

The Permian rocks have of late years assumed great interest, particularly in England, in consequence of the evidence their correct determination affords with regard to the probable extent, beneath them, of the coal-bearing strata which they overlie and conceal; thus tending to throw a light upon the duration of our coal-fields, one of the most important questions of the day in connection with our industrial resources and national prosperity.

On the opposite page an ideal view of the earth during the Permian period is represented (PL. XII.). In the background, on the right, is seen a series of syenitic and porphyritic domes, recently thrown up; while a mass of steam and vapour rises in columns from the midst of the sea, resulting from the heat given out by the porphyries and syenites. Having attained a certain height in the cooler atmosphere, the columns of steam become condensed and fall in torrents of rain. The evaporation of water in such vast masses being necessarily accompanied by an enormous disengagement of electricity, this imposing scene of the primitive world is illuminated by brilliant flashes of lightning, accompanied by reverberating peals of thunder. In the foreground, on the right, rise groups of Tree-ferns, *Lepidodendra*, and *Walchias*, of the preceding period. On the seashore, and left exposed by the retiring tide, are Molluscs and Zoophytes peculiar to the period, such as *Producta*, *Spirifera*, and *Encrinites*; pretty plants — the *Asterophyllites* — which we have noticed in our description of the Carboniferous age, are growing at the water's edge, not far from the shore.

During the Permian period the species of plants and animals were nearly the same as those already described as belonging to the Carboniferous period. Footprints of reptilian animals have been found in the Permian beds near Kenilworth, in the red sandstones of that age in the Vale of Eden, and in the sandstones of Corncockle Moor, and other parts of Dumfriesshire. These footprints, together with the occurrence of current-markings or rippings, sun-cracks, and the pittings of rain-drops impressed on the surfaces of the beds, indicate that they were made upon damp surfaces, which afterwards became dried by the sun before the flooded waters covered them with fresh deposits of sediment, in the way that now happens during variations of the seasons in many salt lakes.* M. Ad. Brongniart has described the forms of the Permian flora as being intermediate between those of the Carboniferous period and of that which succeeds it.

* A. C. Ramsay, "On the Red Rocks of England." *Quart. Jour. Geol. Soc.*, vol. xxvii., p. 246.