two subdivisions, the lower of which passes down conformably into the Upper Silurian deposits, the upper shading off in the same manner into the base of the Carboniferous system, while they are separated from each other by an unconformability.

1. LOWER.—Red sandstones, conglomerates, flagstones, and associated igneous rocks, passing in some places conformably down into Upper Silurian formations, elsewhere resting unconformably on Dalradian or other older rocks—*Dipterus*, *Cocosteus*, *Cephalaspis*, *Pterygotus*, etc.

In a memoir on the Old Red Sandstone of Western Europe, the author has proposed short names for the different detached basins in which the Lower Old Red Sandstone was accumulated.¹⁶⁴ The most southerly of these (the Welsh Lake) lies in the Silurian region extending from Shropshire into South Wales. Here the uppermost parts of the Silurian system graduate into red strata, not less than 10,000 feet thick, which in turn pass up conformably into the base of the Carboniferous system. This vast accumulation of red rocks consists in its lower portions of red and green shales and flagstones, with some white sandstones and thin cornstones; in the central and chief division, of red and green spotted sandy marls and clays, with red sandstones and cornstones; in the higher parts, of gray, red, chocolate-colored, and yellow sandstones, with bands of conglomerate. No unconformability has yet been proved in any part of this series of rocks, though, from the observations of De la Beche and Jukes, it may be suspected that the higher strata, which graduate upward into the Carboniferous formations, are separated from the underlying portions of the Old Red Sandstone by a distinct discordance.¹⁶⁵

Although, as a whole, barren of organic remains, these red rocks have here and there, more particularly in the calcareous zones, yielded fragments of fishes and crustaceans. In their lower and central portions remains of the fishes *Cephalaspis*, *Didymaspis*, *Scaphaspis*, *Pteraspis*, and *Cya-*

¹⁶⁴ Trans. Roy. Soc. Edin. xxviii. 1879.

¹⁶⁵ De la Beche, Mem. Geol. Surv. vol. i. 1846, p. 50. J. B. Jukes, Letters, etc. 1871, p. 508; letter to A. C. Ramsay, dated 1857. Symonds, "Records of the Rocks," 1872; Hughes, Brit. Assoc. Rep. 1875, sects. p. 70.