THIS PECULIAR FOSSIL,

not unlike a butterfly with expanded wings, is only a fragment, and represents the tail of the organism. Fragments of this nature are common, but complete forms, such as the specimens before you, are very rare. This fossil belongs to a type of very unique organisms common in the Silurian seas. From the trilobed appearance of the animal it has received the name Triloblte. These creatures seem to have been able to curl themselves up, either for protection or 10 enable them to sink more rapidly. So complete has the process of replacement gone on in some of these trilobite fossils that in many cases the structure of the eye is accurately preserved as can be seen by examining the specimens before you, which show all the parts very disthetly. Some peculiar, thy saw-shaped markings also occur on the rocks of the Iludson River formation; these are known as Graptolites. Upon the tooth-like projections small cups were situated, each of which contained a small organism of very simple structure. A whole colony of these creatures were located upon the axis, and with their tiny tentacles were able to whip food into their rudimentary months. These fossils occur in a variety of forms, some with a single row of toothlike projections, others with a double. Many are not unlike a leaf and a few consist of many axes radiating from a common centre. The Graptolites and Trilobites are of especial interest in determining the age of a deposit. As yet none have been found in strata above the Lower Carboniferous, consequently when we find them on the surface we know at once that we are below the coal measures, and as far as coal is concerned we will seek for it in vain. Coal may appear above these fossils, hut it has not been found below them. All these creatures, which inhabited the sea in those early years of the world's history have long been extinct, though at one time they seem to have thronged the sea in myrlads.

The animals to which reference has been made were among the leading types then in existence; for at that period in creation no insects, no fishes, no birds, in short, **none** of the higher animals had as yet made their appearance. Life was confined chiefly to the sea, and of a very rudi-

mentary nature. The only plants were seaweeds, and, as noted, the animal kingdom was but scantily represented, the genera and species were limited, but the individuals were very numerons. Up to this time stillness was a leading feature in nature. No sound was heard except the lashing of the waves on the lonely shores, or the howling of winds unimpeded in their course across the bleak and solitary rocks. The continent, like its species, was submarine in its mode of existence. It was outlined, but not till long periods had passed, during which great physical disturbances took place, was the present form brought into existence. Such was the dumb state of affairs when the rocky foundation of our ambitious city was laid,

THE WINNIPEG DRIFT,

Having directed your attention for a short time to the solid rock lying beneath our clay deposits, it now remains to consider briefly some things in reference to this loose material, and endeavour to explain how it has been formed and reached here in the finely divided condition we find it. The presence of boulders in this socalled drift material, of the same composition as rocks north and east of us, and the salty nature of much of the water found in some wells would seem to indicate that our soil has been derived from other sources than the disintegration of the rock beneath, and that much of our elay is an alluvial deposit brought here in past ages from districts quite remore from Winnipeg. From an interview with Mr. Piper, known as having an extensive experience in well boring throughout the city, we have learned that the average nature of a vertical section of the deposits, overlying the sold rock here is as follows:

I. Surface mould, one to four feet, dark color and exceedingly fertile.

2. "Yellow gnmbo," two to three feet, a very sticky form of yellowish elay which usually holds considerable water.

3. Dark gray clay, thirty to tifty feet, with boulders scattered throughout, some of them four feet in diameter, and chiefly gneissoid, and no doubt derived from Laurentian rocks.

4. Light-colored clay, one to three feet, containing many small stones.

5. Hard pan, two to ten feet, a very solid and compact form of clay.

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