

When Sir William Logan commenced the Geological Survey of Canada in 1842, the older rocks, in so far as his field was concerned, were almost a *terra incognita*, and very scanty means existed for unravelling their complexities. The "Silurian System" of Murchison had been completed in 1838, and in the same year Sedgwick had published his classification of the Cambrian rocks. The earlier final reports of the New York Survey were being issued about the time when Logan commenced his work. The great works of Hall on the palæontology of New York had not appeared, and scarcely anything was known as to the comparative palæontology and geology of Europe and America. Those who can look back on the crude and chaotic condition of our knowledge at that time, can alone appreciate the magnitude and difficulty of the task that lay before Sir William Logan. To make the matter worse, the most discordant views as to the relative ages of some of the formations in New York and New England which are continuous with those of Eastern Canada, had been maintained by the officers of the New York Survey.

Sir William made early acquaintance with some of these difficult formations. His first summer was spent on the coast of Gaspé and the Baie des Chaleurs, where he saw four great formations, the Quebec group, the Upper Silurian, the Devonian, and the Lower Carboniferous, succeeding each other, obviously in ascending order, and each characterized by some fossils, most of which, however, were at that time of very uncertain age. I remember his showing me in the autumn of that year the note-books in which he had carefully sketched the stratigraphical arrangements he had observed, and also the forms of characteristic fossils. But both wanted an interpreter. The plants of the Gaspé Devonian were undescribed; many of them of forms till then unheard of. The shells and corals and graptolites of the older formations could be only roughly correlated with some of those in the New York reports. The rock formations are very unlike those of the New York series. Still this work of 1842 and 1843 was plain and easy, compared with that which arose in tracing these formations to the south-west. I may add here that I have since studied some of these Gaspé sections with Sir William's manuscript note-books in my hand, and have been amazed at the extraordinary care and exactitude with which every feature of the rocks had been observed and noted down. Much of the detail in these early note-books of Sir William still remains unpublished. Those who would detract from the work of Sir William Logan, if there are any such, should remember these early beginnings, and compare them with the massive foundations which have been laid for us to build upon.

And now, after the labour of more than thirty years on the part of Sir William and those he had gathered around him, how do these subjects stand? (1) We have all the comparatively flat and undisturbed formations of the great plains of Upper and Lower Canada, our share of the interior continental plateau of America, worked out and mapped, and their fossils characterized so that a child may read them. (2) The complex hilly districts, with their contorted, disturbed and altered beds, which extend from New England to Gaspé, have been traversed in every direction, the limits of their different formations marked, and a theory as to their age and structure put forth, which, whether we accept it or not, has in its important features of the truth, and rests on facts on which every disputant must take his stand. (3) We have the still older formations of the Laurentian hills traced in their sinuous windings, and arranged in an order of succession which must stand whether the names given by Sir William, and now accepted throughout the world, be objected to or not. After the work of Sir William Logan, no cavilling as to names can ever