

1600. Dark grey and rather hard fissile clay shale, brought up in fragments, some of which are more than an inch and a half in greatest diameter. It is quite free from calcareous matter, and under the microscope shows no traces of organic remains, but a few globules of pyrite may be seen.
- 1605-1620. Soft dark-grey unctuous non-calcareous clay shale, breaking into thin, scaly flakes. No trace of organic remains.
- 1620-1645. Similar shale, with minute fragments of fish remains.
1655. Similar shale with traces of pyrite, mixed with a few particles of fine white soft sandstone, possibly adventitious. The specimen as returned was composed almost entirely of a soft, impalpable clay, and the fragments of shale, etc., were procured by washing a considerable quantity.
1660. Soft dark-grey fissile non-calcareous shale, with a few minute fragments of fish remains, and pieces of concretionary nodules of limestone, and crystalline masses of pyrite.
- 1665-1715. No specimens received, but stated to be a similar dark-grey shale.
1720. A large proportion of the specimen received is a soft clay that is readily washed away by the water. What remains is a grey non-calcareous clay shale, much lighter in colour than the last, is rather compact, and does not break into thin flakes. It contains a few fragments of fish remains, and some fine irregular angular grains of clear quartz sand.
1730. Similar shale, through which the fine sand is seen to run in thin streaks.
1735. Shale similar to the last with some crystalline aggregates of pyrite, and a considerable number of fragments of a hard, very slightly calcareous fine grained sandstone.
1745. A similar dark grey clay shale, with a few fragments of soft granular sandstone, but without any of the hard sandy fragments seen in the last specimen.
1800. A light grey rather hard fissile non-calcareous clay shale with a few small crystals or crystalline masses of pyrite. Some of the fragments procured were an inch or more in diameter, and in one of them was a small imperfect shell of a *Lingula*. The well has not yet reached the bottom of the Benton shales.

## BORING AT MORDEN.

This boring was drilled by Edward Moore for the town of Morden in the winter and spring of 1889-1890. The town is situated on the Pembina Mountain branch of the Canadian Pacific railway, and the boring is in the middle of the town on the north side of the railway track, and about 150 yards northwest from the railway station, the surface at the well being on a level with the track. It is about a mile from the foot of the Pembina mountain and near the western edge of the level alluvial plain stretching westward from the Red river. The object of the bore was to obtain a large supply of fresh artesian water for the use of the town.

The machinery used was an ordinary percussion drill, and the well was cased first with eight inch tubing, and then with six inch tubing, to below the bottom of the cretaceous rocks.

The writer paid a short visit to Morden in July, 1890, at the time when the work on the boring was discontinued, and obtained specimens of the drillings taken at very irregular intervals. As no systematic and consecutive collection of drillings was kept,