

*Iron.*

This should cause special attention, considering that it is now becoming scarce in England, and the price is rapidly advancing. It must be remembered that iron, wherever it has been worked, has raised the people in the standard of civilization.

We have abundance of iron, in various forms, over a vast extent of our Province. With our coals and charcoal that could be made available, the attention of the country should be elicited towards this industry of smelting, as well as the products in my series, formed by the combination of the metal.

I will take hæmatite as my first example, as it exists in large quantities at the Croixelle's, Dun Mountain, and Collingwood, suitable for smelting or pigment. The latter, great praise is due to the energies of a small Company, which has recently commenced its manufacture, under the name of "The Imperial Hæmatite Company, Nelson." The ore is raised in Collingwood, and conveyed to Nelson, where it is manufactured into pigments. Its properties are becoming so well known as an anticorrosive coating for iron, and as a protective groundwork for wood, that the commercial demands for it must necessarily increase. The samples submitted to me by this Company in bulk are excellent; better in quality than some recently imported, and equal to the sample submitted to you prepared by myself.

The bisulphides of iron, so widely diffused, with alum from the neighbourhood of Port Hardy, could be worked for the double salt, protosulphate of iron, and the sulphate of alumina of commerce.

I now come to an important branch that would effect a saving in commodities hitherto thrown away, namely, refuse woollen material, scraps of hide, hoofs, horns, and dried blood. It must be remembered that these materials are all bought up at high prices in England, and are utilized. If the progress of boiling down, in this and the neighbouring colonies, be continued, it will so far affect the English manufacturers, that they will be obliged to increase their imports of such necessaries. On the other hand, we can but regret the present waste of material that would bring in thousands of pounds per annum to the Colony, and would add to the profits of every sheep-farmer, grazier, and butcher, if their offal were saved and supplied to a chemical works for utilization. This would employ labour, and the labourers are consumers; thus an impetus would be given to the Province, and, further, to the whole of the Colony. These cyanides referred to in the preceding, in combination with iron, have a wide application in chemistry and arts, as dyes, pigments, &c., producing the most beautiful blues, from Prussian blue to the lightest shades.

We have also the titaniferous iron sands, which would require hæmatite for smelting.

Hæmatite (iron) for smelting, coarse, £1 17s. 6d. per ton. Iron (pig) is £11 per ton.

*Lead (Galena).*

Lead is found about thirty miles north of the Buller, Wangapeka, Collingwood, &c., &c., showing more than 200 miles of country where it presents itself. At Collingwood, a great surface has been laid bare by means of shafts and drives, thus proving a most valuable property, not only containing lead, but silver, zinc, cadmium, and gold.

This branch demands much attention to conduct the operation effectively. The operator requires great practice, and even then cannot always be certain of success, owing to the different behaviour of the galena under the different influences of high temperature, and according to its association with other metals.

In my series are, 1st. Carbonate, commonly known as white lead, the quality of which is worth £40 per ton in England, which can be reduced with foreign material (that is, adulteration) to meet the quotations, even below the English price. 2nd. Protoxide of lead. 3rd. Acetates of lead, as mentioned in the section "Chromium;" and others, down to the pure metal.

The furnace or reverberatory hearth required in this process is similar to those required for working chrome and copper.

Lead (in pigs) is quoted at £21 10s. per ton. White lead, £27 per ton.

Zinc and cadmium I alluded to as being found at Collingwood, at the same time showing you the various preparations, down to the pure metal. The present quotation for zinc is £26 per ton.

Arsenic is found here in various forms, and could be manufactured to a profit.

Antimony ore can be obtained at Queen Charlotte Sound in large quantities. It is used in type, Britannia metal, bearings of machinery, and for a variety of purposes. The current price of antimony ore in England is from £10 to £14 per ton, according to its richness; and the metallic antimony from £38 to £50 per ton.

Graphite, or plumbago, is one of the forms of carbon associated with iron. It is found in the neighbourhood of Karamea, Pakawa, and Collingwood. It is useful for machinery, polishing stoves, crucibles, carbon blocks for electric batteries, &c. This is worthy of consideration on part of our telegraphy, and the number of crucibles that are used on the gold fields. In addition, we have the material for Hessian crucibles in the same neighbourhood.

*Coal.*

Our Provincial coal has been so well brought into notice by analysis and various practical testimony to its efficiency for steam and gas purposes, that it requires but little comment from me. Unfortunately, although possessing these advantages, we have to import largely from New South Wales; and, owing to the recent misunderstanding with collier vessels and employes, we have had to submit to a want of supply of the needed fuel of late.

The samples examined by you are from the mines supposed to be at work:—1. Grey coal. 2. Collingwood coal; good steam coal. 3. Ngakawaho, house coal.

*Steatite, or Soapstone.*

Steatite, commonly called French chalk, is found in large quantities at Collingwood, in the serpentine series. Its uses are many: for removing grease from fabrics, also as a polishing powder and for sharpening instruments, and in the manufacture of meerschaum pipes, and for carving a variety of ornaments. The powder is used for boots and gloves, but the most important branch is that of facing paper,