

## LAKE SUPERIOR COPPER MINES.

A correspondent of the *Toronto Globe* gives a description of the copper mines of Lake Superior, from which we condense a few interesting extracts. As far back as 1770, a company was formed in England, composed of persons of rank and wealth, for working a mine at Pointe-aux-Pins, and some English miners came out in 1773 and penetrated 30 feet into the vein of copper; but they were very incapable of conducting affairs, and, after a years' experience, they returned, and the company dissolved.

It was not until 1845 that the copper deposits of Lake Superior again attracted that general attention which they deserved. Great discoveries were made about that time on the American shore, and it was generally understood that the veins were quite as rich on the Canadian side of the lakes. Parties in Montreal, Quebec, Toronto add Hamilton embarked in the business of exploring with extraordinary vigor. The Montreal Mining Company despatched one expedition of 80 persons, who "prospected" the shores of Lake Superior from end to end in a single summer. Very rich mineral was discovered in a variety of instances, and the company took up a large number of locations. The Montreal and Quebec Mining Companies began to open veins on a large scale. Numbers of workmen were sent up, with every description of expensive equipment. Everything needed was hauled over the portage at the Sault, and transferred to vessels on the other side. Wharves were built, store-houses erected, machinery of the best kind put in, everything being done on a scale of expenditure as if the profits of mining copper were much greater than of gold, and in as great a hurry as if the ore was about to take itself wings and fly away. Cornish miners were brought out at high wages, and their provisions cost enormous sums. The end was what might have been expected. Ore was got out, but it cost more than it could be sold for, and the works were abandoned as utterly unprofitable. The Quebec Mining Company sold off all their improvements, even to the buildings, and left their mines to be filled by the rains. The walls of a few ruined buildings only remain on Lake Superior to show where many hundreds of thousands of pounds of Canadian money were expended. The Montreal Company alone continued their efforts, but on the Lake Huron shore, which is much more easy of access than that of Lake Superior. They bought the location of another company, known as the "Bruce mines," and have continued to work it with varying fortunes ever since.

On what is called the American (United States) side, most of the copper which has been mined is pure metal, mechanically mixed with stone and earth. On the Canadian side, copper fused in quartz, commonly called ore, is found in very large deposits, of various degrees and richness. Pure copper is also found there, but, so far, not in large quantities. There are two mines of pure copper on the American side, which have proved wonderfully remunerative. The two are the "Minnesota" and the "Cliff." In them the copper is found in such immense masses that, though they are difficult to get out, they nevertheless afford an ample return for the outlay. On that tough, ductile substance, powder-blasting has no effect. It must be cut with the cold-chisel and hammer, and only large masses have hitherto repaid the labor put upon them. About two years ago the Montreal company leased half a mile of their location to a company called the "Wellington," composed of eight London merchants, principally engaged in the metal trade. They spent considerable sums in erecting works, and found ores of a much more valuable character than any previously worked on the location; the operations of this company have been extremely profitable. The consequence is that they are extending their operations; they have recently opened new mines, and have discovered very valuable ore. Enterprises, which would have been thought absurd and chimerical in 1844, when miners first broke ground on these rocks, have now the appearance of sober reality; steamers run along the coast regularly, and other vessels are innumerable. The iron-mines of Marquette will furnish this season 100,000 tons of freight downwards; and as they have very little to bring up, they take anything that is offered as ballast, at nominal rates, and coal has actually been delivered at the mines at a quarter of a dollar a ton from Cleveland. This extraordinary cheapness has led to the establishment of smelting works at the Bruce mines, which will

have a great effect on mining there. In the early days a smelting-house was erected, but soon abandoned, because it was cheaper then to carry the dressed ore to England than to bring the coal to the ore. All that is changed, and a firm have commenced smelting in the old works. They will use up ores which have hitherto been cast aside as not worth exporting, and their works will open a new era in mining. The expensive machinery hitherto used will be no longer required, as hand-dressing will suffice to bring the ore into the proper state for smelting.

## THE MILKY WAY.

The Milky Way forms the grandest feature of the firmament. It completely encircles the whole fabric of the skies, and sends its light down upon us, according to the best observations, from no less than 18,000,000 of suns. These are planted at various distances, too remote to be more than feebly understood; but their light, the medium of measurement, requires for its transit to our earth periods ranging from ten to a thousand years. Such is the sum of the great truths revealed to us by the two Herschels, who, with a zeal which no obstacle could daunt, have explored every part of the prodigious circle. Sir William Herschel, after accomplishing his famous section, believed that he had gaged the Milky Way to its lowest depth, affirming that he could follow a cluster of stars with his telescope, constructed expressly for the investigation, as far back as would require 330,000 years for the transmission of its light. But, presumptuous as it may seem, we must be permitted to doubt this assertion, as the same telescope, in the same master-hand was not sufficiently powerful to resolve even the nebula in Orion. Nor must we forget that light, our only clue to those unsearchable regions, expands and decomposes in its progress, and coming from a point so remote, its radiant waves would be dispersed in space. Thus the reflection is forced upon us, that new clusters and systems, whose beaming light will never reach our earth, still throng beyond; and that, though it is permitted to man to behold the immensity, he shall never see the bounds, of the creation.—*Marvels of Science.*

ENGRAVING OF ROLLERS FOR CALICOS, &c.—A Providence correspondent of the *Boston Journal* states that a mechanical arrangement has been invented by Mr. Milton Whipple, and improved by Mr. Thomas Hope of Providence, by which the engraving of rollers used in printing calicos and delains can be accomplished "in one quarter the time formerly employed, and a great reduction of labor and expense. The surface of the copper rollers are covered with a third coat of asphaltum paint before being placed on the machine. The mechanism is so arranged that upon tracing an index figure, which only requires one person to attend upon the sketch or pattern to be engraved, it forms a connection with several diamond points placed above the roller, and causes them to move in the same manner with the index. They thus scratch the lines of the pattern through the thin covering of asphalt upon the copper surface. When completed, the rollers are placed in dilute acid, which etches into the copper, where the paint has been removed, and thus accomplishes the engraving."

CURE FOR SPRAINS.—In the Paris hospitals a treatment is practiced that is found most successful for a frequent accident, and which can be applied by the most inexperienced. If the ankle is sprained, for instance, let the operator hold the foot in his hands, with the thumbs meeting on the swollen part. These, having been previously greased, are pressed successively with increasing force on the injured and painful spot for about a quarter of an hour. This application being repeated several times, will, in the course of a day, enable the patient to walk when other means would have failed to relieve him.

THE ANVIL CHORUS.—A correspondent, writing from North East, Pa., says: "One evening, as I was passing along the street, I met a sturdy son of the anvil, whom I had persuaded to take your paper, with the promise that I would pay for it if he did not like it. I asked him if he wanted his money back. He replied: 'No: I have got my money back already, and the balance of the six months is a clear gain. I would not do without it for twice that sum.'" This is the true "Anvil Chorus," and we ask all the sturdy blacksmiths in the land to join in its melody.

## STEAM FIRE-ENGINE CORRECTION

MESSRS. EDITORS:—Mr. J. K. Fisher's letter in your last number is a wanton attack upon us, calculated, so far as it is credited, to injure our reputation and business, for which injury we shall, at the earliest moment, seek appropriate redress.

Your paper of Nov. 28, 1858, containing a full description of the steam fire-engine *J. C. Cary*, the materials for which article were furnished by us, is a standing witness that we do not seek to withhold from Mr. Fisher such credit as is due to him, as the inventor of the steam-carriage arrangement employed by us in the *Cary*, and since in the *Storm* and the *South-west* steam fire-engines. Of the execution of this plan, which we have worked out in all its details according to our own judgment, frequently in opposition to his, changing in nearly every point the proportions and dimensions originally assigned by him, and introducing new and important elements to adapt it to our special purpose, and carrying the whole through, as the inventor himself has never done, to complete and even triumphant success in practical operation, we claim the undivided credit; and we are persuaded that all who know or who hereafter may come to know what we have done, and what he has attempted, will regard his claim to "all but the boiler and pump" of our engines as simply posterous.

In regard to the statement that we "have no right to build steam carriages on this plan, and have no right to use it for fire-engines other than the two built for New York," we denounce it as calumnious, and, as already intimated, shall hold its author to a strict account for it.

LEE & LARNED,

Steam Fire-engine Builders.

[NOTE.—We had no intention, at the time we published the communication from Mr. Fisher, of doing injustice to these gentlemen, who have labored perseveringly and under many disadvantages to perfect a steam fire-engine. Our motto is: "Honor to whom honor is due;" and although Mr. Fisher had, by his former course towards us, forfeited his right to claim courtesy in our columns, we nevertheless, as independent journalists, felt bound to admit his note advising the public of his claims to an invention which we had previously noticed without mention of his name. His statement, however, that Messrs. Lee & Larned have no right to use his invention, by reason of a forfeiture which he says they have incurred, touching as it does on business arrangements between private parties, in which the public have no immediate interest, might be deemed out of place in our columns. Having admitted it, it is now due to Messrs. Lee & Larned to state that we have carefully examined the written agreement made between themselves and Mr. Fisher, and it seems clear to us that they have a right to use his improvements in the construction of their steam fire-engines.—EDS.]

COTTON FACTORY IN CANADA.—Manufacturing operations are rapidly traveling north, and we learn that Canada West has made a beginning in the manufacture of cotton goods. The *Globe*, of Toronto, states that there is a new mill near St. Catherines, on the Welland Canal, conducted by Messrs Nutly & Co., in which about 600 yards per day are now made by 18 looms, and that its prospects are flattering. This factory is quite small, but as it is a beginning for Canada, it is a sure sign of its progress.

THE COMFORTS OF A WOODEN LEG.—A young French soldier recently wrote to his mother from Castiglione:—"Dear mother, I am yet living and lively; but I am not quite complete. The surgeon of the regiment has cut off one of my legs. I have been used to having the leg by me, and the parting was cruel. Do not weep, dear mother, but rejoice, rather, for I will rejoin you now not to leave you again. I will always be, now, part of your little card party, thanks to the wooden leg."

The daily rations of each horse belonging to the Third-avenue Railroad Co., this city, is 16 pounds of hay and 14 pounds of fresh Indian corn meal. The hay is generally cut before it is fed out. Experience has proved that with this kind and about this amount of food a horse will do more work than with any other, at the same cost.