

each other, though in Nova Scotia the Trias rests unconformably on the Carboniferous. I believe, however, that this apparent conformity in Prince-Edward Island, and the resemblance of the two series in mineral characters, arises from the almost horizontal position of the Carboniferous beds, and from the circumstance that the Trias has been in part formed from their waste. The Triassic fossils, though few, are of species quite distinct from those of the Carboniferous. Further details as to the relations of these formations in Prince-Edward Island will be found in my Report on that island.

To sum up, it may be said that the beds which overlie the Coal-field of Pictou and extend into Prince-Edward Island, and which constitute the upper part of the Upper Coal-formation, have such strong points of resemblance to the lower part of the European Permian, both in their mineral character and organic remains, that they may fairly be named Permo-Carboniferous, a name already applied to certain marine limestones in the West, in which the Carboniferous graduates upward into the Permian. They may also be held to some extent to bridge over the gap which in Eastern America separates the Carboniferous from the Trias.

I may add that in Nova Scotia the Lower Carboniferous beds are usually more hardened and altered than those of the Middle Coal-formation, and the latter more than those of the Upper Coal-formation. Moreover there are instances in Nova Scotia of local unconformability of the Lower Carboniferous beds; and the New-Glasgow conglomerate affords evidence of extensive denudation of the Lower Carboniferous before the deposition of the productive Coal-measures. These facts indicate the long duration of the Carboniferous period and the extent of the physical changes which it included; and it is evident that, had unconformability or extensive local denudation occurred somewhat higher in the system, it might have been regarded as forming the base of an overlying Permian series.

I have discussed somewhat fully the relations of the flora of the Lower Carboniferous to those of the Devonian on the one hand, and of the Upper Members of the Carboniferous on the other, in a 'Report on the Fossil Plants of the Lower Carboniferous and Millstone Grit,' recently published by the Geological Survey of Canada\*. I hope that I may be able at some future time to describe and illustrate fully the plants of the Upper Coal-formation in the same manner.

#### DISCUSSION.

Prof. RAMSAY agreed with the author in thinking that these Upper Carboniferous rocks represented the Permian, and that there is a gradual passage from the Carboniferous to the Permian. In North Staffordshire there is some evidence of this passage, but not in other parts of England. Mr. Binney had argued that the Permian is the uppermost part of the Carboniferous series; but this is not true in the English area, although it is true if we consider the

\* Montreal, 1873.