The picture presented by the wide swamps and dark ponds and sluggish streams of the coal-formation period, with the creatures of low organization by which they were inhabited, is not an attractive one; but these conditions, which spread so widely over our continents in the carboniferous period, were those suitable to the accumulation of the great deposits of coal so essential to us in the present condition of the world. The animals which form the subject of the present paper, though of little value or interest in themselves, give much information as to the conditions of accumulation of coal, and it is a source of gratification to the writer of this paper to find that as interpreted by their latest investigator, Dr. Wheelton Hind, they tend to establish more firmly the conclusions as to the manner of the production of coal-beds for which he has contended for so many years, and which are so well illustrated by the admirable sections of the coal-bearing rocks seen in the coast-cliffs of Nova Scotia and Cape Breton.

Throughout the thousands of feet of such rocks, constituting the productive coal-measures as exposed in these sections, I have shown [1] that there is an entire absence of properly marine or oceanic remains; and the accumulations of sediment and organic matter, and the animal and vegetable fossils so abundantly present, all point to the existence of wide swampy flats, traversed by ditch-like creeks, and with shallow lakes or lagoons, supporting an exuberant plant-life, and from time to time inundated. In this way the beds of coal, underlaid as they are by underclays with roots, and overlaid by clays and sands containing prostrate and drift plants, and associated with beds holding a fauna appropriate to such conditions, were accumulated by growth *in situ* in the manner of modern bogs. The accumulation of successive beds with intervening shales and sandstones, is due to the gradual or intermittent subsidence of the areas of deposition under the weight of the sediments laid down upon them, as we see at the present day in the deltas of great rivers.

[1] Acadian geology, chap. XI.