

of these I described the ores of manganese and their uses; and I select for the first subject in the present series of papers these ores, more particularly with reference to their chemical composition and mineralogical characters.

*Manganite*.—This species occurs abundantly at Cheverie, on the south shore of the Basin of Minas, in Hants Co., where it is found in nodules, sometimes of considerable size, on the beach, about twenty rods above high-water mark, and on the upland nearly two miles from the water. It is also met with at Walton, some miles to the east of Cheverie on the Petite River, where I have picked it up in the fields, and where a bed of it is said to crop out in a low hill on the river-side. It is mostly of compact crystalline structure, of a dark-grey colour, gives a brown streak and powder, and has hardness a little above 5. In the compact pieces small cavities are sometimes found, lined with black lustrous prismatic crystals affording a brown streak; these most probably consist of the essential elements of the species. The mineral is associated with barytes and calcite, and sometimes with pyrolusite. The geological formation of the surrounding district is lower carboniferous; the prevailing rocks are gypsum and limestone, sometimes containing magnesia, the latter being that in which I believe the ores of manganese always occur in this part of Nova Scotia.

A specimen from Cheverie was analyzed: the water and oxygen were determined by ignition in connexion with a tube filled with chloride of calcium; the amount of binoxide of manganese was ascertained by the oxalic-acid process, and the corresponding quantity of sesquioxide calculated; the siliceous gangue containing a small amount of barytes was estimated by action with hydrochloric acid as a solvent for the soluble constituents, among which were a little iron and baryta, which were not weighed. The results were these:—

Water . . . . .	10.00
Sesquioxide of manganese* . . . . .	86.81
Gangue . . . . .	1.14
Oxide of iron, baryta, and loss. . . . .	2.05
	<hr/>
	100.00

The amount of oxygen lost on ignition was 3.57 per cent., and the theoretical loss, in the change of the  $Mn^2O^3$  found into  $Mn^3O^4$ , is 3.01. These numbers leave no doubt that the mineral is the hydrated *sesquioxide of manganese or manganite*, the theoretical composition of which is—

\* Binoxide found = 47.73.

with pyrol  
in a form