

## CORRECTIONS AND EMENDATIONS.

## TYPOGRAPHICAL CORRECTIONS.

In the second paragraph on page 50, the middle letter in the name of Dr. Jackson should be T, instead of J.

The erroneous spelling of the word "ores," at the end of the sixth line on page 61, will be noted.

## THE COPPER STATISTICS.

Some few modifications of the copper statistics have been suggested since that part of the work was in print—among them the addition on page 57 of 27 tons of ore, or 22 tons ingot shipped from Isle Royale in 1875.

There may be some apparent discrepancies between the totals shown by the two tables on page 57, but generally it is believed that the round tons given in the last table will agree with the number of pounds in the first on a multiple of 2,000. Should any real discrepancies be found to exist, the figures of the first table should be accepted, the chief value of the last one being to show the distribution of the copper product.

It is also suggested that the weight of some of the specimens of mass copper noted near the bottom of page 53 will bear some reduction.

Per contra, the largest specimen of mass copper stated at 446 tons (p. 58), taken from the Minesota mine, it is claimed should be 540 tons, agreeing with the last paragraph on page 53, and from the Phenix mine (p. 58), stated at 200 tons, should be 500 tons.

## THE IRON STATISTICS.

With the view of verifying the data on this subject as fully as possible, advance sheets were forwarded to Mr. H. B. Tuttle, of Cleveland, Ohio, with the request that he would suggest any modifications that he might think proper. The result of his examination is given in the following letter:

MR. S. B. McCracken:

CLEVELAND, May 11, 1876.

Dear Sir—In accordance with your request, I have hastily examined the matter which you sent me touching the iron district of Michigan, and would suggest its modification as follows:

Page 60.—Until 1855 the only ore mined was for use in local forges, making blooms. The first shipment from Marquette was in 1855, being 1,447 tons.

Page 61.—The comments on underground mining may have been appropriate to 1870, but not at this date. Nearly all the old mines have some underground work. The Champion and Michigamme are entirely underground, their experience having proved that to be the best method for those mines.

Page 62.—In the paragraph on the quality of the iron, it may be remarked that the iron produced from the red specular ores is decidedly red-short, and that from the magnetic ores is about neutral.

Same page, relative to the per centage of yield in iron, the statements of Major Brooks are of the mines *collectively*, many of the mines grading their ore to a higher standard, and thus meeting the wants of the most exacting makers of the higher grades of iron and steel. The distinction between first and second class ores consists chiefly, but not entirely, in size, and of this all the "flag" ores have an excess.

Page 63.—In the fifth line from the bottom, should read, *ordinary* uses, in the place of "practical" uses, such a method being only admissible in making common iron.

Pages 64 and 65.—Since 1870 improved methods have been discovered and adopted by the best chemists for determining phosphorus, but the process is such a delicate one that even good chemists now differ in reported results from the same specimen. In the list of mines (page 64), the reported per cent of phosphorus and iron, obtained by analysis of specimens, is not correct as to some of the mines, as is now well known by results obtained on a large scale in the use of the ores. The difficulty lies in obtaining specimens which shall represent an *average* of the ore as furnished for actual use, and if with great care and good judgment the average has been