

might be richer in carbonic acid than the atmosphere of the present day. It has even been thought that the small number of (especially air-breathing) animals, which then lived, might be accounted for by the presence of a greater proportion of carbonic acid gas in the atmosphere than is the case in our own times. This, however, is pure assumption, totally deficient in proof. Nothing proves that the atmosphere of the period in question was richer in carbonic acid than is the case now. Since we are only able, then, to offer vague conjectures on this subject, we cannot profess with any confidence to entertain the opinion that the atmospheric air of the Carboniferous period contained more carbonic acid gas than that which we now breathe. What we can remark, with certainty, as a striking characteristic of the vegetation of the globe during this phase of its history, was the prodigious development which it assumed. The Ferns, which in our days and in our climate, are most commonly only small perennial plants, in the Carboniferous age sometimes presented themselves under lofty and even magnificent forms.

Every one knows those marsh-plants with hollow, channelled, and articulated cylindrical stems; whose joints are furnished with a membranous, denticulated sheath, and which bear the vulgar name of "mare's-tail;" their fructification forming a sort of catkin composed of many rings of scales, carrying on their lower surface sacs full of *spores* or seeds. These humble *Equiseta* were represented during the Coal-period by herbaceous trees from twenty to thirty feet high and four to six inches in diameter. Their trunks, channelled longitudinally, and divided transversely by lines of articulation, have been preserved to us: they bear the name of *Calamites*. The engraving (Fig. 38) represents one of these gigantic mare's-tails, or *Calamites*, of the Coal-period, restored under the directions of M. Eugene Deslongchamps. It is represented with its fronds of leaves, and its organs of fructification. They seem to have grown by means of an underground stem, while new buds issued from the ground at intervals, as represented in the engraving.

The *Lycopods* of our age are humble plants, scarcely a yard in height, and most commonly creepers; but the Lycopodiaceæ of the ancient world were trees of eighty or ninety feet in height. It was the *Lepidodendrons* which filled the forests. Their leaves were sometimes twenty inches long, and their trunks a yard in diameter. Such are the dimensions of some specimens of *Lepidodendron carinatum* which have been found. Another Lycopod of this period, the *Lomatophlojos crassicaule*, attained dimensions still more colossal. The *Sigillarias* sometimes exceeded 100 feet in height. Herbaceous Ferns were