

feet thick, or that near Newborough, two hundred feet thick,* must represent a corresponding quantity of vegetable matter which has totally disappeared. It may be added that similar demands on vegetable matter as a deoxidising agent are made by the beds and veins of metallic sulphides of the Laurentian, though some of the latter are no doubt of later date than the Laurentian rocks themselves.

It would be very desirable to confirm such conclusions as those above deduced by the evidence of actual microscopic structure. It is to be observed, however, that when, in more modern sediments, Algæ have been converted into bituminous matter, we cannot ordinarily obtain any structural evidence of the origin of such bitumen, and in the graphitic slates and limestones derived from the metamorphosis of such rocks no organic structure remains. It is true that, in certain bituminous shales and limestones of the Silurian system, shreds of organic tissue can sometimes be detected, and in some cases, as in the Lower Silurian limestone of the La Cloche Mountains in Canada, the pores of brachiopodous shells and the cells of corals have been penetrated by black bituminous matter, forming what may be regarded as natural injections, sometimes of much beauty. In correspondence with this, while in some Laurentian graphitic rocks, as, for instance, in the compact graphite of Clarendon, the carbon presents a curdled appearance due to segregation, and precisely similar to that of the bitumen in more modern bituminous rocks, I can detect in the graphitic limestones occasional fibrous structures which may be remains of plants, and in some specimens vermicular lines, which I believe to be tubes of *Eozoon* penetrated by matter once bituminous, but now in the state of graphite.

* "Geology of Canada," 1863.