

sion existed in regard to the true position of the lead-bearing rock, and only so lately as 1850 was it determined by a proper examination of its fossils that instead of being in the Niagara group, as formerly supposed \* \* \* it belonged to the Lower Silurians." Since this discovery, miners search for lead in those rocks only where the characteristic fossils occur.

"Miners of coal and other products recognize the surrounding strata, and determine their proximity to the productive by the presence of certain fossils well known to them at sight."

The formation of the Geological Survey of Canada put a stop to much useless expenditure in the same way, and proofs of the non-existence of workable beds of coal throughout the old provinces of Upper and Lower Canada, due to the labours of the Survey, put a stop to many futile researches after that mineral and the consequent waste of money. At Gaspé and at Owen Sound in those early days parties were prevented from sinking shafts in bituminous shale by Mr. Logan, whose knowledge of the fossils told him there could be no coal there; although practical colliers had declared in favour of its occurrence. Such instances, however, could be multiplied but our time does not permit.

Besides enabling us to determine the relative age and position of each deposit in which we find them, they enable us to arrive at the mode of deposit and the condition of the district or region at the time of its formation. If it contains the remains of animals such as now inhabit rivers, we know that it must have formed part of a river bed or been deposited by the overflow of a stream; if it contains remains of molluscs, fish or crustaceans such as inhabit lakes, we know it was deposited beneath a lake; and if it contains marine animals or seaweeds, we know it was a sea bottom.

We may go more minutely into the matter than this, for if the fossils resemble those now inhabiting shallow seas, or if they are rolled and broken and accompanied by remains of land organisms, there can be little doubt they are a shore deposit or were laid down in a shallow sea in the vicinity of the coast; but if the remains are those of deep sea organisms mixed sparingly with extraneous forms, a deep sea origin may be decided upon. In some cases we find an ancient coral reef, in others a bed of social shells like the oyster, each case telling a tale not