MANUFACTURE OF IRON FROM LAKE SUPERIOR ORES.

The Lake Superior Iron Ores are the same as those found in the Ottawa District of Canada.

The Lake Superior iron ores belong to the variety of ores known as *specular iron*—a combination of iron and oxygen, of which the metallic proportion *cannot* exceed by weight seventy-two and a small fraction per centum. *Magnetic iron ore* accompanies the specular, and the two are frequently mixed. The greatest proportion of iron ever obtained from this mixture cannot exceed seventy-five per centum. No reliable analysis of the Lake Superior ore has ever given so high a yield as this. Statements of a greater yield prove their own falsity, and the ignorance of the operator. Such ores are *not peculiar* to the Lake Superior region. They are almost or quite as abundant in Missouri; and similar ores are extensively worked on the shores of Lake Champlain, in Orange co., New-York, and in New Jersey, New Hampshire and Georgia, contain in mountain masses varieties little differing from them. Some of the Andover ore of New Jersey cannot be distinguished from the choicest of the Lake Superior ores; and if made into bar iron direct, with the same care as were the samples for trial prepared from this ore, there is no question but it would exhibit the same remarkable strength; the pig-iron manufactured from it, though made with anthracite, possesses the strength of the best charcoal iron.

Being very free from earthy matters, these ores are well adapted for working in bloomery fires. They require a preparatory roasting, stamping and screening, by which they are subjected to some loss, and finally yield about a ton of metallic iron to two of ore as taken from the mine. More or less is lost in the cinder, according to the skill of the workmen, the purity of the ores and the adaptedness of the apparatus.

The bloomery process is a convenient one, where the ores are of this rich character, and charcoal is abundant. The charcoal made from the hard maple and birch of this region, is especially well adapted for this process. It is of remarkable soundness and density, owing to the great hardness of the wood. The same cause adds materially, however, to its cost. Each bloomery fire, worked by two bloomers and