that the mineral springs of Assumpsion, Baie du Febvre, Caledonia, Chambly, Lanoraie, St. Leon and Varennes, yield large quantities of carburetted hydrogen, which is supposed to be evolved from the underlying Lower Silurian rocks. But the production of this gas in such quantity only takes place in the process whereby large accumulations of vegetable matter are converted into coal. The circumstances under which it is disengaged would exclude the hypothesis that it arises from the decomposition of vegetable matter in marshes, or alluvium, which at any rate only yield it in inconsiderable quantity.

To all this it will, of course, be replied that the valley of the St. Lawrence is occupied by Lower Silurian rocks, and that carboniferous strata cannot exist beneath them. I have, however, attempted to shew that since these so-called Silurian or Champlain rocks rest unconformably upon the Transition or Grauwacke or Taconic series, they must be of later age. Further, the notion of the extreme antiquity of the Potsdam sandstone and its associates, seems to me untenable, for the following reasons : 1st. It lies almost horizontally, and comparatively undisturbed, while the strata supposed to be more recent have undergone the most violent upheavals, and occupy a highly inclined and frequently vertical position. One of the most unequivocal results which the study of American geology has yielded is this, that the paroxysm which raised and plicated the whole of the Appalachian chain, took place at a time subsequent to the Carboniferous age. The coal measures of Pennsylvania are found to have been corrugated by the same movements which affected our Eastern Township rocks, and it seems impossible that these movements could have left the Potsdam sandstone undisturbed, had it, at that time, occupied the position it now has in the St. Lawrence valley. 2nd. At several points along the eastern shore of Lake Champlain, strata identical with the Potsdam sandstone, or conformable with it, are found to cover unconformably highly inclined strata, belonging to the same system as the Quebce group. 3rd. In palæontological respects the true Potsdam sandstone, as developed in the valley of the St. Lawrence, does not show evidence of very great antiquity. It is destitute of graptolites and trilobites which are usually supposed to be characteristic of Lower Silurian strata. 4th. The Potsdam Sandstone is described as containing near Hemmingford Mountain fragments of black shale, which goes to prove the existence of the latter before the deposition of the