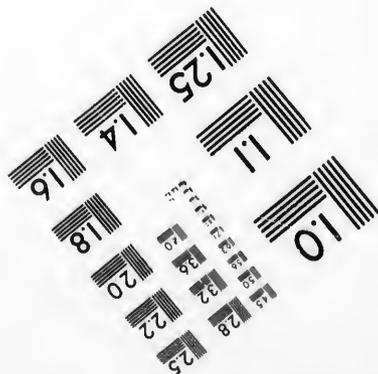
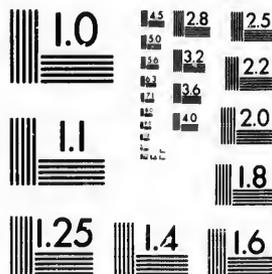


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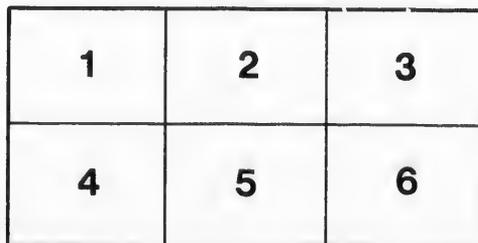
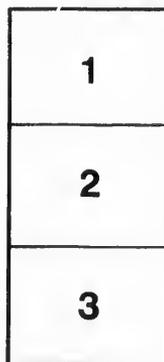
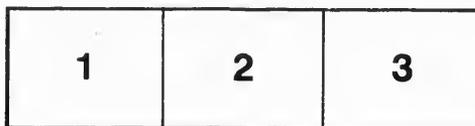
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Can. Clergue, Francis H.

P. Bell

...AN INSTANCE...

—OF—

INDUSTRIAL EVOLUTION IN NORTHERN
ONTARIO, DOMINION OF CANADA

AN ADDRESS

—BY—

FRANCIS H. CLERGUE, Esq.

PRESIDENT & MANAGER OF THE SAULT STE. MARIE PULP & PAPER CO.,
SAULT STE. MARIE, ONT.

Delivered at a General Meeting
of the Board of Trade of the City of Toronto

APRIL 2ND, 1903.



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...AN INSTANCE...

—OF—

INDUSTRIAL EVOLUTION IN NORTHERN
ONTARIO, DOMINION OF CANADA

AN ADDRESS

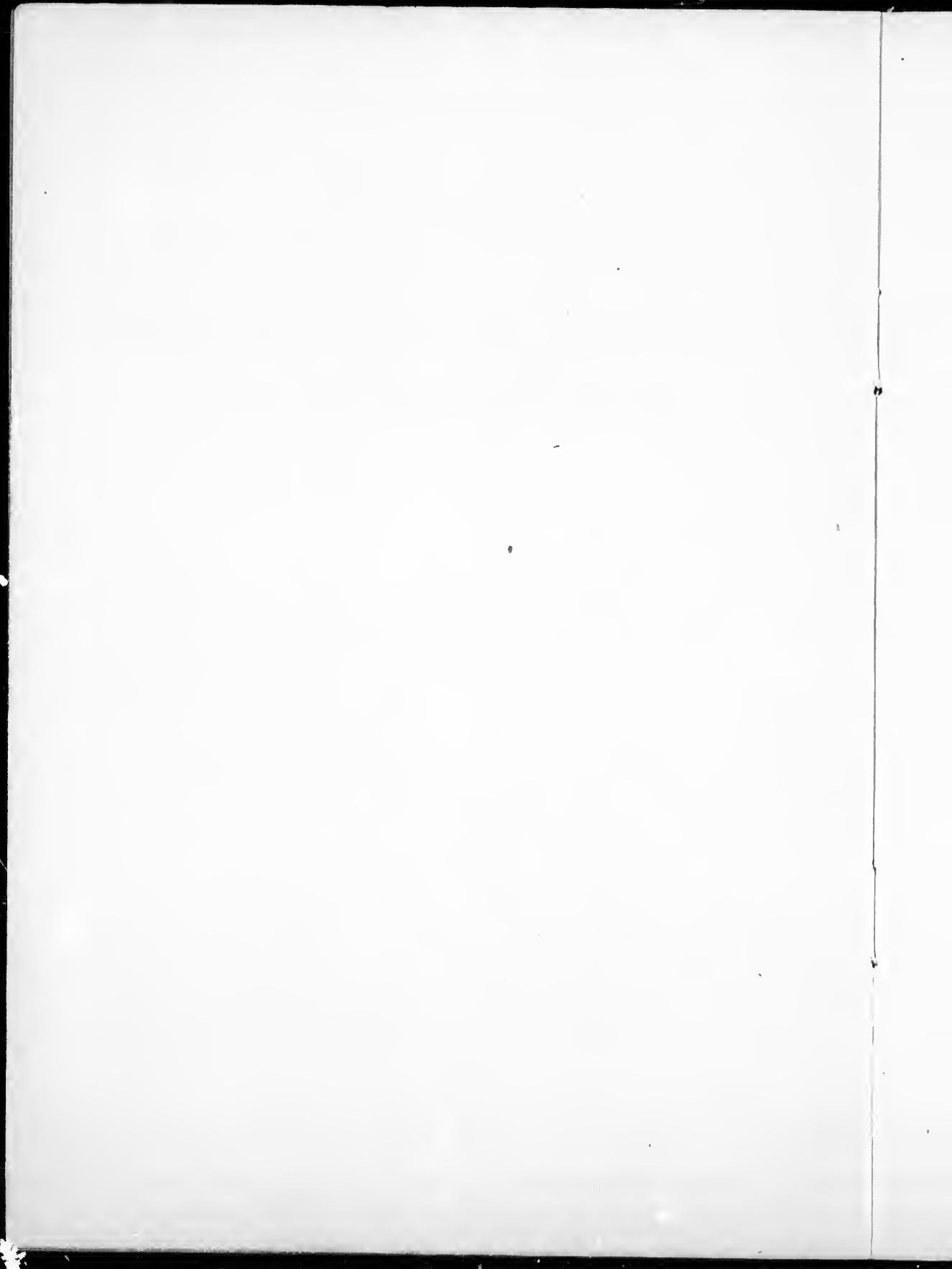
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AN INSTANCE OF INDUSTRIAL EVOLUTION IN NORTHERN ONTARIO

—BY—

FRANCIS H. CLERGUE, Esq.

President and Manager of the Sault Ste. Marie Pulp and Paper Co., & Co., & Co.

Mr. President, and Gentlemen of the Board of Trade:

I am a back-woodsman from the wilds of Algoma, but I have a sufficient sense of civilization about me to appreciate very fully the compliment you have paid me in inviting me to address you on this subject. I suppose that the gentlemen here, like those throughout the most of Southern Ontario with whom I have come in contact, view Algoma—which, of course, includes the most of Northern Ontario—as an unknown country; or rather known principally and almost only for its barren and deserted appearance. So barren and deserted is that appearance that even the Canadian Pacific times its trains so as to pass through that territory at night, in order not to offend the gaze of its passengers with the unpropitious aspect. That was the way Algoma looked to me; that was the way that part of Ontario presented itself to me when I first came to this country. I find I cannot entirely exclude the personal pronoun “I,” but if there are any reporters here I would ask them to exclude it, and to make it read “we,” if they can. I came from the Eastern section of the country. It fell to my fortune to be associated with some gentlemen who were possessed of some means, more than they could find profitable investments for, and it was agreed between us that we should begin a prospecting tour along the basin of the St. Lawrence—which of course extends from the Gulf to Lake Superior—in order to ascertain what opportunities there existed along this frontier for hydraulic development.

THE DISCOVERY

In the course of that journey, starting from Cape Breton and ending at Port Arthur, various important water powers were found and investigated; various of them had their merits, and nearly all of them had their demerits.

As we went along the shore of Georgian Bay we found, here and there, water powers on the Spanish and other rivers, all of some consequence and actual volume, but none of prime importance until we reached Sault Ste. Marie, and there, as those of you will remember who have seen the situation, with Lake Superior for a mill pond and a fall of about 20 feet, we found a plain opportunity for economical and advantageous hydraulic development. There we were interested enough to stop and investigate. The development of a water power on a large scale involves the expenditure of a great deal of money; and after the water power is developed, and the hydraulic energy of the falling water is turned through a wheel and begins to revolve the shaft, it is necessary that machinery should be applied to that shaft in order to turn it to some useful effect, and then the hydraulic engineer gives place to the manufacturing engineer. We had in mind no especial sort of undertaking in the way of manufacturing. We were aware that at Holyoke, for instance, in Massachusetts, water power was worth from fifteen to thirty dollars per annum per horse-power, and the construction of a dam at the river at Holyoke had resulted in a population of 100,000 people, dependent for their daily bread on the energy produced from that falling water. In our simplicity at that time it seemed to us that we had simply to go on, construct the dam, establish the water wheels in place, and that all the manufacturers in the world would come there to seek for power. We made the first investment, and began the work, but we were disappointed in our applications for power, and before our construction was entirely completed we had decided that we should have to go still further than the original and initial development of the water power, into its actual utilization. We proceeded to the next step, and as the President has said, the title to this address is called an Instance of Industrial Evolution in Algoma, and this I shall portray to you as a very peculiar and unique, and I think interesting instance of evolution in industry; starting from the falling water there, and following all through until you reach the climax, which has not yet been accomplished, but which we are aiming for.

**GREAT
POSSIBILITIES**

We began the development of that water power, and having gotten the waterwheels into position we then began to study the natural resources of the region to determine to what uses that power could be profitably put; and that is a study which I advise any gentleman to make before he makes any investment in water power. Before you consider hydraulic development as a means of profitable investment I assure you you should first study the country in which the water power is located, and be sure that in it exists sufficient of the raw materials requiring the use of water power for their manufacture into a more perfect form for the use of mankind, to justify the investment. If you go to Algoma you can take up almost any water power you find without that study, because so resourceful is that region that, in my opinion, there is not a water power falling down over the hills of Algoma which has not within a reasonable radius enough to occupy all the power now running to waste, and to employ profitably hundreds and hundreds of people. (Applause). It is my opinion, after a residence of over five years in Algoma, and the expenditure of already more than five million of dollars, and having available fifteen million dollars more for investment in the same undertakings, it is my opinion—and it must be a pretty good one or it could not be so well backed up—that there is opportunity for a population in Northern Ontario equal to that of Southern Ontario, equal in number, equal in prosperity; and how it can be done I shall proceed to elucidate to you. You have only to go and follow the example we have set at Sault Ste. Marie. I do not mean to say it need be on the same scale. That is not necessary. In fact it would be impracticable because there we have the advantage of a very large water power, but in its proper proportion similar industries can exist all the way from the city of Ottawa to the city of Port Arthur.

**PINE A
SMALL
ITEM**

Having developed, as I have said, the water power, we then found it necessary to study the resources of the region for the purpose of utilizing that water power. Naturally the forests first appealed to us. I began to observe the forests. I found of what they consisted; how they were utilized. Perhaps one per cent. of the whole forests from the city of Ottawa

to Rat Portage may consist of pine trees. Perhaps one per cent. My personal judgment is based upon my own observation. I have been exploring the country there, personally, summers and winters. My personal judgment is that not one per cent. of all the forest growth in Ontario is pine; and yet the people of Ontario think their only asset is pine forest! The remainder of the timber, the remainder of the growth, can step by step, and by proper degrees be reduced to the uses of mankind almost as profitably, and perhaps quite as profitably as the pine trees themselves. To do this the region must be made accessible. That means railways, which, of course, can be provided. We found there that the pine territory skirts the shore of Georgian Bay. That when we got up into the higher latitudes, and towards the water-shed of Lake Superior and Hudson Bay, the pine gave out, and that there were no pine resources which we could depend upon to any great extent. On Georgian Bay, as you know, the pine forests still exist in very considerable quantities, and it will be long after the youngest of us are gone that the pine trees of that part of Algoma will be destroyed and used. But for our purposes we could not, as you can understand, profitably transport logs against the current. We could not bring the trees of the forest up to Sault Ste. Marie for manufacture against the current of the St. Mary's River. We were bound to look to the water-shed of Lake Superior to secure our supplies, and in the study of that region we found that there was the birch, the maple, the hard elm, the tamarac, the spruce, the balsam and the poplar. All of those timber growths in their present condition useless, and most of them inaccessible. Except the spruce and cedar, none of the other woods I have mentioned would float to our mill for the purpose of manufacture; they could not be utilized at our works for lack of means of transportation from the forests. Therefore, we found that of all the woods up there the only one suitable for our purpose was the spruce. That we began to gather for use in pulp making, and we proceeded to construct a pulp mill.

BEGINNING OF THE INDUSTRY

We began it on rather a small scale at first. We agreed with the Government to the extent of securing their promise of a sufficient supply, if we would undertake it for a fixed period, at a certain stumpage rate. We proceeded on a moderate scale to fulfil our promises

to the Government, and to expend two hundred and fifty thousand dollars in the construction of the works. We had not got along as far as that before we found it cost just as much to run a works of that size practically—except mere labor charges, and the additional cost for the raw materials—as a works twice as large, and that our competitors in foreign lands, running on a more extensive scale, could produce pulp for the use of the paper makers throughout the world at a price beyond our competition. So the first step of the evolution was to enlarge the pulp mill; and from a ground wood pulp mill of twenty tons a day we have enlarged until we have an output of one hundred and fifty tons of pulp a day, requiring the use daily of about 200 cords of wood. (Applause). Having gotten along then so far as to build a big pulp mill, we found that even then the influx of this product of ours on a large scale into the markets of the world was taken advantage of by our American friends, the paper manufacturers, who needed Canadian pulp, and they proceeded to mark down the values of Canadian pulp. When we originated the mills, the market price in the United States was high and profitable, and we had a handsome dividend calculated on the output of the mill. When the wheels began to turn over, and the product began to come out, the paper manufacturers in the States resolved that here was a new source of supply on such a grand scale that they could be supplied forever at their own price.

**THE
OLD
METHOD**

Up to the time of constructing this mill, the ordinary method for producing pulp for the use of paper manufacturers was by attaching the grindstone to a water wheel, against the grindstone being placed a block of spruce wood, and that block being pressed against the grindstone by an hydraulic piston; this continuous pressure against the grindstone resulting in pulverizing this wood in a liquid form, called "mechanical pulp." This liquid pulp is taken to another machine where it is gathered around wooden rollers, which express from the pulp about one-half of the water, and the consequence is we obtain a sheet of pulp, something like a sheet of blotting paper, containing about 50 per cent. of wood fibre, and 50 to 55 per cent water. When that product is shipped to the paper mill, the purchaser, the paper maker, does not pay for the tons of pulp you deliver to him;

he pays you for the amount of wood fibre in that pulp, which is actually about 45 or 50 per cent. of the total weight of the shipment; consequently, my friends of the Grand Trunk Railway and the Canadian Pacific Railway were gathering from my pocket-book the freight on water for which I never received any pay. That circumstance confined our works to the nearby paper manufacturers. We could not ship this product to Australia, France, England, Germany or any of the foreign countries for these two reasons: In the first place we would be paying a freight on 65 per cent. of material for which we cannot collect payment; that of course made it impossible. Our second difficulty was that if the foreign market price justified this extraordinary and expensive means of carrying paper raw material, even then we could not send it to a distant market, because by this grinding process a great deal of the resinous matter remains in the fibre, and just as soon as you expose that to the varying atmosphere of a moist and dry climate, a hot and cold climate, the resinous matter in the fibre commences to decompose and give the green stain which is seen in pine boards that have not been properly seasoned. In this way we were getting into difficulties. This great undertaking, where we had already spent one million dollars or more, out of which we expected to do very well, was simply a source of annoyance, distress and loss. There was no profit in it.

**WORLD
MARKET
WANTED**

Then we come to the next step in the evolution. It was decided that we must make that pulp marketable all over the world. Pulp for paper making uses is worth more in countries where they have no forests than in countries where they have. It was decided to attempt a process for turning out this pulp as a dry product. An investigation was made among all the paper machine manufacturers in Europe and the United States with the hope of securing apparatus by which this ground wood pulp just as it came from this grindstone could be taken and turned into a sheet like a sheet of paper, but containing simply the ground wood pulp. Everywhere the process was declared impracticable. No paper machine manufacturer in the world would attempt it. In the meantime we were grinding out pulp and losing money day after day, and night after night. We tried every ingenious contrivance to make it profitable,

but I assure you we did not succeed. We were so far away; we were in Algoma; we were not on the Gulf of St. Lawrence within hailing distance of all the ships that pass. Then we had to take the next step; we decided to design a machine ourselves, and we did. We designed a machine which we thought, on paper, would answer the purpose. Having had a long training in mechanics myself, I gave the matter my own attention, and after a while succeeded in designing an apparatus which seemed practicable, and this design was sent around to the paper machine makers; no paper machine man would build that machine; it involved a different construction than had ever been attempted elsewhere. Then it became necessary to build our own machine shop as the next step in the evolution. (Laughter). Having decided to build the machine shop we found it was necessary to build a foundry. We built a foundry of stone of the general architectural design adopted in our mills. Then we went on to build the machine shop, and finally, before we turned out a single machine, we had spent about one hundred and twenty-five thousand dollars in the foundry and machine shop, all with the object in view of obtaining dry pulp. Finally, after a great deal of difficulty—bad castings and the deuce to pay generally—we got out one of these new machines and got it started up.

**EARLY
DISCOURAGE-
MENTS**

Well, I took the most skilled foreman we had in the mill, and told him to nurse that machine himself; I told him how it ought to run, and how the paper should come out. Well, he started to run that machine, and in less than a week the man was ready to commit suicide. He gave it up. We took all the foremen in the mill, one after another, and it was six months before that machine ever made a sheet of pulp; but now there are no other machines in the mill. After a while, correcting this and remedying that, we evolved out of that conception a machine which to-day earns net at the mill a profit of one thousand dollars a day more than the profit was by the same output by the process formerly in use. (Applause). That is the only mill in the world making pulp in that form; and since I have been in Toronto—I only arrived from the work this morning—I have received, and I now have with me telegrams from Paris, from England and tele-

grams from the United States for orders, which would more than take the product of that mill for six months, if we would accept them. So that the evolution so far worked all right. My associates were well pleased. They thought at last their expectations had begun to be realized, and they were content to go on with our development. So that having produced these dry machines, and this dry pulp, we had gotten the product into a form where we could now reach the foreign markets, and now we ship every week pulp to Japan, Australia, France and England, besides all over the United States; no large contract for paper is made to-day by American mills without finding out from Sault Ste. Marie, Ontario, what the price of pulp will be.

Well, gentlemen, having carried the process along so far, we concluded that it was a shame to allow that raw material to go out in a manufactured form which sold at so low a price as mechanical pulp, when the same raw material could be further enhanced in value by making it into chemical pulp. As probably most of you know, paper is made very largely of ground wood pulp, but it must have some chemical pulp in it, some sulphide pulp, having a longer fibre, in order to make it sufficiently strong to pass over the rolls of a printing press, and the preparation of this pulp requires that all the resinous matter of the wood fibre be taken out. That involves a chemical process. The sulphite or lime is the name of the liquor as it is called, used in removing from the wood fibre the resinous matter necessary to produce this refined pulp, so that I advised my associates that it would be wise to increase our gross earnings, our net earnings, and increase our labor force, and increase the general opportunities of our works there, by proceeding to produce a more refined and perfect quality of pulp; and, therefore, it was decided that we should appropriate money enough to build a sulphite pulp mill. So the next step in the evolution was a sulphite pulp mill.

**SULPHUR
FOUND IN
ONTARIO**

In investigating the question of making sulphite pulp, we found that besides the raw material we had, which was the wood itself, and the clean cold water, we required also to have sulphur, and we found, in carrying the investigation still further, that the only economical source of sulphur, and the universal source all

through the world for sulphite pulp making, was the sulphur mines of Sicily, owned by a syndicate imposing its own value upon its output; so that practically the cost of sulphur for a sulphite pulp mill in Canada is practically \$25 a ton, and at the time of the Cuban war the price went up at one time as high as \$40 a ton. We were very far distant from the coast, and bringing sulphur from Sicily, all the way to Sault Ste. Marie, seemed unreasonable; in fact, to a man with the confidence I have in Algoma, it seemed unnecessary. So I began to look around Algoma for sulphur. (Applause). I went to the works at Sudbury, and I found they were racing sulphurous acid gas off into the air to the value of about \$2,000 a day, at an expense, a cost and loss. I proposed to the company that they should bring their ore to Sault Ste. Marie, roast it there, and we would take this gas away and utilize it. The company said they had investigated that subject but found it impracticable. My recollection of what the paper machine makers had said about dry pulp machines came back to me. I was not going to Sicily to find sulphur with all this sulphurous acid gas wasting into the air at Sudbury. So I went to Sudbury to buy a mine, and after looking around I found any quantity of mines; found nickel ore enough there to last the world 100,000 years. (Cheers). I found the people valued their mines rather highly there, for prospects, but still I took an option on one property for a sufficient length of time to allow us to carry on our experiments, and determine whether or not that sulphur could be used for sulphite pulp making. Mind you, I was not looking for nickel-steel, or anything of that sort; I was just after sulphur for sulphite pulp making. I got a car of the ore to Sault Ste. Marie, and I found that the scientific men with whom I had advised on the subject—because, although this is a matter of half an hour's discussion now, it has taken years to evolve these things up to the point we are now discussing—after getting the ore up to Sault Ste. Marie I found that the prediction of these scientific men, who had said that the sulphur could not be successfully taken out of the pyrrhotite ore, was practically true, by any methods in vogue at the present time. But I have had the good sense to assemble about myself practical and scientific men from all parts of the world, who were supposed to represent the latest knowledge and experience in every class of scientific and practical undertakings which we have to engage in; and my own staff, at my call night

and day, number over one hundred men—so you can see that among the technical and scientific men in different departments of engineering, the resources available to us for information are broader, more ample, than are usual in places so far distant from civilization as Sault Ste. Marie, Ontario. (Laughter). So, with all these gentlemen to assist, we began a study of the question of extracting sulphurous acid gas from pyrrhotite ore. We were entirely successful--just as successful as in pulp making. (Applause).

INVESTED IN NICKEL

Then we went down to Sudbury and paid them \$100,000 for a nickel mine, and we proceeded to carry on our operations until we found that the gas which we got from this Sudbury ore was exactly what we wanted for our sulphite pulp mill. Then we proceeded to build our sulphite pulp mill. It is now under construction, and will be in operation about the first of June. It will employ as many men as the ground wood mill, and will utilize the same quantity of wood, about 150 cords a day, making our total requirements of wood this summer about 300 cords per day. But having gotten the sulphite pulp business thoroughly established and ready to operate, then the question came up whether the residue which was to be left from the sulphite pulp mill could not be put to some use. We investigated it, put it through our chemical laboratory, and found that we had left in this residue nickel and iron in a natural state of union so perfect that when fused together and reduced to a metal, it produced an alloy of nickel and steel so far superior to anything else which had yet been used, that when offered to Krupp, the great gun-maker in Germany, he made a contract at once for a supply for five years. (Loud applause). And we then proceeded, gentlemen, to erect our reduction works and our ferro-nickel plant. But when we began to ship this ore out of Sudbury, we found that although a very considerable proportion of it consisted of nickeliferous pyrrhotite principally, a still larger proportion consisted of copper pyrites. Of course it is a well known fact that a little copper in nickel steel, or steel of any kind, ruins its efficacy, its value, and therefore, it became necessary, in order to mine this ore profitably to devise a means of taking out the copper ore with the nickel. So it became necessary to reduce and refine the copper and nickel ore

which we found together. Again our laboratory was set to work, and we now have devised a process by which the copper and nickel together are taken out in a refined form, equal to that done in any part of the world, and as cheaply. That was the next step in the evolution. (Applause).

**ONTARIO
AGAIN
TO THE
FRONT**

But we found that in this process also we required certain chemicals, certain alkalies. We found that although we had to go outside Algoma for this resource, we still had not to go outside the Province of Ontario.

We only had to go to Windsor or Goderich to get our supply of salt, bring it up to Sault Ste. Marie, and take one of our dynamos, attach it to an iron pot, fill the iron pot with brine, start the electric current through the brine, and the chlorine gas came off through the suitable tiling, which we got from Hamilton, while the other part of the salt itself, the sodium, came off as caustic soda through the water. Thus we found ourselves provided from Ontario resources with all the alkalies which are necessary for certain processes of the refining. All procured within the Province of Ontario.

Gentlemen, I have really come down to the merchant's sign, up there at Sault Ste. Marie, "If you don't see what you want, ask for it." (Laughter).

So the next step was the establishment of an alkali plant, a chemical works. We began to investigate all around the world for the best process for the electrolytic decomposition of salt, and we finally selected a process which had been recently invented known as the "Rhodin" process. After a careful examination on a practical scale we have adopted it, and are now building alkali works up there. What we needed out of the salt product was really the sodium for our refining processes. We did not need the chlorine, but we could not allow it to go to waste. That was another by-product. So we came to the next step in the evolution. Chlorine is universally made into bleaching powder, a substance used for bleaching wools, cloths and fabrics of all sorts. The most of the bleaching powder is made in England; a great deal in Germany. Bleaching powder consists of about 44 per cent. of active chlorine gas, and the other 56 per cent. is just lime. The lime is a medium

for conveying this chlorine gas about. It has an affinity for the chlorine, which is seized by the lime in the lime chambers, and the lime which becomes impregnated with it up to 44 per cent. then ceases to take any more. Then it is barrelled up and sent about the world. Well, we said, "Here is a case just like our wet wood pulp. The people who are shipping that lime around the world are paying freight on something that is entirely idle and useless. At Sault Ste. Marie, where everything must be saved that we may survive, we cannot tolerate any such nonsense as that." So we take the gas from the receptacle where it is formed, and pump it with a glass pump into the lime water. Instead of pumping it into lime we pump it into lime water. The lime water is then utilized for bleaching the sulphite pulp. So you see there is the continuation of the evolution.

**EVERYTHING
UTILIZED**

Every part of the product is used. We found further, on experimentation in the use of the bleaching powder itself, that while the powder contains 44 per cent. of chlorine gas, the amount actually available and useful when the powder is dissolved in water again, averages only about 35 per cent. The possible, theoretically, is only 37 per cent., and the practical 35 per cent. So you see there is a dead loss from this source of the difference between 44 and 35 per cent. of chlorine. But we found still further that when we carried the gas directly from the apparatus into the lime water, that then the whole 44 per cent. became available. (Applause). We have carried the investigation on theoretically, step by step, until we have reached these conclusions, and whenever the laboratory experiments have justified it we have gone on with the necessary expenditure and completed the works. We have allowed no by-product to escape us; in fact, when we reduced our ores at the refining works, we found that the amount of ore profitably available was so great that our sulphite pulp mill could not begin to use all the sulphurous acid gas from those ores, and we must again waste the sulphur into the air, at a loss, or devise some other use for it. To find a use for that sulphurous acid gas was the next step. What other use could we put it to? We found that this gas is by a suitable and economical process turned into sulphuric acid, which is sold to the ore refiners, and for other uses in the arts. When the market for sulphuric acid becomes well supplied, another step, and one economical in its process, is the compression of the sulphurous acid gas into liquid sulphurous acid. That is the substance which our sulphite pulp mills in Canada will, in my opinion, be using exclusively before long. They will not go to Sicily for sulphur. After our works are once in operation we shall be able to ship liquid sulphurous acid in iron tanks to them at about one-half the price of the present cost of sulphur. (Applause).

**THE
ENDS
ACCOMPLISHED**

And now, gentlemen, I have illustrated to you by these various steps how it is possible to go into Algoma, take the raw resources which God left there when the world was created, and turn them to the beneficial uses of mankind. We have assembled around these works a large and prosperous population. Works of that character invite the very best of labor. There is not an enterprise of the same kind in America paying higher wages, and very few pay as high as ours. (Applause). We have not a common laborer in the mill receiving less than \$1.35 a day. From that amount the wages run up to \$5 a day. We have a working force of such a class that when I came down from Sault Ste. Marie yesterday, they gave me \$750 to pay into The Globe for the Patriotic Fund. (Applause). This is the sort of citizens you want, and my judgment is that you want all the immigrants of this kind in Canada that you can get. (Hear, hear). Here in Ontario you do not know the extent of your own resources. You have more of mineral and chemical value available in Ontario than in all of British Columbia and Montana combined. (Hear, hear !). That is my judgment, and if my judgment was not worth something other people would not give me twenty million dollars to spend up here, and never look after it. I assure you that you have an asset up there that you do not appreciate, that you are neglecting. We have found, however, as every new country finds, that we cannot get on without a railway. You see I have not got through with my evolution yet. I do not know where it is going to end. We found that the water-shed of Hudson's Bay came down very close to Lake Superior; that the tributary streams to Lake Superior were so abrupt and rapid, and the region itself so rocky as to be very unproductive of timber, and it is a fact to-day that the Sault Ste. Marie Company, notwithstanding that it went up into a supposedly great pulp country, is drawing pulp wood by rail from North Bay. So you see how necessary it is for works of this character to be able to have access to their own raw resources.

**A RAILWAY
NECESSARY**

We found plenty of wood up there, but it was not on the lake shores; we could not get it down the rivers; that in this inaccessible region there were plenty of forests, but we could not get at them. We found that it was necessary for the success of our works and for their establishment on so large a scale as we hoped and were planning, that it was necessary to have railway admittance into the region where the raw material exists; so we conceived the idea of building a railway into that region, and we began the investigation of the possible routes into the forest preserves.

We found it practicable, and we have now applied to the Government for certain concessions under which we expect to build during the next two years about 200 miles of railway through that country. I wish I had now before me a large map illustrating what that region is, because I want to impress on the gentlemen of the Board of Trade of Toronto the great importance to this city and to you as representatives of the Southern part of Ontario generally, of railway systems centering towards Southern Ontario. With all due respect for the Canadian Pacific—which I regard as the most important agency for prosperity which ever existed in Canada, and one of the most beneficial—yet so far as Algoma is concerned, it might as well never have been built. For this reason; the resources in the parts through which they run are of so low value that they cannot pay all rail transportation to Montreal. The timber or the mining products cannot pay that haul to Montreal. Algoma must be developed by systems of railway running north and south; starting from the lake coast, to which all Southern Ontario has ready access, and spreading northward as far as they can go, because you are not limited even to Hudson's Bay. Even farther north than James' Bay is a region which will be populated when made accessible.

What Toronto, and all Southern Ontario, should insistently urge, night and day, is that the Government should never allow railways to be built in Ontario that do not come down to the lake system or trend toward Toronto.

**WE SHOULD
NOT BE
SIDE
TRACKED**

It should be physically impossible, by means of railroad devices, to get by Toronto; if that were so, if it were physically impossible to get those resources past Toronto, then you would have your share of them. But now, in discussing the railway interests of Southern Ontario I am getting beyond my question of evolution. I am, however, only using the story of the development of our own works as an instance of what can be done all through Northern Ontario, and when those works are completed and similar works started all through that region, and railway systems inaugurated to get that raw material at cheaply to Southern Ontario, you can have factories all the way from Peterborough to Sarnia, and from Hamilton to Windsor. The woods and forests existing there can never be put to any use without railway lines, but when once brought down here they will enable Southern Ontario to compete with the furniture manufacturers of Grand Rapids and other American centres in European markets. (Applause).

Are you aware that one of the best markets possessed by the furniture manufacturers of Ohio and Michigan is the European ?

They require exactly the hard woods we have up there. I am not luxurious in my tastes, but still I burn curly birch in my fire-place all the time. Curly birch is worth \$40 a thousand feet in the American market, but the Government will give me all I can cut for 10 cents a cord stumpage. It is a monstrous waste, but you understand that is a product that cannot be gotten out of the forest without railways. Not far from Sault Ste. Marie is Minneapolis. There elm for flour barrels is worth \$25 a thousand feet; worth 20 cents a thousand stumpage around Sault Ste. Marie, but you cannot get it out; you cannot float it; you must have railways. Tamarac and maple the same way; poplar you cannot float. This paper before me is about half poplar; one of the most valuable and important of wood fibres for paper making; it is the fibre which is used almost universally for wood prints; being a soft and velvety material it takes a clear impression. So I might go on, but I have omitted one important step in our evolution. In carrying on our nickel experiments we found that the natural product is too high in nickel content; that is, it is too rich; there is too much nickel in the ore; when you reduce it to an alloy of nickel and iron the percentage of nickel is above the amount required for armour-plate, which is about $3\frac{1}{2}$ per cent. The average of our nickel ore, when you reduce it to a metal, is about 7 per cent. So it became necessary to dilute this rich oxide, which we smelt, into the metal with the iron ore.

**ALGOMA
HAS
EVERYTHING**

Well, as I have said, we had never yet asked anything from Algoma that we did not get and I could not bear the thought of importing American ore to use in a Canadian alloy. So we decided that we must have some Algoma iron ore and we started to look around some of the gold mines, and presently found some red hematite. Scientists had said that there was no red hematite on the Canadian side of Lake Superior; that God had put it all on the American side of Lake Superior. I always thought that a mistake and now I am ready to prove it. We will show you an iron mine up there equal to anything on the other side. (Applause). We found we had not only iron enough to provide the admixture we required—which is a large amount because we are going to smelt 500 tons a day—but we have been able to supply the new Midland furnace with all their requirements, and we expect to be able to supply the Hamilton furnace at very much more advantageous terms than they can get it from any other source. We expect to supply Deseronto, and we expect to provide it so cheaply that it will be profitable to establish a smelting plant right here in Toronto. (Applause).

Well, the process of evolution is not yet complete, because, although we found the iron mines only 12 miles from Lake Superior,

it was necessary to build a railway out to them. We decided to do that and began last summer to build that railway. We have now spent over \$500,000 on it. It is being laid with 85 pound rails. The ordinary rails here are 75 pounds. The ordinary freight cars, the best of them, will carry 20 to 30 tons. Ours carry 55 to 60. Sixty-five tons is a heavy locomotive down here in the yard. Ours are 110 tons. All up in Algoma; away up there in the back-woods! But when we had provided all these facilities to get this ore out to the harbor at Michipicoten I thought we had come to the completion of the cycle; because I knew the lake was covered with ships. I thought all we had to do was to send down to Mr. Rockefeller and tell him we wanted to charter some of his ships. When I communicated with the ship-brokers they replied, "Not so, we have more iron ore, grain, copper and timber coming out of Lake Superior this year than all the ships on the lakes can handle." Gentlemen, we were up a stump! (Laughter).

AND
NOW
SHIPS

After a little reflection I went out to the machine shop, to our master mechanic, and said, "Munro, we have been repairing ships here now for these American and Canadian owners for four or five years. Do you know the best type of ship for carrying ore on Lake Superior?" He smiled benignantly, and said he thought he did. I asked him if he would like a vacation in Europe this winter. He said he thought he would. Then I went to Captain Foote, the commodore of our little fleet. I asked him if he was not the best navigator on Lake Superior. He said he thought he was. I asked him if he thought he was equal to these English sharps over there in a trade of ships. He said he thought he was. So I started these two gentlemen to England, and they are coming over on the opening of navigation, with four steamers of the latest English model, triple expansion engines, largest carrying capacity compatible with getting through the locks, carrying 2,500 tons, and on the opening of navigation we shall be carrying ore from Michipicoten in our own Canadian ships. (Applause). Well, gentlemen, I do not know whether you are tired with this long recital. (No, no, go on). But it is a never ending source of delight and pleasure and gratification to me. I am wholly and entirely absorbed in it, and I assure you that there is not a man of common sense who can come up and view what has been accomplished there without being inspired with an admiration and esteem for the resources of Canada which will make him a better citizen; he will cease to feel that he is dependent upon some other country or some other people's money for his daily bread. If, in my judgment, the inhabitants of Southern Ontario would insist upon such a development up there as logical and scientific attention to its resources requires, the value of your pine forests will be an insignificant item in your resources. I thank you, gentlemen, for your attention. (Continued applause).

**THE
EXPORT
DUTY**

CHAIRMAN—What is going to be the outcome if we do not insist upon an export duty ?

MR. CLERGUE—The President, gentlemen, has asked me what I care to say on the subject of the proposed export duty on spruce pulp wood. I fear, gentlemen, that my position as a Canadian manufacturer may be involving me a little in Canadian politics, and that I cannot consent to for a moment. I am so utterly absorbed and really almost overwhelmed with the peculiar and technical duties devolving upon me up there that professional politics is something I cannot study or take up, so that I view the question of the utility of Canadian resources entirely from a commercial standpoint. I try to and succeed in concealing from my own mind any question involving the discussion of Canadian political policy, but it seems to me that the preservation to Canada of the raw materials which now exist there is one of the simplest principles, about which children could not dispute, much less grown men. (Hear, hear).

Now, the gentlemen know that I am an American, and I have to confess, or to claim, here, that I am a protectionist, that I am a "James G. Blaine protectionist." I think that is the very finest policy a politician can adopt. I think that the policy which has made the United States great can make Canada great, and I think the opposite policy will make Canada small. My own judgment is that the need existing in the United States for Canadian resources is such that the American manufacturers are bound to not only consent to but to solicit and to ask for reciprocal relations with Canada when the Canadians insist upon fair dealing.

**MUST
MANUFACTURE
HERE**

As long as the Canadians allow their raw materials, necessary to American industries, to go free of charge into the United States, consenting at the same time to allow a prohibitive import duty to be imposed by the United States on the manufactured product of those raw materials, just so long will that duty continue on the American boundary. But when the Americans find that the raw materials which they need, and which are possessed only in Canada, can only be had by a fair interchange of raw materials and manufactured products, then that fair interchange will be acquired and obtained. That is my judgment, gentlemen, and I am a business man of long experience in the United States, and I think I know how wise they are as business men. That is what I would do, and I am very sure that is what they will do. The conclusion to draw from that, of course, is that raw materials, of which Canada possesses a monopoly, should not be allowed to go out to those countries which impose a duty on the

importation of the manufactured product. (Applause). When they allow the manufactured product to enter the United States as freely as the raw material then there is reciprocity, and I ask nothing better for Canada; as a pulp manufacturer, as a ferro-nickel manufacturer, as a sulphuric acid manufacturer, in all of these different lines I ask no favors from any American manufacturer; let him have all the raw materials he can get in Canada, and I am perfectly willing to meet him in the American markets, if it were not for the duty; but I assert that it is entirely unfair that products only procurable from the mines and forests of Canada should be allowed to go free into the United States to enable the manufactured result of that raw material to control the American market and to meet the Canadian manufacturer in the European markets. I call that unfair. (Applause).

Mr. M. C. Ellis said he had very much pleasure in moving a hearty vote of thanks to Mr. Clergue. He was quite sure that as Mr. Clergue had demonstrated what had been done in Northern Ontario, and the broad lines on which it had been achieved, they had all received an amount of instruction which they had not thought of before. He was very glad to hear that there were people who could refine nickel in Canada. For that reason he was delighted to know that there was to be a refinery in our own country. It showed the wide possibilities in this country.

Mr. D. R. Wilkie, in seconding the motion said that he had personal opportunity to know the work being done at Sault Ste. Marie was simply marvellous. It showed the wonderful confidence which Mr. Clergue and his friends had in this country. The country owed them the deepest debt of gratitude. If we wanted men to come over from the United States, Germany or Europe, we must encourage them. If they wanted any encouragement they should get it, whether it was from the Legislature or anybody else. (Applause).

The motion was put and carried unanimously.

In reply Mr. Clergue said—I thank you, gentlemen, very much for these kind sentences. I am sure this reception has given me a great deal of happiness, a great deal of pleasure, and I now want to add one word of invitation, whenever any gentlemen from the Board of Trade find their way toward Lake Superior, they must find the way to the Blockhouse, where the latch-string will be out. (Cheers).

Toronto, April 2nd, 1900.

