

contemporaneously erupted diabases, porphyrites, felsites, and tuffs play an important part in the petrography of the Old Red Sandstone, seeing that they attain a thickness in some places of more than 6000 feet, and form important ranges of hills. They point to the existence of extensive volcanic eruptions from numerous vents in the lakes or inland basins in which the sediments were accumulated.

LIFE.—No greater contrast is to be found between the organic contents of any two successive groups of rock than that which is presented by a comparison of the Upper Silurian and Old Red Sandstone systems of Western Europe. The abundant marine fauna of the Ludlow period disappeared from the region. As soon as the red rocks begin, the fossils rapidly die out. Some traces of the aquatic plants that grew in the fresh-water lakes have been detected. An abundant fossil, originally referred to the vegetable kingdom and named *Parka* by Fleming, was afterward considered to be more probably the egg-packets of the large crustaceans which abounded in these waters. More recently, however, this organism has been carefully studied by Sir J. W. Dawson and Prof. D. P. Penhallow, who have come to the conclusion that it represents what were aquatic plants with creeping stems, linear leaves and sessile sporocarps bearing two kinds of sporangia.¹⁵⁷ On the land that surrounded the lakes or inland seas of the period, there grew the oldest terrestrial vegetation of which more than mere fragments are known. It has been scantily preserved in the ancient lake-bottoms in Europe; more abundantly in Gaspé and New Brunswick. The American localities have yielded to the long-continued researches of Sir J. W. Dawson more than

¹⁵⁷ Trans. Roy. Soc. Canada, ix. 1891, sect. iv. pp. 3-16.