

lost art of native metallurgy in a previous communication,* the subject was remitted to me to report upon, with special reference to the Brockville relics, which were put into my hands for the purpose of experiment and analysis.

The object of the following experiments, accordingly, was to ascertain whether the metal of which these implements are made is identical with the native copper of the Lake Superior Mines, or whether it had been subjected to some manufacturing process, or mixed with any other substance, by which its hardness might have been increased. A careful examination establishes the conclusions here stated :

1stly. No perceptible difference could be observed in the hardness of the implements, and of metallic copper from Lake Superior.

2ndly. The knife or small dagger, with a hook at the end, was cleansed as far as possible from its green coating ;

It weighed 32.440 grammes.

It lost in water 3.741 “

Hence its specific gravity is. 8.66

A small fragment, broken off the end of the broad, flat implement, described as a “copper knife of full size,” having been freed from its coating, was found to have a specific gravity of 8.58.

During the cleaning of this fragment, a few brilliant white specks became visible on its surface ; they appeared to be silver, from their colour and lustre. The structure of the metal was also highly laminated, as if the instrument had been brought to its present shape by hammering out a solid mass of copper, which had either split up or had been originally formed of several pieces. These laminæ, of course, contained air, and the metal was covered with rust, which could not be removed,—hence the specific gravity would naturally be less than if the metal had been dense.

It is probable that the structure of the dagger previously referred to, is the same ; but as the coating of oxide, which could not be removed, would have more effect on the small fragment, which weighed only about three grammes, than on the larger dagger blade, the specific gravity of the latter was found to be rather higher.

A portion of very solid copper, from Lake Superior, of about the same weight as the fragment, was weighed in water, and its gravity found to be 8.92 ; in this piece there were no cavities perceptible.

The specific gravity of absolutely pure copper, varies from 8.78 to 8.96, according to the greater or less degree of aggregation it has received during its manufacture ;

* The Ancient Miners of Lake Superior ; ante, pp. 236, 237.