

granites. Therefore, these depressions and hills of Laurentian must necessarily have existed at the bottom of the Paleozoic ocean when the limestone beds were being deposited."*

Mr. A. P. Low, of the Geological Survey of Canada, who has been more recently engaged in tracing out the northern limits of the Paleozoic on the north side of the St. Lawrence, west of Quebec city, informs the writer that at several places he has noted the superposition of the Trenton or Lorraine beds directly upon the hummocky Laurentian surface, and that there has been no reduction of the surface where it projects from beneath the escarpments, below that where the flat strata rest upon it. He notes the following localities as affording particularly good sections:—Between Lorette village and St. Ambrose railway station, Q. L. St. J. railway; west of Belair station, C. P. railway; Pont Rouge station, C. P. railway (section on Jacques Cartier river); Deschambault, near railway station. Mr. Low also informs the writer that the undisturbed limestones of Lake Mistassini, in southern Labrador, may be observed to rest upon hummocky Laurentian surfaces; and that on the East-main coast of Hudson's bay similar flat lying strata may be seen in the transverse section afforded by Richmond gulf, resting on a very hummocky surface.

In eastern Ontario, the best evidence we have bearing on this question is contained on Mr. E. Coste's "Geological and Topographical Map of the Madoc and Marmora Mining District," recently published by the Geological Survey of Canada. No report accompanies the map as yet, but the writer has had the benefit of frequent conversations with Messrs. Coste, Ami, and White, who were employed in the field-work necessary for its construction. From the map and from the information thus supplied, it is clear that in the area mapped we have a remarkably striking illustration of the superposition of flat, undisturbed Paleozoic strata (Birdseye and Black River) upon a very hummocky and mammuillated Archean surface. The northern border of the Paleozoic is here very irregular in outline, and beyond the limit of the main area there are very numerous outliers scattered over the country. Both along the edge of the escarpment and at the periphery of many of the outliers, the flat strata may be seen resting directly on the rounded hummocks; and these, out beyond the escarpment, often rise high above the lower horizontal strata. Many of the outliers, also, are mere patches resting *in situ* upon the steep slopes of these hummocks. Many are but a few chains in diameter, and others only a few yards. Further, there may be repeatedly seen projecting through the upper surface of the Birdseye and Black River formations rounded knobs of the Archean, in the shape of inliers well within the Paleozoic area. These are clearly the crests of partially

* Loc. cit., p. 15.