

The littoral origin of these rocks, as regards their earlier members, is, in New Brunswick, sufficiently attested by the coarseness and bulk of the conglomerate which constitute these members; while their origin is as clearly indicated in the fact that their contained pebbles are identical with that of the Archean ridges near by. Even higher in the series, though increasing fineness indicates a deepening of the waters in which the beds were deposited, the occurrence of wave-marks, ripple-marks, mud-cracks and worm trails continue to afford conclusive evidence of shallow water origin. And, finally, this conclusion finds confirmation in the nature of the fossils, the well-known studies of which, by Matthew, have enabled him not only to determine, in great detail, the successive changes in that fauna as affected by the varying conditions under which it was developed, but to draw probable conclusions as to its relations with equivalent faunas elsewhere, and possible migrations from one region to another. The most important point in connection with the comparisons, so far as the subject under discussion is concerned, is that of the much closer resemblance of the Acadian Cambrian fauna to that of Europe than to that of interior America. Following the suggestions of Dana, this is believed by Matthew to be due to the existence of a barrier separating the Acadian basin from that of the continental interior, accompanied at the same time by a difference in the temperature of the waters, those of the region east of the barrier feeling, as now, the influence of a comparatively cold Polar current, while those to the west, including the St. Lawrence channel and probably the Gaspé-Worcester channel, were relatively warm. It would seem to follow, as a corollary, if these inferences are correct, that no similar barrier existed between the eastern coast of America and the western shores of Europe; and Matthew, in a map illustrating his views, extends the zones indicating the distribution of the trilobitic fauna directly from the one to the other, Nova Scotia being included in the probably submerged area. So, again, Walcott, in a map showing the supposed distribution of what he terms the Keweenaw land or continent, while recognizing the Archean rocks of southern New Brunswick as an extension of the Appalachian protaxis, and as being above the sea level, does not include therein any part of Nova Scotia.

Unfortunately, in passing to the last named province, to which we would naturally look for further information, we find this to be of a very unsatisfactory character; for though it is usual to assign to the Cambrian system the great group of rocks along the southern coast, in which are situated the various auriferous deposits now so extensively worked, there is as yet no definite proof that such is their age, and there are those who directly deny it. All, however, are agreed that these rocks cannot be newer than Cambrian, and, although, adopting the latter view as the most probable, we find, as in the case of the St. John rocks, evidence that this source could not have been far distant, there is still no