

There is indisputable evidence that the Permian ocean covered an immense area of the globe. In the Permian period this ocean extended from Ireland to the Ural mountains, and probably to Spitzbergen, with its northern boundary defined by the Carboniferous, Devonian, Silurian, and Igneous regions of Scotland, Scandinavia, and Northern Russia; and its southern boundaries apparently stretching far into the south of Europe (King). The chain of the Vosges, stretching across Rhenish Bavaria, the Grand Duchy of Baden, as far as Saxony and Silesia, would be under water. They would communicate with the ocean, which covered all the midland and western counties of England and part of Russia. In other parts of Europe the continent has varied very little since the preceding Devonian and Carboniferous ages. In France the central plateaux would form a great island, which extended towards the south, probably as far as the foot of the Pyrenees; another island would consist of the mass of Brittany. In Russia the continent would have extended itself considerably towards the east; finally, it is probable that, at the end of the Carboniferous period, the Belgian continent would stretch from the Departments of the Pas-de-Calais and Du Nord, in France, and would extend up to and beyond the Rhine.

In England, the Silurian archipelago, now filled up and occupied by deposits of the Devonian and Carboniferous systems, would be covered with carboniferous vegetation; dry land would now extend, almost without interruption, from Cape Wrath to the Land's End; but, on its eastern shore, the great mass of the region now lying less than three degrees west of Greenwich would, in a general sense, be under water, or form islands rising out of the sea. Alphonse Esquiros thus eloquently closes the chapter of his work in which he treats of this formation in England: "We have seen seas, vast watery deserts, become populated; we have seen the birth of the first land and its increase; ages succeeding each other, and Nature in its progress advancing among ruins; the ancient inhabitants of the sea, or at least their spoils, have been raised to the summit of lofty mountains. In the midst of these vast cemeteries of the primitive world we have met with the remains of millions of beings; entire species sacrificed to the development of life. Here terminates the first mass of facts constituting the infancy of the British Islands. But great changes are still to produce themselves on this portion of the earth's surface."

Having thus described the *Primary Epoch*, it may be useful, before entering on what is termed by geologists the *Secondary Epoch*, to glance backwards at the facts which we have had under consideration.

In this Primary period plants and animals appear for the first