

red calcareous beds of the Lower Carboniferous pass up into those of the millstone-grit, not only without unconformity, but with direct evidence of transition between the two; as for example about Hillsborough in Albert County, where the denudation which has taken place would appear to have occurred at a later period: but on the other hand there are also evidences that this conformity is in many instances only apparent, resulting from the fact that both sets of beds are approximately horizontal, and that a considerable interval, involving a large amount of corrosion and deformation of the surface, occurred prior to the deposition of the later strata. Thus, while in the Grand Lake district we have, on the Newcastle River, a regular and apparently conformable succession of Lower Carboniferous marine sediments, millstone-grit, and productive coal-measures, all with only a very low inclination; borings through these latter at a distance of only a few miles, and on the side of the dipping strata, resulted in showing the entire absence of the lower beds, while at yet another point, on Coal Creek, the coal-measure rocks may be seen, for miles, resting upon uplifted pre-Carboniferous slates, without the intervention of the Lower Carboniferous. So also, in some parts of York County, points almost within sight of each other show horizontal coal-measure rocks resting at one time upon nearly vertical Lower Silurian beds and at another upon an apparently thick mass of Lower Carboniferous sediments. The wide-spread accumulations of dolerite, basalt and amygdaloid, which intervene between the summit of the last-named group and the millstone grit, may be regarded as further evidence of their unconformity. The supposition of conformity in beds so nearly horizontal would necessarily imply, with wide superficial extent, a very limited thickness to the coal-formation; while that last mentioned, by supposing the deposition of these beds upon a surface extensively folded and eroded, will at least admit of the possibility of a very varied thickness of the coal strata, and consequently of the occurrence of other seams of coal than those now known and worked near the surface.

The last contact to which it is necessary here to refer is that of the Carboniferous formation with the Trias or new red-sandstone. Several examples of such contacts have been observed along the southern coast, but, apart from the fact of placing beyond question the existence here of Mesozoic deposits, they present no features of special interest.

In recapitulation, it will appear from the foregoing observations that we have in New Brunswick not less than six well defined physical breaks, with all the usual accompaniments of unconformity, viz., one between the Primordial and pre-Cambrian, four between the several subdivisions of the Paleozoic, and one between the latter and the Mesozoic, to which may be added certainly two, and probably three, similar breaks among the pre-Cambrian rocks. In each of these cases, excepting perhaps that between the two main divisions of the Carboniferous, the unconformability is accompanied and in part indicated by the formation of heavy beds of conglomerate, while, in most instances, the same lines of junction are marked by the occurrence of eruptive rocks, the result probably of the same forces to which the unconformity is to be ascribed. In the case of the Devonian revolution, involving movements of the entire Paleozoic series, there were, in addition to the eruptions of trap, the extensive extravasations of granite which constitute so marked a feature in the geology of Acadia, and which have had so profound an influence on all its subsequent history.