

neighbourhood of New York, and half way across the continent—in all these countries they are more or less developed.

We may add, as a general characteristic of the Silurian system as a whole, that of all formations it is the most disturbed. In the countries where it prevails, it only appears as fragments which have escaped destruction amid the numerous changes that have affected it during the earlier ages of the world. The beds, originally horizontal, are turned up, contorted, folded over, and sometimes become even vertical, as in the slates of Angers, Llanberis, and Ireleth. D'Orbigny found the Silurian beds with their fossils in the American Andes, at the height of 16,000 feet above the level of the sea. What vast upheavals must have been necessary to elevate these fossils to such a height!

In the Silurian period the sea still occupied the earth almost entirely; it covered the greater part of Europe: all the area comprised between Spain and the Ural was under water. In France only two islands had emerged from the primordial ocean. One of them was formed of the granitic rocks of what are now Brittany and La Vendée; the other constituted the great central plateau, and consisted of the same rocks. The northern parts of Norway, Sweden, and of Russian Lapland formed a vast continental surface. In America the emerged lands were more extensive. In North America an island extended over eighteen degrees of latitude, in the part now called New Britain. In South America, in the Pacific, Chili formed one elongated island. Upon the Atlantic, a portion of Brazil, to the extent of twenty degrees of latitude, was raised above water. Finally, in the equatorial regions, Guiana formed a later island in the vast ocean which still covered most other parts of the New World.

There is, perhaps, no scene of greater geological confusion than that presented by the western flanks of the Pennine chain. A line drawn longitudinally from about three degrees west of Greenwich, would include on its western side Cross Fell, in Cumberland, and the greater part of the Silurian rocks belonging to the Cambrian system, in which the Cambrian and Lower Silurian rocks are now well determined; while the upper series are so metamorphosed by eruptive granite and the effects of denudation, as to be scarcely recognisable. "With the rare exception of a seaweed and a zoophyte," says the author of '*Siluria*,' "not a trace of a fossil has been detected in the thousands of feet of strata, with interpolated igneous matter, which intervene between the slates of Skiddaw and the Coniston limestone, with its overlying flags; at that zone only do we begin to find anything like a fauna: here, judging from its fossils, we find representa-