

most gratifying. It gives reason to hope that the nations are really growing wiser, and that the sound and sensible principle of arbitration is making progress. There is, too, much reason to hope that Great Britain and the United States are on the eve of a similar agreement for the settlement of the Behring Sea dispute. It is to be devoutly hoped that in both cases arrangements may be completed and the arbitrators appointed at an early day. It would be nothing less than a world-calamity should anything occur to cause these negotiations to be broken off, or to prevent them from being successfully completed. On the other hand the peaceful settlement of these irritating and dangerous differences between these powerful nations would be an object-lesson for all the great powers, and might well be hailed as a distinct forward movement in the direction of "the thousand years of peace."

IT may be hoped that the somewhat unexpected and startling verdict of the coroner's jury in the cases of those killed in the recent railway tunnel disaster in New York city marks the beginning of a new era of reform in the history of railway management. The arrest of several of the officers and directors of the New York and New Haven Railway Company, including President Clark and Mr. Chauncey M. Depew, on charges of manslaughter, may, if logically followed up, lead to far-reaching results of a most beneficial character. Mr. Depew, it is said, denounces the verdict with its unpleasant and possibly serious personal results, as utterly absurd. Nothing could much better illustrate the influence of capitalistic and monopolistic power in blunting the perceptions of its possessors, than the line of argument Mr. Depew is said to have taken to show the absurdity of attempting to hold him and his fellow-directors responsible for the disaster and its consequences. Why, he is reported to have exclaimed, I am a director of thirty railroads, and another of the accused has a seat on one-hundred and twenty boards. How preposterous to suppose that either of us could be held responsible for the equipment and appointments of all those roads. It does not seem to have occurred to the astute mind of Mr. Depew that neither he nor his friend is under any compulsion to accept such a multiplicity of offices, or that the crowning absurdity lay in supposing that by multiplying his voluntarily assumed duties beyond all possibility of doing them properly, one could or should escape responsibility, either moral or legal, for their non-fulfilment. The evidence adduced at the inquest is said to have shown clearly that the tunnel is and has been for years a most dangerous place, under the conditions on which the trains were run. The jury were able to see for themselves that, on a foggy day, it was almost impossible to see the signals or anything else clearly in the tunnel. It was also proved that it was no uncommon thing for the engineers to "run their signals." The directors are said to find objections to every suggestion for the better equipment or safer running of the trains, but it is to be hoped that this may not prevent the rendering of a decision that will clearly fix the responsibility in all such matters upon such directors. It is time it was clearly understood that no considerations of economy, or difficulty, or rapid travel, shall avail to justify or excuse, in the eyes of the law, any managers or company for neglecting any precaution necessary to ensure the maximum of safety for employees and passengers.

AFTER fifty years of agitation and struggle, with occasional intermissions, the Congress of the United States has recognized the principle of a foreign author's right of property in the productions of his own brain. The Copyright Bill was passed by the Fifty-first Congress in its dying hour. If the good deed was done as an act of death-bed repentance for its own shortcomings and those of its predecessors, it cannot be said that it affords internal evidence of very deep remorse, or a very anxious desire to make amends. As an act of the simplest honesty the Bill is about as ungracious and grudging as it could be. While putting on the semblance of tardy righteousness, it certainly "skimps" the measure to the last degree. Instead of following the just and generous principles of the English law, which grants a foreigner the same rights in his brain-property as a British subject, it recognizes the products of a foreign author's labour as his own, in the United States, only on condition of his giving a share of the proceeds to the printers and publishers of that country. Nay, not only does it refuse the poor foreigner protection against its literary brigands until he has given its paper-makers, printers, and bookbinders each a job, but it actually for-

bids its own people to import his literary wares in their native garb. It was only by dint of a determined struggle that American readers who may, for any reason, prefer a foreign edition of a foreign book, were granted the poor privilege of buying a couple of copies, no more, for their own use, not for sale. Truly intense selfishness is as unlovely in a nation as in an individual. In saying this, we would not be so ungenerous and unjust as to forget that the members of the Copyright League, and a large body of American citizens of the better class, struggled nobly and to the utmost of their ability to secure a Bill which would have been a real credit to the nation. No men anywhere could have been actuated by loftier motives, or have fought more manfully and perseveringly for a worthy end. All honour to them! It was not their fault, but that of their political system, that the only shape in which it was possible to secure the passage of the Bill was that of a compromise with various powerful, self-seeking corporations and interests. Hence those features of the measure which make it more like an act to promote the transfer of a large amount of British and Canadian printing and publishing to the United States, than a Bill to protect the rights of foreign authors. Happily the principle of international honesty is recognized in the Bill, however grudgingly. Dislodgement from that coign of vantage is hardly possible. On the contrary, the fuller and more logical development of the principle in the near future is pretty well assured. The half loaf is the pledge and promise of the round and ample whole, in the better days which are coming.

A FEW NOTES ON THE PRODUCTION OF IRON AND STEEL IN ONTARIO.*

THE year before last I visited the Laurentian Iron producing district in New Jersey, and you will remember I read a paper with a view of pointing out the mineralogical and geological similarity between that iron ore producing belt, which stretches round through the north of New York State, and our iron ore producing territory in Eastern Ontario. The pleasing point to me, beside the similarity of occurrence, was the proved permanency of these ore beds, one which I visited being worked at a depth of 600 feet, and in several places along a length of two and one-half miles. As a rule abandonment of these deposits has come not so much from the lack of ore, or the exhaustion of the veins, but from heavy expenses, etc., when too great a depth has been reached.

The yield in 1887 was :-

For New York State	1,266,000 tons.
For New Jersey State	447,738 tons.
Total	1,713,738 tons.

Of this amount nearly all the New Jersey output was magnetite, and in New York State 926,000 tons were magnetite, 185,000 were hematite, 43,000 tons, limonite, and 112,000, spathic ore.

I was able also to point out that as a rule these New Jersey ores contained more phosphorus than our Eastern Ontario ores.

Last year, after visiting the Vermillion, Goegebic, Menominee and Marquette iron ranges on the north-west and southern shores of Lake Superior, I read before you a paper on these ranges for the same reason that I had treated on the New Jersey deposits, namely, because it has been proved, in the case of the Vermillion range, that it runs into Canadian territory to the south-west of Port Arthur, and it is also by no means improbable that we may find similar ranges on the north or east shores of the lake, where we have vast areas of rocks of the same geological formation. In fact, as I was able to point out, the mode of occurrence and the formation (save the jasper) is very similar to the deposits at Sudbury, though the iron in the latter case is a sulphide instead of an oxide. This latter fact alone served to magnify in my opinion the importance of the Sudbury deposits.

The magnitude and richness of the above mentioned Lake Superior iron ranges would, if justice were done to them, read almost like a romance. In 1890 (last year) they produced 8,893,146 tons, or to give some practical idea of this quantity it would represent a train load of iron ore passing a given point about every twenty minutes, day and night, during the whole year.

We have been told that the iron ores of the United States were becoming exhausted and that they therefore must have our ore.

In my paper I pointed out that it was not correct, and since then the Lake Superior mines turned out half as much more ore last year as they did in 1889.

The statement that they must have our ore is also misleading, for it takes us away from the great question of developing and utilizing our own iron ores.

Year succeeds year and still we remain content with a half-hearted "iron policy" and import our iron and steel from England or from the United States, save a very small proportion which is manufactured in Nova Scotia.

* A Paper read by W. Hamilton Merritt, F. G. S., before the Geological and Mining Section of the Canadian Institute.

While we are standing still let us note how things are progressing across the border. I find in the New York *Mining Journal*: "More than 10,250,000 tons (of 2000 lbs. each) is the grand total of the production of pig iron in the United States for the year 1890, an increase of 1,750,000, or more than 20 per cent. over the product of 1889." The following little table also from above paper is of interest :-

Production in United States of Pig Iron.	Net Tons.
1860	919,770
1873	2,868,278
1882	5,178,122
1890	10,260,000

The *Journal* also states: "The production of pig iron in Great Britain in 1889 was 9,234,776 net tons." It is estimated that it will not exceed this amount in 1890.

"The United States has therefore surpassed Great Britain for the first time in the production of pig iron."

"Our estimate of the production of steel ingots in the year 1890 is 4,900,000 net tons and of steel rails 2,200,000 net tons."

We produced in Canada 25,921 tons of pig iron in 1889.

In the United States they produce .67 of a ton of pig iron per capita of the population. In Canada we produce .005 of a ton of pig iron per capita of our population. Or in the United States each person has 134 times as much pig iron manufactured for him in his own country as he would have if he lived in Canada.

This comparison is drawn not for the purpose of belittling the efforts of those among us who are striving to build up our metallurgical industries, but to invite attention to the disparity which is exhibited in the working results and which no one can believe legitimately exists in the possibilities of the two countries.

I boldly make the assertion that Canada's greatest deficiency lies in not producing her own iron and steel.

We have built magnificent railroad systems, have created splendid steamship lines and are constantly projecting others. These may be said to be our greatest works, but what are they but *Iron and Steel*?

What if we had produced it all in Canada, and were now manufacturing, that which will be used in all the newly projected railroads and steamship lines, to say nothing of all the multitudinous requirements of everyday consumption of the king of metals? We can say at least that there would be a million more people in Canada to-day.

We cannot point to any nation in the world that amounts to anything which does not manufacture its own iron and steel.

One who has never visited a "black country" cannot conceive the stupendous scale of each member of the family of industries that goes to make up the creation of iron and steel. First the underground world teeming with miners to produce the ore and coal, or the busy neighbourhoods where the forests supply charcoal, the great traffic of these products to the railroads to some central point for smelting, the men day and night round the blast furnaces, the swarm of workmen at puddling and rolling the product, if iron, or converting the pig into steel and then rolling it. In all of these the consumption of nearly every other product is so prodigious that a thousand other trades are permanently benefited from the farmer, who produces food for the workman, to the cloth maker who turns out his Sunday clothes.

Let me quote a paragraph from the controversy between Mr. Gladstone and Mr. Blaine. Mr. Blaine writes as follows: "Mr. Gladstone may argue for Great Britain as he will, but for the United States we must insist on being guided by facts and not by theories; we must insist on adhering to the teachings of experiments which 'have been carried forward by careful generalizations to well grounded conclusions.' . . . Mr. Gladstone boldly contends that 'keeping capital at home by protection is dear production, and is a delusion from top to bottom.' I take direct issue with him on that proposition. Between 1870 and the present time considerably more than 100,000 miles of railroad have been built in the United States. The steel rail and other metal connected therewith involved so vast a sum of money that it could not have been raised to send out of the country in gold coin. The total cost could not have been less than \$500,000,000. We had a large interest to pay abroad on the public debt, and for nine years after 1870 gold was at a premium in the United States. During those years nearly 40,000 miles of railway were constructed, and to import English rail and pay for it with gold bought at a large premium would have been impossible. A very large proportion of the railway enterprises would of necessity have been abandoned if the export of gold to pay for the rails had been the condition precedent to their construction. But the manufacture of steel rails at home gave an immense stimulus to business. Tens of thousands of men were paid good wages, and great investments and great enrichments followed the line of the new road and opened to the American people large fields for enterprise not theretofore accessible. I might ask Mr. Gladstone what he would have done with the labour of the thousands of men engaged in manufacturing rail, if it had been judged practicable to buy the rail in England? Fortunately he has given his answer in advance of the question, for he tells us that 'in America we produce more cloth and more iron at high prices, instead of more cereals and more cotton at low prices.'"

Yet we rich Canadians can well afford to send out