miles broad; and the lowest rock common to both, connecting the troughs on the anticlinal, in the valley of Lake Champlain, is the Trenton limestone.

On the north-western side of the western area the formations are in a general flat and quiescent condition from Lake Superior to Pennsylvania, and they succeed one another without any observed want of conformity from the base of the Lower Silurian to the summit of the carboniferous. But it has been shown by Professor Rogers, that proceeding from north-west to south-east there occurs in this state a set of successive parallel undulations which increase in intensity in the direction mentioned, and on the south-east side of the Appalachian coal-field are sufficiently violent to produce overturn dips in all the formations together, the coal inclusive. These plications with their overturn dips thus form the south eastern rim of the western area, and are distinctly traceable by the Alpalachian chain through Vermont into Canada, and through Canada to the Gulf of St. Lawrence; in this part constituting the north-western rim of the eastern area. But while in the western division there is no want of conformity from the Lower Silurian rocks to the carboniferous, and the plications there appear to be of a date subsequent to the carboniferous deposit, in the eastern there are evidences of a want of conformity between the Upper and Lower Silurian formations; and though the folds in the former do not seem quite so violent, they are in parallel directions with those in the latter. There is another and a greater want of conformity between the Devonian rocks and the carboniferous. A large portion of the carboniferous deposit of New Brunswick shows but very moderate dips, and on the shores of Bay Chaleur it lies in a quiescent condition on the tilted edges of the lower formations, sometimes resting on one and sometimes on another. Its north-western outcrop, however, or rather, I should say, the longitudinal axis of the whole coal-field from New Brunswick to Newfoundland, has a parallelism with the folds of the inferior rocks, and there are several parallel undulations in nearly the same direction on the south side of the carboniferous deposit.

The conclusion to be drawn from these facts appears to be, that some cause, producing folds in the stratification in one general direction, has been in operation from at least the cessation of the Lower Silurian epoch to the termination of the carboniferous; and it only requires the inspection of a map of Atlantic America to observe how the features of its physical geography, displayed in the configuration of its coast, in its valleys of undulations and those of transverse fracture, are almost entirely dependent on the results of this cause.

The fossiliferous rocks of both these divisions, with the exception of that part supported by the Cambrian formations of Lakes Superior and Huron, rest, along the valleys of the St. Lawrence and the Ottawa, upon a series consisting of micaceous and hornblendic gneiss, interstratified towards the south with great bands of crystalline limestone, sometimes highly charged with magnesia and associated with vast masses of magnetic iron ore, but without calcareous beds on the north. These rocks constitute a part of the low granitic ridge, which to the westward has been traced by Sir J. Richardson as extending with a north-westerly curve to the Arctic Ocean.

The Canadian rocks on the north side of this granitic ridge, as displayed toward the head of Lake Temiscamang, consist, in ascending order, of chloritic slates and conglomerates, with a slaty matrix; the volume of these is probably not less and may be much more than 1000 feet. On them rests a set of massive pale greenish-white or sea-green sandstones, the total amount of which, as determined by the height of hills which they compose in nearly horizontal layers, is between 400 and 500 feet. These are succeeded by about 300 feet of buff and whitish fossiliferous limestones, the lowest bed of which is composed of a collection of great boulders and blocks of sandstone, some of them nine feet in diameter, that were lying immediately on the strata from which they were derived when they became covered up, and in which great cracks and worn fissures are filled with the calcareous deposit that envelopes the whole. The sandstones being without discovered fossils, it is not easy to determine their age; but the limestones by their organic contents are distinctly shown to belong to the Upper Silurian epoch. The Lower Silurian deposits, unless the unfossiliferous sandstones be a member of the group, appear to be wholly wanting in the locality, and as all the forms brought from other localities on the north side of the granitic ridge by Bigsby, Richardson, and others, are, I believe, referable to Upper Silurian types, it appears not improbable that the absence of the Lower Silurian rocks may spread over an extensive area, and the south side of the ridge indicate an ancient limit to a Lower Silurian sea.

The nearest locality of the well-defined forms which inhabited this sea is at the island of Allumette, about 200 miles southward from the Upper Silurian rocks of Lake Temiscamang; there is, however, a patch of the same lower formation which is only about 100 miles southward from them, but in it the fossils are obscure. Instead of giving any remarks of my own on the fossils of the two sides of the granitic ridge, I shall append to my paper a note which my friend Mr. Salter, of the Geological Survey of the United Kingdom, has been so kind as to make on them after a careful inspection, only stating that the specimens which have been examined are but a small part of an important collection, chiefly from the eastern of the two divisions that have been alluded to, brought from Canada for comparison, and that twice as many specimens as have been brought remain in the Province from other parts, while great additions it is hoped will annually be made to them.

Louisburg, Cape Breton.

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During the last summer, in a tour to our noble Eastern Provinces, fortune led my steps to explore the remains of the ancient city of Louisburg; and I was forcibly struck with the spectacle of lonely desolation which it now presents. The remains, however, of the extensive fortifications which are presented in every direction, plainly bespeak the former strength and importance of this maritime capital of La Nouvelle France. As the sudden destruction of a place so celebrated was a most unusual occurrence in the New World, I was naturally led to enquire into its history, and to collect material on the spot that should explain it; but as this, though replete with thrilling incidents, would be too extensive for the *Canadian Journal*, I must be content at present to offer but a few observations on the celebrated city, which appears to have been almost totally forgotten in Canada.

The town of Louisburg was situated upon the neck of land which jets out into the sea, westward of the islands which form the mouth of the harbour; was of an oblong figure and nearly two miles in circumference. It was fortified in a most scientific manner; while powerful batteries were built at all the most commanding points that could defend the entrance of the harbour.

The streets of the city were wide, and ran at right angles; the houses were principally constructed of wood, built upon stone foundations; but the public buildings were of more durable materials, stone or brick. The public buildings situated in the town were of an extensive character, and principally for religious purposes. There was the fine hospital of St. Jean de Dieu, to which was connected a church, dignified by the title of a Cathedral,—a really elegant and spacious structure; besides these