

"It may be stated generally, that iron-stone occurs in greater or less abundance at all horizons of the Cretaceous and Tertiary or Fort Union beds, whether of marine or fresh water origin, throughout the North-west Territory.

Clay iron-stone from North-west Territory—general mode of occurrence of

Notwithstanding this general distribution, however, no locality yet observed is capable of yielding this ore in such great quantity as to justify a belief in its immediate commercial value.

The iron-stone occurs either in nodular masses, following certain layers of the shales, sandy-clays and clays of the formations above referred to, or in more or less regular nodular sheets intercalated between the beds. To those localities in which a considerable number of iron-stone bearing bands occur in proximity in a moderate thickness of beds, the greatest importance attaches, and in some of these it may eventually be proved profitable to work over the entire banks for their extraction. The analyses so far made tend to shew the high position which these iron-stones hold among ores of the same class, both as to percentage of iron and freedom from injurious elements.

In the Pierre shales exposed in Pembina Mountain and its vicinity, the iron-stone so far discovered is of inferior quality, and the ore is not abundant. Further west, in the Lignitic (Fort Union) formation of the Souris region, iron-stone is much more abundant and often occurs on the surface in large quantities, where it has been left as the soft containing beds were denuded away.

In the region drained by the South Saskatchewan and its tributaries, the Pierre shales contain a much larger proportion of iron-stone than they do in their eastern exposures, and in some places may yet prove to hold deposits of economic importance. Numbers 5 and 8 of the present series of analyses are of ore derived from this subdivision of the Cretaceous, the former occurring in nodules of large size and in considerable abundance in scarped banks on the Bow River, the latter in the immediate vicinity of the main coal seam on the Belly River, but in a layer only a few inches thick. Number 7 is also probably from this horizon, and occurs forming a series of beds each a few inches in thickness, which are intercalated in black shales in such great number as to form a considerable proportion of the whole. The locality is near the mouth of Kananaskis River, a short distance from the Bow River fall. Specimen number 9 is from a series of pale sandstones and sandy clays which underlie the Pierre shales, and contain in some exposures very large quantities of iron-stone nodules, remarkable from their great size and septarian character.