It is scarcely to be supposed that the decay of the granitic rocks alone could give rise to the extensive deposits of clay which spread over so wide an area of the Ottawa valley underlying the sand. These clays are seen at elevations up to the summit of the dividing ridge, at several points reaching a height not far from 1,000 feet above the sea. The source of this clay must also be largely conjectural. It may be safely assumed, however, that the amount of denudation throughout the entire area has been something enormous. In the Eastern Townships of Quebec this has been undoubtedly more than 1,000 feet. In the area around Ottawa city it has been fully as much, since at the faulted contact of the Calciferous and the Utica the upraised beds have been entirely removed and the rocks reduced to a uniform level. It is quite possible that there was at one time a regular succession of the Palæozoic formations throughout the Ottawa valley, extending over the whole country both north and south to the present height of land, since even now we find at many widely detached points, patches of these rocks which have in some way escaped the denuding agents. It is therefore quite possible that much of the clay throughout the district has been the result of the decomposition of the more recent formations.

While therefore this grand scheme of denudation has been going forward from the earliest times, this has been supplemented by the agency of ice in the glacial period. How many of these periods of glaciation have been in operation in this area we can not say, but we have distinct evidence of at least three which are presumably the most recent, and the traces of other and earlier ones are probably long since removed. That ice moved over the area in different directions and at different times is shown from the direction of the striæ and groovings now seen on the rock surface. The presence of a third and apparently last set of markings with a western trend seems to indicate that a series of large floating ice-pans moved westward up the Ottawa in a direction almost opposite to that recorded for the earliest known glacier which would seem to have followed down the present channel of the river.

In discussing the history of this valley therefore several periods of upheaval and depression must be considered, and some