

distinct evidence of its existence within that part of Nova Scotia which now forms the southern boundary of the Bay of Fundy basin.

It is usual to divide the supposed Cambrian rocks of Nova Scotia into two distinct members, of which the lower consists chiefly of quartzites or fine sandstones, with much thinner intercalated slates, and the upper almost wholly of slates, partly light coloured or banded, but mostly very black and pyritous. The thickness assigned to the former by Gilpin is 9,000 ft., by Mr. Campbell it is made 10,000 ft., while W. F. Prest, from measurements both on the Sissaboo and at Waverley, has estimated the same thickness as high as 16,000 ft. It is doubtful whether, in a region so extensively folded and faulted as this, any estimates of thickness can be looked upon with confidence; but no one who has made sections across the supposed Cambrian belt, anywhere between Halifax and Shelburne, can doubt that the thickness, with all allowance for probable errors, is something enormous. That the beds, especially of the lower division, should exhibit such great uniformity, as regards both their extension and their depth, is scarcely less remarkable; while their character is such as to indicate that they could hardly have been deposited in very deep water or that their source was very far distant. It is true that, as compared with the Cambrian rock of New Brunswick, they lack the coarse red beds usually (but not always) found there at the base of the system, but apart from their arenaceous character, the occurrence of ripple-marks and occasionally of pebble beds leaves little doubt of their shallow water origin. And yet over the whole of southwestern Nova Scotia we find nothing to indicate the source from which they came. On the contrary, it is now known that, with the exception of the granite and small areas of Eo-Devonian and Trias. to be presently noticed, no other rocks than those of the Cambrian system (so called) are to be found over all this region. As, moreover, there is reason to believe that the granite itself is but an excessively metamorphosed condition of the Cambrian quartzites (this metamorphism not occurring, however, until a much later period), we are forced to the conclusion that all the portion of Nova Scotia under discussion was, during a large portion of Cambrian time, in a condition of submergence, forming a portion of a subsiding trough, whose southern and eastern limits cannot now be defined.

As regards the slates which overlies the quartzites, it is evident that they indicate a still deeper submergence, possibly to considerable depths. Their thickness has been variously estimated at from 4,000 to 10,000 ft., but if only 5,000 ft., this, if added to 10,000 ft., as a reasonable estimate for the quartzites, would indicate for the whole Cambrian system in Nova Scotia a subsidence of nearly three miles. It may be that this subsidence will, in part, account for the remarkable absence of fossils in the Cambrian rocks, the presence of cold currents traversing the submerged area being unfavourable to the growth or spread of organic forms.