

shales. At several points in this vicinity the limonite ores, found along the line of junction of the Upper and Lower Silurian with the Lower Carboniferous marine limestone are heavily charged with manganese. The ore is dull brownish-black in colour, with a black streak, and softer than the normal limonite. The percentage of manganese present in the iron ore varies. The general character of this ore, however, will appear from the following analyses by the writer:—

| | I. | II. |
|----------------------------|--------|---------|
| Water of composition..... | — | — |
| Moisture..... | 1.450 | 12.530 |
| Insoluble residue..... | 2.731 | 25.130 |
| Alumina..... | 2.880 | trace |
| Iron sesquioxide..... | 10.848 | 48.223 |
| Manganese sesquioxide..... | 62.950 | — |
| Manganese peroxide..... | — | 14.410 |
| Magnesia..... | 1.630 | — |
| Lime..... | 7.280 | .015 |
| Baryta..... | .670 | — |
| Carbonic acid..... | — | — |
| Sulphur..... | — | .480 |
| Phosphorus..... | — | .020 |
| | 90.439 | 100.808 |

In Antigonishe County similar ferriferous manganese ores have been found in drift at several places.

In Cape Breton deposits of economic value occur only in the western part of the county of the same name. Here, at the head waters of the Salmon River, the lower members of the Carboniferous are met in a valley between the felsites of the Mira and East Bay hills. The space is generally occupied by the millstone grit, beneath the edges of which the marine limestones occasionally crop out, or the latter are excluded by the basal conglomerates. The following notes are from a visit to the Moseley (iron) mine, and from information kindly furnished by Mr. Fletcher, of the Canadian Geological Survey.

The felsites of the Mira Hills form a series of bays along which are exposed carboniferous limestones, conglomerates, shales, and grits as they were accumulated subject to the varying conditions of the winds and currents of the period under consideration. At some points, the limestones rest on the felsites; at other localities, grits and shales intervene; elsewhere, the basal conglomerates are covered directly by the millstone grit. The manganese ores were discovered two years ago in one of these recesses where the felsites were succeeded by shales and grits, and finally by limestones, the latter apparently extending from point to point of the ancient bay. The ores at the western mine are found in irregular bedded layers in a soft arenaceous reddish-coloured shale, which is in some places calcareous and coated with films of manganese oxide. The layers vary in thickness up to eighteen inches, and are frequently connected by cross stringers of ore. The shales when weathered present the ore in small nodules, and the disintegration of the former by water probably indicates the source of the beds of gravel manganese ore found lying on them. The ore at the eastern mine occurs as a bed immediately underlying a layer of black manganese limestone, with red and greenish shales and coarse grit. The thickness of the ore and limestone varies from two to eight inches, the average thick-