

accompanied perhaps by earthquake waves, and not improbably by the action of heavy coast ice. The result is that mud rocks now in the form of black, grey, and red shales and slates alternate with thick and irregular beds of hard sandstone, sometimes so coarse that it resembles the angular *débris* of the first treatment of quartz in a crusher. With these sandstones are thick and still more irregular conglomerates formed of pebbles and boulders of all sizes, up to several feet in diameter, some of which are of older limestones containing Cambrian fossils, while others are of quartzite or of igneous or volcanic rocks.

The whole formation, as presented at Metis, is of the most unpromising character as regards fossils, and after visiting the place for ten years, and taking many long walks along the shore and into the interior, and scrutinising every exposure, I had found nothing more interesting than a few fragments of graptolites, little zoophytes, ancient representatives of our sea mosses, and which are quite characteristic of several portions of the Quebec Group. With these were some marks of fucoids and tracks or burrows of worms. The explorers of the Geological Survey had been equally unsuccessful.

Quite accidentally a new light broke upon these unpromising rocks. My friend, Dr. Harrington, strolling one day on the shore, sat down to rest on a stone, and picked up a piece of black slate lying at his feet. He noticed on it some faintly traced lines which seemed peculiar. He put it in his pocket and showed it to me. On examination with a lens it proved to have on it a few spicules of a hexactinellid sponge—little crosses forming a sort of mesh or lattice-work similar to that which Salter had many years before found in the Cambrian rocks of Wales, and had named *Protospongia*—the first sponge. The discovery seemed worth following up, and we took an early opportunity of proceeding to the place, where, after some search, we succeeded in tracing the loose pieces to a ledge of