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INDUSTRIAL CANADA

ONTARIO
QUEBEC

NOVA SCOTIA
NEW BRUNSWICK

N.W. TERRITORIES
MANITOBA

BRITISH COLUMBIA
P. E. ISLAND

Vol. i.

Toronto, Canada, January, 1896.

No. 1.

F. N. LEBLANC, Comptes, Ottawa, Ont.



DOMINION PARLIAMENT BUILDINGS, OTTAWA.

W. Sandfield Johnston, Publisher, Toronto

Are you a Live Retailer?

Then organize a WHITE GOODS SALE
for the month of January



Make
Dull
Trade
Brisk

SEND FOR OUR PRICE LIST
OF LADIES' UNDERWEAR



Slip Waists
Corset Covers
Chemises
Drawers
Night Gowns
Blouses, Etc.

Your order will have careful attention and you
need not purchase in large quantities as you can
easily repeat such numbers as prove good sellers.

DRESS GOODS

Beyond
Question

The most astounding advance ever known in any
single item pertaining to Dry Goods, occurred this
season in connection with Mohairs and Alpacas



Bright
Yarn
Goods

will be in demand and we can supply your re-
quirements at old prices while our stock lasts



REMEMBER
. . . THIS

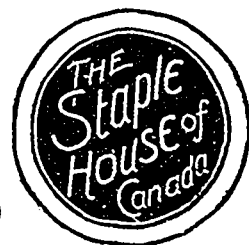
when looking at Dress Goods, as many houses
were not covered when the advances occurred



**GORDON, MACKAY
& CO.**

Corner
Front & Bay
Streets

TORONTO



1896

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Industrial Canada

A JOURNAL OF

INDUSTRIAL ENTERPRISE

Representing the...

- MINING
- LUMBERING
- MANUFACTURING
- MILLING
- AGRICULTURAL

And allied interests of the Dominion



*A Mirror of Canada's vast Extent,
its Resources, its Development, its
Advantages, its Prosperity,
and its Prospects*



Canada's Representative Journal

wishes the people of our fair Dominion, and especially readers of INDUSTRIAL CANADA, a Happy and Prosperous

= New Year =





The Villiage Blacksmith.

Industrial Canada

VOLUME I.

TORONTO, JANUARY, 1896.

NUMBER 1.

.....

CHARACTER SKETCH.

PREMIER MACKENZIE BOWELL.

OUR FIRST MINISTER OF TRADE AND COMMERCE.

"Patience is the finest and worthiest part of fortitude and the rarest too"—John Ruskin.

THAT "heaven helps those who help themselves" is a maxim, though somewhat old, that can with truest fitness be applied to the career of the Hon. Mackenzie Bowell, Premier of the Dominion of Canada. Canadians can with pride point to him as one who has risen from the ranks, and as furnishing an illustration of what may be accomplished by the practice of those old virtues of patience and perseverance.

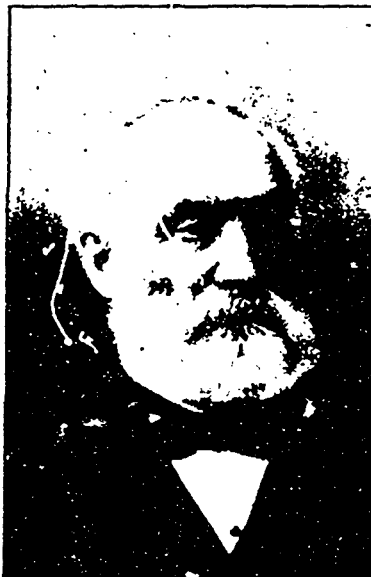
Mr. Bowell was born at Rickingham, Suffolk, England, on the 28th December, 1823. When nine years old his parents sailed for Canada. In his early youth he gave various exhibitions of that pluck, courage and enterprise, that helped him in after years to attain greater success. He had a quick eye for business, and in his early achievements might have been seen in embryo the minister who should in after years take charge of the department of trade and commerce of the Dominion.

"I have always taken a pleasure," said the secretary of one of the leading commercial organizations of the country to the writer, "when I have had occasion to visit Ottawa on business, in meeting with Mr. Bowell, as a minister of the crown. He impressed me as a man of strong commonsense, level headed and sound in his judgment, and in business affairs quick to get at the business point of a proposition."

Mr. Bowell, like many other men who in later years have served their country in important public positions, graduated from the printer's case. He entered a printing office as an apprentice in 1834, and up until the time that the responsibilities of public office bore heavily upon him, he was connected in one way and another with the newspaper press of Canada. He published the Belleville Intelligencer for many years, and has been president of the Ontario Press Association.

In 1863 Mr. Bowell contested the North Riding of the County of Hastings for parliamentary honors as nominee of the Conservative convention. In this election he was defeated, but again presented himself to the electors in 1867, and was elected. He entered parliament therefore at Confederation but took no very prominent part in the debates of the House for the first two or three years.

On the 19th October, 1878, upon the resumption to power of the Conservative party, Mr. Bowell was called to the Privy Council and sworn in Minister of Customs. This position he held continuously until 1892 when the cabinet being re-organized he was appointed Minister of Militia, and in December of the same year accepted the portfolio of Minister of Trade and Commerce, a new office that had then been created.



THE HON. SIR MACKENZIE BOWELL, K.C.M.G.

"The duties and powers of the Minister of Trade and Commerce," says the Act creating the office, "extends to the execution of laws relating to such matters connected with trade and commerce generally as are not by law assigned to any other department of the government, as well as to the direction of all public bodies, officers and servants employed in the execution of such laws." Mr. Bowell's fitness for this office was generally conceded by friends and foes alike. He rendered important service to the country in negotiations with foreign countries, and helped in various ways to extend the commercial relations of Canada.

In the first number of a journal, whose particular purpose will be to advance the industrial affairs of the Dominion, it is appropriate that there should be presented a character sketch, accompanied with portrait, of that citizen who first held the office where questions bearing on industrial matters and the trade and commerce of the country have to be dealt with.

When Sir John Thompson, premier, was suddenly called hence, in the reconstruction of the cabinet Mr. Bowell was called to the premiership. The position of Minister of Trade and Commerce is held to-day by the Hon. W. B. Ives.

THE AGRICULTURE OF CANADA.

BY C. C. JAMES, DEPUTY MINISTER OF AGRICULTURE FOR ONTARIO.

THE wealth of every country is a product to which all classes contribute, or should contribute. If, however, we trace it back to its source, we shall find that four streams contribute to the volume, namely, the product of the farm, the forest, the fisheries, and the mine. The variations in our national wealth and the general condition of our national wealth are controlled largely by these four sources. In Canada, these four great industries give employment to a very large portion of our population. In 1891, out of 1,659,355 workers in all classes, 790,210 were engaged in agriculture, fishing, mining, and lumbering. The relation of the various classes of workers may be stated briefly, thus: Of the total persons having occupations, 47.6 per cent. were engaged in agriculture, mining, fishing, and lumbering; 19.3 per cent. were engaged in manufacturing and mechanical pursuits; 14.9 per cent. in domestic and personal services; 11.2 per cent. in trade and transportation; 3.8 per cent. in professional avocations; and 3.2 per cent. were in the non-productive class. The 790,210, forming nearly one-half of the total workers, were divided into the following classes: Agricultural, 735,207; fishing, 27,079; mining, 15,168; lumbering, 12,756. The annual agricultural productions of Canada amount to about \$500,000,000 in value; the forest products, \$80,000,000; the mineral products, \$20,000,000; and the fisheries products, \$20,000,000. It will thus be seen that the four streams or fountain sources of wealth aggregate \$620,000,000 a year, and that four-fifths of the total volume comes from the farm. No wonder, then, that when agriculture prospers our whole country prospers, and that Thanksgiving Day is postponed until the year's harvests have been gathered and the farmer has balanced his ledger.

The times have been hard, unusually hard, and have weighed excessively upon the farmers of Canada; and yet they have not lost heart. The farmers of Canada come from hardy stock, the best of the yeomanry of England, Scotland, Ireland, and Germany, in addition to the thrifty French-Canadians, who may be considered almost as being native to the soil. When these nationalities shall have contended, the product will be a rural people unexcelled, if not unequalled.

Another cause of hope in Canada's future lies in the fact of our variety of resources. We have coal in abundance in our Maritime Provinces, east and west; iron in every Province except the prairie sections; gold in Nova Scotia, Quebec, Ontario, and British Columbia; copper and nickel to supply the world; salt, petroleum, and natural gases. We have cod fisheries on the Atlantic coast, salmon on the Pacific, and our inland lakes and rivers also contribute large quantities of varied kinds. The timber limits of the older Provinces still contribute the larger portion of the legislative revenues, while the enormous forests of British Columbia and Labrador have been only parti-

ally explored; and the agriculture of Canada is even more varied. Prince Edward Island, long noted for its sheep and its horses, is making a special effort for recognition as a dairy Province; Nova Scotia grows some of the finest fruit in the world, in the rich and beautiful Annapolis Valley; New Brunswick has, as yet developed no great specialty, but is making a general advance in methods; Quebec, with abundant hay and rich grasses, holds her high record for Eastern Townships butter; Manitoba grows the best wheat in America; the N. W. Territories are building up a series of magnificent stock ranches in some sections, and in others general farming is developing well; British Columbia will soon have a surplus of fine fruit; as for Ontario, the Central Province, her cheese, her apples and peaches, her barley and peas and oats, her cattle and sheep and horses, all take rank unsurpassed in the world's markets. While we have a variety of resources and a variety of industries, we can also claim a wonderful variety of agricultural products, and in this there is reason for concluding that the continued prosperity of this country is assured.

THE CANADIAN LUMBER INDUSTRY.

IN a late number of the Engineering Magazine, the Canadian lumber industry was the subject of an interesting sketch by Mr. J. S. Robertson, for six years editor of the Canada Lumberman. The writer points out that the lumber industry stands next in importance to that of agriculture, the capital invested in the business amounting to \$100,000,000, the wages paid annually to \$30,000,000, and the value of the output to \$110,000,000. There are besides about 6,000 wood-working establishments, giving employment during the season to some 15,000 men.

Canada's fame as a "wooden" country chiefly rests on its white pine forests, the great bulk of which are within the Province of Ontario, and in that Province the Ottawa Valley and the Georgian Bay region are now the chief centres of production. The cut of white pine and Norway pine lumber in Ontario amounts to about 700,000,000 feet a year, or taking the figures for the year ending June 1893, the cut was 673,525,000 feet.

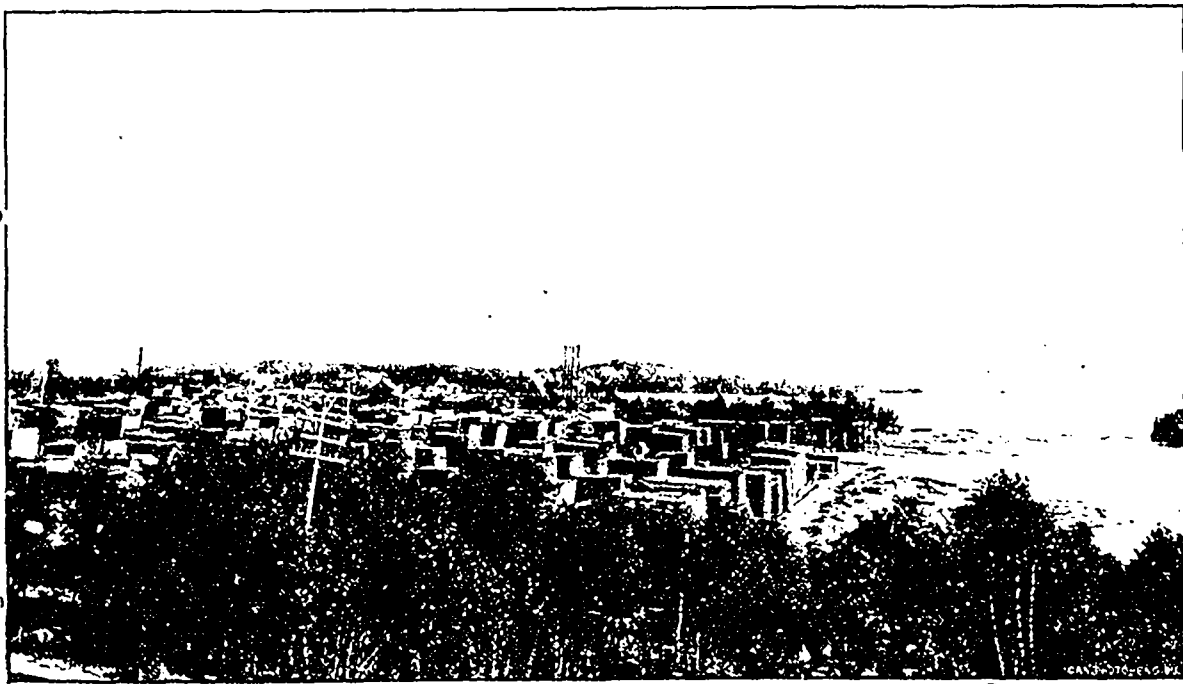
A return of the Ontario Government, brought down in 1893, says:—No estimate was made of the quantity of pine timber standing upon a great stretch of territory lying north of the 48th parallel of latitude and the northern limit of Ontario and between 85th west longitude and the easterly limit of the disputed territory, containing 89,000 square miles or thereabouts, much of which, it is known, is pine-bearing, but other portions are not, and as to some other parts there is no information. The portion of which an estimate was made was that west of the Ottawa River and northwest of the limits sold in 1872, between 80 and 85 west longitude and extending north to the 48th parallel of latitude, and that portion between Ottawa Agency and sale of 1881 in the Nipissing district, in which it

was calculated there was 24,410 square miles of timber. To this area an average of 1,000,000 feet, board measure, was applied, giving a total of 24,410,000,000 feet. The timber in the disputed territory was estimated for the Dominion Government, when it was believed that it was the proprietor of all its richness, at 26,000,000,000, and to these totals is added 10,000,000,000 feet which are now under license, giving a total of 60,410,000,000 feet. The bonus and duty value to the Provincial Government of this enormous total has been estimated at \$136,025,000.

It is remarked by Mr. Robertson that the reduction in the lumber tariff has had the effect of creating a stimulus in the trade in Canada, whilst at the same time leading to the transferring of large tracts of timber lands to the hands of United States owners. Prominent among these to-day are J. W. Howry & Sons, J. T. Hurst, Albert Pack, A. T. Bliss, General

the pulp wood industry. Pulp making in Canada has within ten years grown into an industry with nearly \$3,000,000 of invested capital and over \$1,000,000 of annual output. The reforestation of spruce lands can be overtaken in from ten to fifteen years, which gives to them a replenishing character, that is not general to pine, and as is remarked, owners of extensive spruce limits come into possession of an almost perpetual source of income.

With the forests of Ontario becoming rapidly depleted, Mr. Robertson considers it is proper to speak of British Columbia to-day as the timber province of Canada. The forest area of British Columbia is 285,000 square miles, or 182,400,000 acres. Its density is as remarkable as its extent, it being on record that on one acre, there has been found as much as 500,000 feet, though, of course, this is far in excess of the average. Commercially the most valuable of British



ONTARIO AND WESTERN LUMBER COMPANY'S MILL AT NORMAN, RAT PORTAGE.

Alger, The Saginaw Salt and Lumber Co., and others. Some of these have not only become exporters of the raw material, but have invested large capital in the building of saw and planing mills. J. W. Howry & Sons, who will this season rank among the largest operators in Ontario, are owners of a large saw mill at Fenelon Falls. At Midland a saw mill is cutting entirely for an American concern, and along the Arnprior, Ottawa and Parry Sound Railway, 140 miles from Ottawa, the St. Anthony Lumber Co., owned by E. C. Whitney, of Minneapolis, and other American lumbermen, has one of the largest mills in the Province.

The article deals quite fully with the forest products, not alone of Ontario, but also of Quebec, the Maritime Provinces and New Brunswick. Great activity prevails with holders of spruce in Quebec, New Brunswick and Nova Scotia, through the rapid development of

Columbia woods is Douglas fir, and next to it red cedar, both of which abound in large quantities.

Saw mill building owes its development in British Columbia largely to the past decade. There are about sixty saw mills in the Province with a daily capacity of over 3,000,000 feet. The cut of the Province last year was 65,000,000 feet. A considerable amount of Ontario capital is invested in British Columbia forests and mills. One estimate, of a semi-official character, says that there are over 10,000,000,000 feet of good timber in sight in the coast Province, and that, with the present saw mills making an average output, it would take between 150 and 200 years to exhaust the present supply. Another authority estimates that it would last only sixty years. Mr. J. F. Anderson, provincial statistician, is authority for the statement that the yearly extent of lumber leases in British Columbia is 524,573 acres.

INDUSTRIAL CANADA

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N.W. TERRITORIES
MANITOBA

BRITISH COLUMBIA
P. E. ISLAND

A THOROUGHLY REPRESENTATIVE JOURNAL.

INDUSTRIAL CANADA is devoted to topics of special interest and importance to men in all branches of Trade and Commerce, and is a consistent advocate of the industrial—the Mining, the Lumbering, the Manufacturing, the Milling, and the Agricultural interests of the Dominion.

LETTERS from practical men on topics connected with the industrial field of Canada are always welcome.

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W. SANDFIELD JOHNSTON, PUBLISHER,
34 ADELAIDE ST., W., TORONTO.

TORONTO, CANADA, JANUARY, 1896.

INDUSTRIAL CANADA.

INDUSTRIAL CANADA makes its appearance as a consistent advocate of the industrial—the mining, the lumbering, the manufacturing, the milling, and the agricultural interests of the Dominion. It will aim to encourage the growth of these interests in a broad, intelligent and business-like manner, being in no sense the slavish advocate of any particular fiscal policy, but using its influence to direct that policy in lines that will be helpful to the various Canadian industries. It will cultivate and uphold an honest pride in Canada's vast extent, its natural advantages, its varied resources, its solid development, its prosperity and its future prospects. In short it will aim to be a leading representative journal—a mouth-piece for Canada.

What is there to prevent this Dominion from attaining a high measure of success in the direct line of its manufactures? As few countries can claim, it possesses the raw material in richest abundance. The most superficial study of the mining, the lumbering, the manufacturing and the agricultural industries of the country prove this, and unmistakable evidence is found in the fact that foreign capital is seeking investment in this country in this direction, the shrewd investor seeing what value is embodied in these resources.

A well-known economic writer has said: "The nation in which food, fuel, metal and timber may be produced at the highest relative rate of wages and at the lowest money-cost per unit of product, will thereby be enabled to apply labor-saving machines to every branch of productive industry in the most effective manner."

Is there a country where this measure of industrial possibilities could be applied with greater aptness than Canada? Without entering into details, for this

work will unfold itself as each number of **INDUSTRIAL CANADA** is issued, we may say that it will be the special mission of this journal to help in the utilization of the "food, fuel, metal and timber" products that are found in the forest and mine and buried in the bowels of the earth in this Canada of Ours.

We know not yet what riches are possessed in the mines of Canada. It has been said that even South Africa is "not in it" with our own Province of British Columbia. That Ontario and the other Provinces also possess great mineral wealth is believed by everyone. Our mines are only commencing to be developed, and **INDUSTRIAL CANADA** will from time to time secure for its columns authentic information as to the growth and prospects of these important interests. The lumbering and milling industries will also have their proper meed of attention; and recognizing that 56 per cent. of the population of Canada is engaged in agricultural pursuits, the attention that this phase of trade merits will be given.

The many manufactures into which the raw material enters will be encouraged, and intelligent plans and efforts put forth to extend and increase them. By a system of correspondence with the leading commercial men of the country, and by special interviews, an attractive and profitable feature of **INDUSTRIAL CANADA** will be established and the pulse of manufacturing interests closely touched. Lincoln used to say that any success that had attended him as a statesman was reached, in a large measure, by always keeping in touch with the people. We shall hope by keeping in closest touch with the manufacturers and business men of Canada to reflect intelligently and correctly their views on business matters.

A carefully prepared review of the leading articles in the trade and technical press of the country will be made a feature of **INDUSTRIAL CANADA**. This idea has been developed in general literature in a very successful manner in journals like *The Review of Reviews* and more particularly, as effecting industrial interests, in a journal like the *Engineering Magazine* and *Industrial Review*. The busy manufacturer cannot read all the class journals that are published, or even those to which he feels it necessary to subscribe. This journal will aim to save his time by doing his reading and giving him the meat and kernel in lines in which he is directly interested.

The developments in business and manufacturing lines, the advances and inventions in a mechanical direction, question of prices current, and the industrial news of the day, will all receive careful attention in these pages.

INDUSTRIAL CANADA is issued from the office of one of Toronto's best known printing and publishing concerns, and the editorial and business management is in the hands of those who have had many years of experience in journalism.

Let the journal from month to month speak further for itself.

COMMERCIAL TREATIES WITH FOREIGN COUNTRIES.

THE treaty recently negotiated with France has become operative during the present month, and will mean, doubtless, an increased use in certain articles of French production, more particularly, perhaps, French wines and fruits, and on the other hand opens a market for the exportation into that country of various articles of Canadian manufacture and production. The duty on prunes heretofore has been one cent a pound, where under the new treaty they can be imported at one-third of a cent a pound. The fine almonds and other nuts of France have been subjected to a reduction in duty, and will likely take a place on the Canadian table more freely than in the past.

In lieu of these concessions to France Canada will obtain an advantage in the following articles: Canned meats, condensed milk, pure; fresh water fish, eels; fish preserved in their natural form; apples and pears, fresh dried, or pressed; fruits, preserved and others; building lumber in rough and sawn; wood pavements; staves; wood pulp (cellulose); extract of chestnut and other tanning extracts; common paper, machine made; prepared skins, others, whole; boots and shoes; furniture of common wood; furniture, other than chairs, of solid wood, common; flooring in pine or soft wood; wooden sea-going ships. These articles, if imported direct from Canada, accompanied by a certificate of origin, shall receive the advantage of the minimum tariff on entering France, Algeria, or the French colonies, subject to the condition that the advantage of any reduction of the duty granted to any power on any of the articles enumerated shall be extended fully to Canada.

Exports in the past from Canada to France have not run into large figures, though, the outgo in lobsters, and manufactures of wood, give encouragement of a substantial increase, now that tariff barriers have been eased. In canned lobsters the trade since 1890 has shown a large increase. The figures are: 1890, \$79,855; 1891, \$59,946; 1892, \$134,944; 1893, \$124,801; 1894, \$205,098. And in products of the forest there was exported in 1894, \$112,558. Maritime Province lumbermen have good reason to suppose that their exports to France in spruce, will grow, shown to some extent by improved trade from that point last year, even though the favored tariff rates were not in vogue.

It will be remembered that during the past summer Hon. J. G. Ward, President and Postmaster General of New Zealand, on behalf of his government, signed jointly with Sir Mackenzie Bowell, and Mr. Foster, an official document respecting commercial relations and reciprocal tariff regulations, as agreed upon in conference held in Ottawa, subject to approval of governments and legislation of Canada and New Zealand respectively. It runs thus: The following named articles, when the produce or manufacture of New Zealand, and imported direct therefrom

into Canada, and when the produce or manufacture of Canada and imported direct therefrom into New Zealand, to be admitted in both cases free of customs duties, viz.:

Animals (live) excepting hogs, frozen or fresh meats, bacon and hams, fish, hides, milk (condensed or preserved), wool and manufactures composed wholly or in part thereof, viz., blankets, flannels, tweeds and rugs; flax (phormium), barley and oats, wheat and wheat flour, seeds, coal, kerosene oil (petroleum), safes, organs and pianos, tallow; lumber and timber, planks, boards and dimension stuffs, rough or manufactured, including doors, sashes and blinds; binder twine.

The following articles, when imported under like conditions and in like manner, to receive in both countries preferential tariff treatment, as follows, viz.:

Agricultural implements, including also axes, hatchets, scythes, forks, rakes, hoes, shovels and spades, if made dutiable under New Zealand general tariff, to be free; twines of all kinds, ropes and cordage; a rate equal to 2½ per cent. ad valorem less than the general tariff rates current at date of importation; leather, a rate equal to 10 per cent. off the rate current at date of importation; boots and shoes, harness and saddlery, at 17½ per cent. ad valorem, or in case the general tariff rate in both countries be 25 per cent., the preferential rate to be 20 per cent.; furniture at 20 per cent. ad valorem.

Proposals for an expansion of trade with Canada are found in other directions. Official advises from Rome are to the effect that the Italian Government is willing to negotiate a treaty of commerce with Canada on the lines of the Franco-Canadian treaty. It is also proposed to send a Canadian commissioner to Japan, a step suggested by the recent action of South Australian colony in the same direction. Its commissioner has reached Japan with samples of all goods likely to be saleable and they aggregate 120 tons. The Japanese are becoming day by day larger consumers of the products of the civilized nations. It is quite recently that they have begun to be classed as a meat-eating people. Their trade with Great Britain increased last year by £1,000,000. Japan bought from Great Britain last year goods to the value of £4,616,517, and from the United States it bought one-fifth of that amount. Canada's sales to Japan last year are placed at £4,966. These figures sustain the contention that Canada has everything to gain by seeking to extend her trade with the Mikado's empire.

A step in the contrary direction in the matter of treaty making, comes through word received by the department of Trade and Commerce that Chili has given notice of its desire to withdraw from the treaty of commerce made with Great Britain and her colonies in 1854. The abrogation of the treaty will take effect one year from the date of notice, Sept. 3rd, 1896. The clause which effects Canada is what is known as the most favored nation clause. Our exports to Chili last year aggregated in value \$82,392, which consisted almost entirely of the products of the forests.

THE BICYCLE INDUSTRY.

THE growing uses of the bicycle is a phenomenon of the present day, but unlike such phenomenon, which was rather a fad, as the roller-skating craze, the bicycle, whilst primarily providing amusement, serves a practical purpose that has evidently brought it to stay.

It has been computed that not less than \$35,000,000 was expended in bicycle buying in the United States during the past year, and others have raised these figures as high as \$50,000,000. No statistics of the bicycle have been prepared for Canada, but, relatively, there is good reason to believe that as many bicycles are in use in this country, as across the border, and their increase is growing apace.

Leaving aside the element in the case that belongs more properly to an organ of outdoor sports, it is within the province of INDUSTRIAL CANADA to note what this great growth in the use of the bicycle means from an industrial point of view. The manufacture of 500,000 bicycles, the number said to have been in use in the United States last year, represents a large volume of business for a new industry. In Canada we are interested in the shape bicycle manufacturing has taken within a twelve month. Up until that time, and even later, with a few exceptions, the bicycles sold here have been imported, some from Great Britain, and others from the United States. But it has become manifest that there is nothing to prevent the manufacture of the highest class of bicycles in Canada, and with as many, so it has been estimated, as 12,000 in use in Toronto alone, the future of this industry is encouraging.

Supplementing the factories already in existence, Cleveland capitalists are establishing a large factory at West Toronto Junction. The Massey-Harris Company have erected a large building, which will be devoted entirely to the manufacture of wheels, and within a week of the present writing steps have been taken by Canadian capitalists to secure the use of the Cyclorama building, to be turned into a bicycle factory.

Not only is there no reason why the manufacture of bicycles in Canada should not prove a prosperous industry, but there are substantial reasons for the encouragement of this manufacture, instead as with others, where the disposition has been to lean over much on foreign manufacturers for articles that enter largely into our own consumption. We are possessed of the necessary raw material, and now that wooden rims are the vogue, Canada holds a premier position in this respect. Investigations made by two officers of the Massey-Harris Company, who visited leading United States factories some months since to obtain information prior to entering actively into the work here themselves, show that, in point of skilled workmanship, we are in important respects ahead of manufacturers across the border.

As with other interests there is an interdependent feature of the manufacture of bicycles that is some-

times lost sight of. Already the bicycle is having its influence in turning people's thoughts to the necessity of good roads, a matter that is worthy the consideration of the citizens of any country at any time. Take Toronto, with the congested traffic around about Yonge and King Sts. at almost any time of the day, and especially at noon hour and 6 o'clock. This is going to force bicycle traffic to the side streets, and in doing this it will mean that the side streets will need, in many cases, to be kept in better condition than at present. Nor is the changed conditions likely to come about in this respect in any ways local. Country roads are sure to be improved, for the bicyclist seeks the country. This means a growth and extended use of the mineral products of Canada.

The Roman roads of Europe, it is remarked in a recent report of the Ontario Bureau of Mines, which have lasted out the traffic of 2,000 years have taught the street engineer the invaluable lesson that the only sure way to make a good road is to lay a good and strong foundation. Concrete is the street engineer's material for street building, and his chief reliance in the making of it is not in Roman or any other kind of natural cement, but the stronger and more durable Portland. In Toronto during the last five years not less than 150,000 barrels of cement have been used in making concrete for street construction. Unfortunately, it is stated on the authority of Assistant Engineer Rust, not more than 4,000 barrels of this have been the native hydraulic cement. The rest have been imported from Great Britain and Germany, but the cement industry in Canada is taking on increased strength. The technical difficulties in manufacture are being overcome, and it may be expected that with the consideration given to road building, that further efforts will be made by the Rathbun Company, the Owen Sound concern, and others to extend this important industry.

Good roads, which the bicycle is helping to make, means the extension of brick pavement, and within the year Canadian manufacturers have been giving increased attention to the manufacture of a vitrified brick specially adapted to street pavements.

So it is that the bicycle will not stop with building up an important industry in Canada within itself, but will prove a stimulus to extending manufactures in other lines. The lesson worth noting is that in all these respects Canada is in a position to meet within itself the requirements, alike in the direction of high class wheels for the wheelman, and good roads for him to wheel on.

ELECTRICAL PROGRESS.

THE developments in the electrical industry within a few years have been very marked, and it is difficult to say where the thought set moving by the Wizard of Menlo Park will stop. One is prepared to hear of the most impossible ventures, the outcome of Edison's fertile brain.

In the department of electric power much progress

has been made in Canada in recent years. INDUSTRIAL CANADA has before it a letter from Mr. Geo. Johnson, government statistician, at Ottawa, who furnishes interesting information relative to this industry. He says that the amount of capital invested in electric telegraphs and cables is \$7,000,000; in electric railways, \$13,000,000; electric light works, \$4,113,771; electrical appliances, \$1,389,365, or in round numbers about \$27,000,000.

There are 230 miles of cable laid and owned by the government of Canada within Canada, and just what the growth of electric appliances means may be judged by the fact that in the census of 1881 there were found only two hands in electric works outside of those connected with telegraphy, whilst in 1891 there were 1,190 hands, not including those connected with the electric cars.

The employees in 1894 connected with the electric cars numbered 2,614; passengers carried numbered 57,000,000; miles run during that year by the electric railways, 15,500,000; miles of track for Canadian electric railways, 368 miles, or 73 miles to each million of people.

The motor cars in Canada numbered 658; trailers, 341; snow sweepers, 39; motors, 891, and the paid up capital in electric railways amounted to over \$13,000,000.

The steam railways in Canada in the same year carried 14,500,000 passengers, showing that electricity carried over four times the number of passengers carried by steam; that on an average every person in Canada had been carried eleven times in the year by electricity.

The Canadian statistics are interesting when contrasted with those of Europe, where there were 434 miles of electric railway-line in operation with 1,236 cars, of which Germany had 227 miles with 632 cars, France 60 miles with 152 cars, Austria-Hungary 28 miles with 129 cars, and England 42 miles with 125 cars.

TRADE WITH AUSTRALIA.

Commissioner Larke writes from Australia to the Minister of Trade and Commerce showing the progress of Canadian trade with Australia. As yet we do not deal very extensively with Queensland. Small, however, as the trade is it has been of such rapid growth as to be exceedingly promising. In 1885 we sent only £13 worth of goods to Queensland, whereas during the last fiscal year we sent exports to the value of \$9,885. The chief item is agricultural machinery, but we are also building up a trade in fruit, fish, hardware, and drugs. Our direct trade with New Zealand is of much more important proportions. In 1893 New Zealand bought \$12,165 worth of Canadian goods, and in 1894 this trade swelled to \$76,835. The expansion in our trade with this colony has been enormous. Last year it bought \$17,612 worth of Canadian fish, nearly all of which came from British Columbia. New Zealand also uses Canadian paper, for which she

paid last year \$6,500. So far the trade with New Zealand has been overwhelmingly in our favor. We sold to the colony last year goods to the value of £15,367 and bought in return only £78 worth.

EDITORIAL NOTES.

IN a day when much thought is being given to the extension of the waterways of every country, particular interest attaches to the application that has been made to the government by the Ottawa and French River Canal Co., for a guarantee of \$15,000,000 bonds for fifteen years at 4 per cent. to ensure the construction of a canal from the St. Lawrence to the Georgian Bay. The canal will be at least 9 feet in depth. It is said that Sir John Thompson drew up an order in council guaranteeing the bonds, but owing to his death it was not put through. The government is now being pressed to carry out the understanding, and if that is done an effort will be immediately made to float the bonds on the English market. The Ontario and Quebec governments have been asked to grant 10,000 acres of land for every mile of the canal constructed.

* * *

THOUGH business men find it somewhat difficult to realize that trade conditions are improving to any large extent, yet evidence that an improvement has taken place is very plain. This is sometimes forgotten, that even after the turn in the tide has taken place in commerce, following a severe period of depression, the growth to better conditions is slow, and it is well that this is the case, else disaster would only the more quickly show itself, and as in the case of a relapse with the physical man the danger would be great. The hardening in values in important products like iron can carry only one meaning, and the increase in wages in certain lines of manufacture has a like import. A ready barometer of changed conditions is the railways of the country. Are their earnings going up or down? The answer reveals, in a large measure, the real conditions of trade. Late reports of the gross earnings of eighteen of the principal railroads in America, including the Canadian Pacific, show that sixteen of the number had an increase, as compared with the same period of last year. Here is the answer. The aggregate amount was, in round numbers, \$207,000. Adverse conditions were only experienced by two roads. What is pleasant reading to Canada is that the increase in the earnings of the Canadian Pacific was \$28,000, only two of the eighteen roads exceeding that sum.

* * *

From a noted Englishman, Mr. Hall Caine, comes these words: "It is not my fault that I came to Canada, but it will be my fault if I do not carry home from it a vivid and unfading memory of a great and beautiful country. I cannot easily tell you how Canada has impressed me. Its mighty forests, its great inland seas, its vast oceanic planes—I can never forget them."

GRAND TRUNK CHANGES.

THERE have been sufficient of these of recent years to cause the ordinary announcement of a change to lose any special attraction. And yet the change that has recently been made placing Mr. Hayes in the general management, in succession to Mr. Seargeant, is one of particular importance, and has awakened no little interest throughout business circles. The new general manager, though yet a young man, is credited with being sagacious and able, and it is fully expected that there will be a shaking up of the dry bones as soon as he becomes snugly seated in office. The Grand Trunk has lagged behind, causing only dissatisfaction to its shareholders, and dissatisfaction to the Canadian public, who have had to bear with its methods of business largely because of the absurd and unbusiness like plan of trying to manage a large railroad like the Grand Trunk from the other side of the Atlantic. A contrast between the management and outcome of the Grand Trunk and the Canadian Pacific illustrates what is meant by this statement better than any other way, and is very clearly stated by a writer in a late number of the *Railway Age*. We quote :

"The trouble with the Grand Trunk road in the past has been too much cabling. The system of managing a road by cable from a distance of 3,000 miles away is not a good one. There been more than one emergency where what the Grand Trunk has needed more than anything else (and has come to woeful grief for lack of) has been some one on this side of the water with full authority. There arises an emergency or an opportunity—perhaps the opportunity to acquire desirable branch lines on favorable terms—and London is communicated with. London takes a languid interest, and wants to know 'why.' London is informed why—by cable. London then wants to know 'what,' and is informed—by cable. London appears to be somewhat more interested and says that advices have been forwarded by mail. In due course the advices are received, and from them it appears that, now that it understands the why and the what, London is further anxious to be informed as to the how, the where and the how much. This takes some little time, but it is all done satisfactorily, and there is more cabling and more waiting for advices by mail. At length London is satisfied, and after mature deliberation decides that the idea is a good one and had better be acted upon at once. About which time it is discovered that the Canadian Pacific has stepped in and has gobbled the thing up. This, of course, is a purely imaginary case. There are several gentlemen in Canada who can testify to its being purely imaginary. But—well, the system of running a large road by cable and mail from a distance of these 3,000 miles is not a satisfactory one."



ON MAGNETAWAN, NEAR BURK'S FALLS, MUSKOKA.

THE TELEPHONE IN CANADA.

A SCORE of years is a short period to mark any important growth in the practical application of a new invention, and yet it is two years under this date since a simple telephone wire was stretched in the City of Hamilton, Ontario, between the residences of two of its citizens, and only a short time before that when an experimental line was constructed from the residence of Professor Alexander Graham Bell's father in Brantford, Ontario, across his garden. This was in October, 1877, when what was known as The District Telegraph Company, at Hamilton, secured control of Professor Bell's invention.

The honors of being first in the field were at this time divided, to some extent, between Professor Bell and Mr. Edison, as at that time the latter had opened correspondence with Montreal, and two sets of his telephones were sent there as an experiment, and operated in conjunction with the telegraph line, between Montreal and Quebec, a distance of 200 miles.

More or less friction was occasioned by this rivalry, which was, however, settled shortly afterward, in 1880, when The Bell Telephone Company was organized and incorporated, and taking over all plants, patents, and running business, became controlling agents in the Canadian field.

It is a compliment to the sagacious go-aheadativeness of the age, that though tardy at first to avail themselves of the telephone, business men, so soon as they had demonstrated to them its unquestionable practicability, quickly caught on, and where in the early days of the telephone it meant hard work to canvass a Canadian city for subscribers, customers seek the main exchanges in these days, and the company has always a considerable number of orders ahead.

In all the provinces of the Dominion, which is vast in its territory, though population is still under 5,000,000, the telephone has become well known, and in Nova Scotia, New Brunswick, Prince Edward Island, Manitoba and the Northwest, and British Columbia, good service is given, though The Bell Telephone Company has not absolute control of the business in all these districts.

A clearer view of what these eighteen years' progress means is obtained by a contrast of these early

struggles with the position of the telephone business in Canada to-day. The statement has been made that relative to population and commercial conditions, the telephone has made wider progress in Canada than even in the United States.

Speaking for the moment of the Bell instruments only the report of this company shows that on the 31st December, 1894, there were 350 telephone exchanges in Canada using Bell instruments. These were represented by 32,485 subscribers, distributed as follows: Business places, 21,733; residences, 10,621; public pay stations, 131; and besides, 528 private line subscribers. This service calls for 34,595 miles of wire, stretched over 300,000 poles, and does not include under ground conduits and house top fixtures. The paid up capital of The Bell Telephone Company of Canada is now over \$3,000,000. In Toronto alone, there are within a fraction of 5,000 telephones in use, in the main among business houses, and yet no inconsiderable number in private residences, the increase in both cases from month to month being most noticeable.

The manager of the Toronto exchange is authority for the statement that a larger proportion of under ground work exists in Toronto than any other city of the same size in America, whilst in this exchange is the largest installation board in the world. The switch is of the

branch terminal type, with the usual jacks and self-restoring drops. It has an ultimate capacity of 4,200 lines, and is at present wired for 3,600. The work of the office has been very much simplified and necessary checks created since the introduction of this switch board. In front of every operator is a small 10-volt incandescent lamp which lights when an annunciator falls, attracting the attention of the operator, and proving a help to the chief operator in his work of supervision. Small incandescent lamps are also used for dis-connect signals on the inter-office trunk lines. Instead of the usual cam and ringing keys, a combination key is used consisting of two buttons. Depressing one button cuts in the operator's telephone, while a depression of the other button cuts it out and enables the operator to ring a subscriber. The board in all its parts, except the cables and wires, was made in The Bell Telephone Company's factory in Montreal, and was put together

and set up in Toronto by the local employees.

Business men in Canada do not seem, as yet, to have had demonstrated to them so clearly the value of the long distance telephone, as was the case with a business man in New York, who is reported, after a conversation with Chicago, which cost for half an hour's talk, \$54, to have exclaimed: "Great Scott! I have just sold 100,000 chickens," the sale amounting to \$20,000. And yet the long distance telephone is obtaining a steady hold in Canada. At the present time the long distance telephones of The Bell Telephone Company of Canada embrace 13,091 miles of wire on 5,361 miles of poles, and gives the means of verbal communication between the subscribers to their 350 different exchanges, and about as many other places where there are no exchanges, but only toll offices.

The progress of the telephone business in Canada is also to be measured by the high character of the buildings erected for exchange business in leading cities like Montreal, Toronto, Ottawa, and Quebec.

In Montreal a new building is now under construction, a magnificent edifice, having a frontage of 35 feet on Notre Dame St., 108 feet on St. John, and 98 feet on Hospital St., and will be 6 stories in height. It will be constructed of terracotta ashler, and pressed brick of a light salmon tint,



ON THE FRASER RIVER NEAR YALE, B.C.

and made as thoroughly fire proof throughout as possible. Its cost, when completed, will be about \$250,000. The exchange, now the home of The Bell Telephone Company in Toronto, and situated on Temperance St., is one of the buildings that citizens point to with pride.

The financial report of the Bell Telephone Company, presented at the annual meeting in February last, shows that the gross revenue for the year was \$1,012,839, as against, \$961,174 for the previous year, an increase \$51,165. The net revenue for the same period was \$283,227, as against \$236,383 for the year previous, an increase of \$46,844. The company's officers are as follows: C. F. Sise, president; G. W. Moss, vice-president; W. H. Forbes, Hon. J. R. Thibaudeau, John E. Hudson, Robt. Archer, Robt. Mackay, Wm. R. Driver, Hugh Paton, directors.

Canadian Mining Interests

EXTENT, PRESENT DEVELOPMENT AND POSSIBILITIES.

It is hardly likely that at any time within recent years the great mining riches of Canada have been seriously questioned. It has only been, however, within a comparatively short period that any large measure of activity has been manifest. Now this activity prevails in a large variety of interests and in all parts of the Dominion.

What has been accomplished within ten years is indicated by a comparison of the census returns of 1881 with those of 1891.

In 1881 there were 6,541 miners and 469 quarrymen in the Dominion. Of the miners, British Columbia had 2,792; Manitoba 6; New Brunswick 121; Nova Scotia 2,728; Ontario 493; Prince Edward Island 4; Quebec 391, and the North-West Territories 6. A comparison of the two enumerations shows that the number of miners in the Dominion more than doubled in ten years, that British Columbia added 1,799, and Nova Scotia 2,932 to the number employed in mining.

It is worthy of note that British Columbia and Nova Scotia are pre-eminently the mining provinces of the Dominion, over seventy-six per cent. of the miners being reported from these provinces.

Coal mining has made rapid advance during the past few years. In British Columbia, in 1891, the number of employees had increased to 5,936 persons, and the number of tons to 2,200,235 long tons, giving an average of 270 tons of 2,240 pounds to each man in the year. The output in Nova Scotia is also large.

A study of the last report of the Bureau of Mines of Ontario is most encouraging to the people of this province. The country is rich in mineral wealth, and whilst the financial depression of recent years has hindered the development of mining, and the resources of the province would warrant, yet there has been a substantial development, and more and more capitalists are finding that a paying investment is assured in the mineral wealth of Ontario.

In Ontario, as in British Columbia, the immediate activity, and, in a measure, excitement gathers around the gold deposits. The Lake of the Woods District is showing rich resources, and that gold abounds in large quantities in British Columbia, even after discounting, if need be, some of the claims made, there can be no question.

In the notes which follow is recorded in some measure developments in mining affairs in various parts of the Dominion, and INDUSTRIAL CANADA will devote from month to month no inconsiderable share of attention to mining matters.

CURRENT GROWTH IN MINING OPERATIONS.

Mr. R. H. Ahn, Manager of the Dominion Gold Mining and Reduction Company, of Rat Portage, has been visiting Toronto. He speaks in a very hopeful strain of the prospects for mining in that district. Solid progress has been made in the Lake of the Woods mining fields, fifty stamps being now employed on various properties, as against ten a year ago. Enquiries are active. The Sultana vein, between the second and third levels, which widened to forty-seven feet, averaging 75 per ton, and many other properties had also given surprising indications of richness. Mr. Ahn had with him a practical proof of the mineral wealth of the region in the shape of two gold bricks, whose solid weight affords evidence of what wealth is hidden in the rocks of north-western Ontario. One brick came from the gold hill near the Sultana. It weighs 66.42 ounces, is 800 fine and is the product of 43 tons of ore, and is held at about \$1,000.

Another visitor to Toronto, who is enthusiastic over the possibilities of mining in the Lake of the Woods and Rainy Lake districts, is Mr. C. A. Moore, of Duluth. He was the discoverer of the famous Sultana mine. The little American mine was discovered by Mr. Moore in the Rainy Lake district in 1893, and the little Canadian mine shortly after. These were followed later by discoveries of greater or less value in the Rainy Lake, Seine River and Manitou districts. Since the discovery of the little American, 200,000 acres of mineral mines have been

taken up in this district, principally by American capitalists. One man has bonded property to the amount of \$200,000, paying 10 per cent. on his purchase and is taking steps to develop them. On the Weigand mine \$28,000 has been invested. Two drills are at work and shafts will be sunk to a depth of 200 feet before any plant is established. On the Hyliar property in the Seine River district, a ten-stamp mill has been erected and is producing an average yield of \$800 a week. Mr. Moore stated that gold was discovered in the Lake of the Woods district fourteen years ago, but the attempts made to develop the mine were feeble and no capital to speak of was at first invested. It was not until English capital was brought in that Americans began to feel confidence in the Canadian district as suitable for the investments of money in mining enterprises. "The principal need of the country to assist its development," said Mr. Moore, "is railway facilities. The proposed Port Arthur, Duluth and Western railway will give us relief and as at present located would traverse a country rich in gold, silver and iron, and a vast quantity of pine would then be accessible which at present is wasted."

Mr. Archibald Blue, director of mines has returned from a trip to the western part of the province. Sometime ago it was announced that a wonderful discovery of roofing slate was discovered near the vicinity of Shelland, in the township of Euphemia, Lambton County. It was asserted that samples of the slate had been submitted to experts in New York, Detroit and other cities, by whom it had been pronounced of the finest quality ever discovered in America. Mr. Blue did not think it possible from the geological formation, that there could be anything of the kind in that district and on arriving at the place he found his surmise to be correct, the deposit being the ordinary bedded shale. Visiting other points in the vicinity at Petrolea, Wallaceburg and other districts he was much pleased at the prosperity in the oil, glass and other industries visited.

A prominent bank manager of British Columbia, considered a shrewd and cautious official, is reported as saying to a newspaper correspondent: "Trail Creek gold mine is the only proposition that has not been exaggerated in the press of the province." "The South Kootenay country" said another public citizen "is marvellously rich in ore. The astonishing statements made by the press are not exaggerated. The War Eagle and Lee Roy, starting at eight cents is now selling at \$2.50. Both companies declining to sell to English capitalists for \$200,000 for each mine because they are shipping 100 tons a day running \$50 to the ton in gold. It costs them \$20 to smelt in Montana and they have \$30 clear, or \$3,000 a day profit. They have enough ore in sight to last them one year to say nothing of what is not in sight, which means a sure million for them. There are 20 other mines just as promising in the district and indications in the Boundry Bay country are even more hopeful." E. J. Clark, formerly of Toronto, says: "A man cannot make an exaggerated statement about South Kootenay."

The Lake Harold gold mine on the Seine River is producing good wealth for its owners. The mine is owned by a private syndicate, a fine stamp mill has been erected and operated under the management of Mr. Peters, of Chicago, and a mill run of 300 tons of ore has produced gold bricks of a value of \$4,500, the concentrates holding in addition, gold to the value of about \$3,000. These are to be shipped to Newark, N. J. during the winter months. It is the intention of the Company to put in a frue vanner and another five-stamp mill, the latter of which is now on the ground at Port Arthur awaiting the formation of the ice in order that it may be transported to the mine. The ore has so far been taken from only one vein of the property, but development has shown other leads, which are expected to prove valuable on further development.

One of the largest mining deals ever consummated in Canada, and certainly the most extensive in the history of the Northwest, is that by which the Pipestone property in the vicinity of the Lake of the Woods, 16 miles from Rat Portage, has changed hands. Mr. J. T. Howard, of Winnipeg; Mr. Jas. Thomson, and others, disposed of their interests to an English syndicate. It has been conclusively proved there undoubtedly is in the property of 150 acres a number of veins of quartz, from which excellent results may be expected. The company has a subscribed capital of half a million dollars. The entire control of the Pipestone property does not pass out of the hands of the Winnipeg gentlemen, for \$175,000 worth of stock is retained by them, that being one of the conditions of the sale.

James Hammond, of Fort William, who spent the greater part of the summer in exploring the country around Moss Township in northern Ontario, reports many valuable finds of gold bearing quartz. Mr. Peter McKellar, also of Fort William, made a rich find near Jackfish Bay and recently sold a portion of it to an American syndicate.

It is expected the next annual report of Mr. Pearce, Superintendent of Mines, will contain some interesting information regarding the season's work at Anthracite, N.W.T., the coal mining property which was leased by McNell & Co., from the

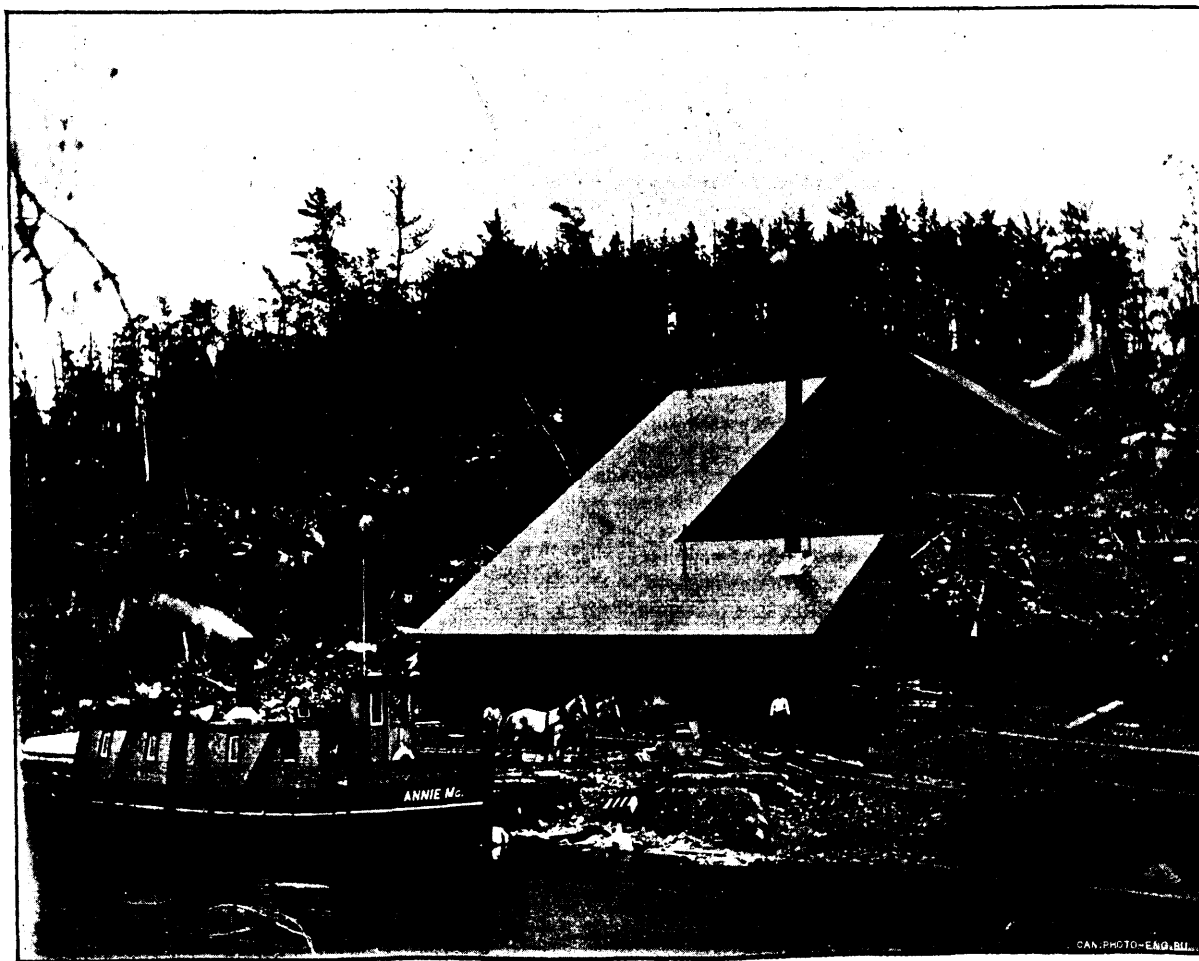
syndicate, of which ex-Mayor McLeod Stewart of Ottawa was president. The output during the year has been twenty thousand tons, which amount could very easily have been quadrupled if demand had occasioned it. The market for this coal lies between the Rockies and Winnipeg. Coal from Anthracite competes successfully in the Winnipeg market with Pennsylvania anthracite, and has been the means of reducing the price of coal in Winnipeg and generally throughout the Northwest by 50 per cent.

The Canadian Pacific Railway has again shown its enterprise in developing the natural resources of the Dominion by establishing a mining department, with J. H. Susmann, an experienced mining engineer, at its head. The development of mining in Canada, but especially in British Columbia, has been most important in the last few years. Mr. Susmann will examine and report on all mining properties in the districts through which the Canadian Pacific pass. If he thinks it will pay to develop them the company will do all they can to assist by building branch lines, giving low freight rates and the benefit of expert and reliable advice.

a total area of twelve by six miles and consist of three distinct troughs, one of which is ten miles long and a mile wide. The deposits are within forty miles of the water and are quiet adjacent to shipping passing through the St. Lawrence River. It is estimated that the quantity of coal in the trough is nearly twelve million tons, and the others are supposed to be equally rich. The find will do much to extricate the colony from its present embarrassments, if it can be worked advantageously.

Mr. W. Hamilton Merritt, of Toronto, has acquired several of the Weigand gold mining properties in the Seine river district, adjoining the well-known Foley location. The property is said to contain a good showing, and as soon as possible, development will be commenced.

The discovery of a large deposit of graphite has been reported to the Bureau of Mines. The find is situated in the township of Brougham, Renfrew county, on lots 17, 18, and 19, of the third concession. It is understood that the control of the property has been secured by Senator G. C. McKindsey, who intends forming a company and establishing a factory in the province to work it without delay. The graphite is said to be



THE REGINA GOLD MINE AND STAMP MILL, LAKE OF THE WOODS.

Mr. McInnes of the Geological Survey, is authority for the statement that the gold belt in the Rainy River district extends over four hundred miles, and hundreds of claims have been taken up. There are, he states, five stamp mills along the Rainy River. Three of these are on the Canadian side of the river and two on the American side. The Canadian mills are the largest and most important. The largest of these mills turns out a brick of gold every week, each brick being worth all the way from \$1200 to \$2000. There is great activity throughout the gold district. The claims are quickly picked up, and many are worked, but very injudiciously, and consequently little is made out of them. Many gold seekers dropped their money there and left last summer for Manitoba to work as harvest laborers. The latest and best find of gold, Mr. McInnes states, is on the north of Lake Superior. Development of gold finds in the Rainy River district, he says, is retarded by the absence of railway facilities.

Statistics of suprising importance are presented with the newly discovered coal deposits in Newfoundland. They cover

of a very pure quality, and will be used chiefly in the manufacture of stove polish, facings for foundry castings, and lead pencils. It is also largely used in the manufacture of crucibles, though it is not known as yet whether the present discovery will be suitable for that purpose.

English capitalists have purchased 300,000 shares in the Anaconda Central Copper mines. These shares represent a quarter of the company's total capitalization of thirty millions of dollars. The net profits of this mine for the year were almost \$3,000,000. The immense developments which have taken place in electricity, and the still greater development which seems in the immediate future, must compel a rise in the price of copper, and as a consequence increased development in copper mining. We have in Canada, and especially in Ontario, some of the very best copper ores in the world, and there is every reason to believe with the increased demand for copper here will come a development of the Canadian copper mines.

Industrial Trade Review.

The aim in this department will be to give concisely written reviews of those articles of the month, appearing in the leading industrial journals of the country, that are deemed of most importance to our readers. The busy manufacturer and business man cannot read all the class journals that are published, or even those to which he feels it necessary to subscribe. In this department the plan will be to save his time by doing his reading, giving him the meat and kernel in lines in which he is directly interested.

THE HORSELESS CARRIAGE.

THE Canadian Engineer is attracting attention to its columns by several articles on the horseless carriage. This question has come prominently before readers at the present time by the contest planned by the Times-Herald newspaper of Chicago, who offered \$5,000 in prizes for the best exhibition of these motor carriages. Though but a day, as it were, since attempts were made to manufacture these vehicles in the United States, nearly 90 moto-cycles were entered in the competition. The judges selected were men of high standing, and with a practical knowledge fitting them for the position. Another indication of interest in this matter is illustrated in the fact that there are now in the United States two journals entirely devoted to the introduction of the horseless vehicle. An important question is whether makers in this country can improve on the heavy European designs or not. It will be remembered that an exhibition in this line took place in Paris about two years ago, and that France has really led in this invention. They are now building gasoline farmers' traction engines in Kansas of from 12 to 25 H. P., which are guaranteed to handle the largest threshing machine built in an effective manner. It is stated that no accident from fire has ever taken place on moto-cycles in France and Germany. One vehicle has arrived that is worthy of more than passing notice, inasmuch that one motor and front wheels can be separated from the body of the vehicle and attached to a pleasure rig or to a waggon body for merchandise or other purpose, or can be taken from the body part, drawn into a barn or other building, and attached to farm machinery. The Canadian Engineer proposes the inauguration of a public exhibition and test of horseless vehicles for Canada to be held, say, in Toronto, on the 24th May, 1896, believing that the time is not far distant when these vehicles will be manufactured in this country. It is already intimated that the Massey-Harris Co. will commence building these carriages at an early day.

ENGINEERING PROBLEMS.

The Canadian Engineer publishes a paper of considerable length on the lever safety valve, by Capt. James Wright, of Montreal. The writer treats the safety valve problem as the simple case of parallel forces in equilibrium on the axis of the valve, which is necessarily true in any position in the pea or weight when at work. To quote: "The acting forces are first, the weight of the parts; second, resulting or equivalent pressure due to the pin, which varies according to the position on the lever of the pea or weight, and third, the pressure of the steam on the exposed surface of the valve. The directional lines of force are parallel to each other in a properly made safety valve, and all systems of parallel forces have a centre or resultant. Take any weights at hand, hammers, sledges, bricks or stones, and place them at random here and there on the face of a two or three-inch plank. It is evident and indisputable that there is some intermediate place between the ends of the plank where it would balance on the edge of a fulcrum. When in equilibrium, if we imagine a vertical plane passing through the edge of the fulcrum on which the plank rests, the centre of the parallel forces in the system, and its centre of gravity, lies somewhere on that plane. On this subject there are niceties and refinements that for the solution of our question it is unnecessary to detail. All that is required is to balance a safety-valve lever on the edge of a cold chisel, and when in equilibrium, a vertical line drawn on the lever from the edge of the chisel locates for all practical purposes the position of the centre of force, or the

resultant due to gravitation." The article, necessarily of a technical character, is made clear by a number of useful illustrations.

Other articles of value in this journal are those dealing with the strength of bridge and trestle timbers, and a valuable report on concrete construction, by Major Henry A. Gray, C. E., engineer, in charge of public works of Canada in Western Ontario. At a time when more than usual attention is being paid to the use of concrete, as well as the manufacture of this article, the paper is timely.

ELECTRICITY.

Making a specialty of questions of electricity and steam engineering, the November Canadian Electrical News contains an important paper with illustrations on the generation and transmission of electricity from water power. Canadians have a considerable interest in this question because of the valuable water powers that find a home in the Ottawa district, in the Lake of the Woods, and many other places, not omitting Niagara. The article in question deals specifically with the developments of the past few months in the districts of California, and Oregon, where electrical plants for the transmission of power from water falls over long distances have been installed. That at Sacramento, Cal., has proved the feasibility of economically transmitting the power of a fall to a distance of nearly twenty-five miles. That at Portland, Ore., is still more important and presents many new electrical problems. These are dealt with in a good deal of detail in this paper. The satisfactory operations so far show admirably, we are told, not only the effectiveness of the three-phase transmission system for general service, but also its feasibility. This has rendered possible its adaption to the operation of important railway systems through simple apparatus and the working of a distributing net work composed in a large part of existing lines.

A page is devoted to a discussion of the horseless carriage followed by an interesting sketch of the Toronto Technical School, with brief memoirs of Dr. McMaster, principal, and Mr. James Milne, lecturer on electricity. In an editorial note, where some attention is given to the matter of poles in the equipment of electric light, telegraph, and telephone plants, the statement is made that as an illustration of the powerful action of frost, that poles were found recently in Toronto to be uplifted to the extent of eight or ten inches by the action of the frost. The experiment is being tried of making the lower ends of the poles wedge-shaped instead of square, with the object of lessening the effect of the frost's action. It is hoped that by lessening the amount of resisting surface at the bottom of the pole, the tendency to upheave will be lessened in a corresponding degree. The average life of a good cedar pole for the electric purpose named is about twenty-five years. Norway pine poles have lasted about thirty years, but were badly rotted at the surface line.

DEEP WATERWAYS AND THE LUMBER TRADE.

In any project for the improvement of the waterways of the country the lumber trade is largely interested, for its shipments reach big figures. At the late Deep Waterways Convention at Cleveland two papers were read bearing on the relation of a deep waterway between the great lakes and the sea and the lumber trade. One was by R. R. Dobell, the well-known lumberman of Quebec, and the other by Mr. A. L. Crocker, president of the Minneapolis Board of Trade. These papers constitute a leading feature of the November number of the Canada Lumberman. Mr. Dobell says that perhaps there is no other article of production that will derive so little direct benefit from the deepening of our waterways, as the lumber and square timber brought from Michigan and other points west of Lake Superior, and Wisconsin, from the fact that the bulk of the square timber which is made on the shores of the great lakes (when brought down to a shipping point is only carried as far as Garden Island by barge, there rafted up and floated down the river, passing through the rapids without the least damage and so delivered in the booms

at Quebec. This trade in later years is also gradually being restricted for the simple reason that the oak forests of Michigan, Ohio, and Indiana, are pretty well exhausted, so that it is difficult even now to get the average and size of logs necessary for the English market. To quote Mr. Dobell touching another point: "One of the greatest drawbacks in handling western lumber is that the large barges which carry the lumber to Kingston have there to discharge into smaller barges, which is more or less injurious to the lumber and very often necessitates leaving portions of a barge load for some other craft to carry down to Montreal. Here arises the necessity for a continuous deep channel from the lakes to salt water. A considerable saving would be effected in the cost if there were unbroken deep navigation out of the lakes, as lumber can be floated from any part in the vicinity of Michigan to Kingston at \$3.50 per 1,000 feet, while the charge for the short distance from Kingston to Montreal is \$1.75 per 1,000 feet. If the large barge could go through direct the bulk of this \$1.75 would be saved to the shipper of lumber and to the consumer ultimately."

Mr. Crocker in his paper gives a number of valuable statistics bearing on the size of lumber shipments, and concludes that shippers are prepared to welcome any step that will tend to the lessening of freight rates, and to some extent, at least, this would come as a result of improved waterways.

PRACTICAL DEPARTMENTS OF LUMBERING.

Other articles in the Canada Lumberman worth noting include a paper on the evolution of the saw mill, in which an interesting historical sketch is given of the origin and various changes that have taken place in this department of lumbering. The article is written from the standpoint of a fire underwriter, and this observation is made: "No element in the development of the Northwest has had greater influence than the saw mill. It has constructed nearly all its railroads and it has built its towns and cities. It built the great cities of the Saginaw Valley, of Muskegon, and laid the foundation of the second city in Michigan, Grand Rapids." Referring to the influence of the saw mill in building up other localities, the writer of the paper, Mr. H. S. Seage, remarks: "In its march it has carried a boom of success and in its wake it has left its blackened trail; it has created more millionaires and in turn has been the cause of more poverty and suffering than any other industry; it has built more cities and towns, it has peopled more counties as it advanced, and in its decline has left these to decay or blackened ruins. This industry has always faced us with a moral hazard even in its balmy days, but now in its decline to many it bristles with sparks and is lurid with flame."

FARMING.

In the November Farming, of Toronto, the relationship of electricity to farming forms the subject of a terse paper. Up to the present time farmers have not paid much attention to electricity as it seemed to be something out of their line and of little use, more often being regarded as a foe than anything else, on account of the substitution of electric for horse power in street cars all over the continent abolishing the demand for horses of the street car stamp, thus reducing the profit formerly derived from horse breeding, while enthusiastic inventors have claimed that they will soon drive the horse out of the market altogether in the ushering in of the era of horseless carriages. The writer remarks, however, that in spite of all this, electricity promises to be of vast usefulness to agricultural. It has been harnessed to the threshing machine, and proven to be a valuable substitute for the old-fashioned threshing machine drawn by horses. Three pairs of horses have worked the machine with about 800 turns per minute, the horses being changed four times per diem. The power transmitted in this way was, owing to the nature of

the machine, irregular, occasioning considerable loss of time to the workmen employed. By the use of an electric motor to propel the threshing mill this disadvantage is removed. It is not, however, as a motive power alone that electricity promises to assist the agriculturist. French scientists have been at work experimenting with it as to its influence on growing crops, and they have succeeded in hastening the germination of peas, beans, and corn by the use of electric current. Electricity seems to act as a powerful fertilizer. It is claimed that an increase of 30 per cent. in yield is obtained by the use of the geomagnetifere, and that grapes grown over the wires contain a higher percentage of sugar and alcohol while the perfume of the flowers thus treated was stronger.

In the same number is an article on the relation of farming to long life. The conclusions are such as to make the farmer who would transfer his abode to the city pause and reflect well before so doing. The practical departments in this journal, each of which is conducted apparently by a practical farmer, takes up the question of cattle, sheep, swine, poultry, the dairy, horticulture, apiary, and abound in practical information of interest to the tillers of the soil.

CONCRETE AS A FIRE RESISTENT.

This is a practical question that is being discussed among architects and builders, suggested by the methods being adopted to render the new building in course of erection in Toronto for R. Simpson fire-proof by means of concrete. The Canadian Architect and Builder has had considerable reference to the question. In the November number the matter is again referred to. An architect writes a letter questioning "Whether concrete in itself is not a fire-proof material and therefore a building in the construction of which it is used as such cannot be fire-proof." This writer goes on further to say: "It is a well-known fact to those familiar with the nature of concrete that its character is changed by the action of fire, which burns out the lime in the material and also causes it to crack and disintegrate as a result of contraction and expansion. A fire-proof building should mean an indestructible building and such a building cannot be constructed of iron covered with concrete." The Architect and Builder comments on the letter editorially. The fire-proof character of the concrete will depend very much on the way it is prepared, and this journal tells of having been shown the results of some very severe tests to which concrete has been subjected, and assuming that they were fairly applied they seemed to indicate that it is what its supporters claim—absolutely fire resisting. Architects whose opinions have been sought say that their knowledge is only theoretical, but they cannot see why concrete made with slag should not be a good fire resistant. The School of Practical Science at Toronto is at present engaged with certain tests, that when conclusions are reached, should be helpful in this matter.



A HAUL OF WHITE FISH NEAR SAULT ST. MARIE.

INDUSTRIAL PROGRESS

◆ Gleanings from all parts of the Dominion. ◆

A recent cable from London, Eng., says: "The portion of the loan issued here by the Dominion Cotton Mills Co., £308,200 first mortgage, has been fully subscribed for."

Hon. John Haggart, Minister of Railways and Canals, has been interviewed by a deputation represented by Mr. G. H. Macdonell, M. P. for Algoma, in regard to obtaining a subsidy for a railway from Port Arthur to the Rainy River district.

British Columbia returns show an output of salmon of 512,197 cases, as against 494,371 cases last year. It is estimated that \$600,000 to \$700,000 has been paid out to the fishermen during the few weeks of the season. The number of fishermen this year was larger than ever before, 2,100 licenses having been issued.

Hale & Booth, the big lumbermen, of the Ottawa, have just completed the purchase of timber berth No. 82, extending for thirty-six square miles along the north shore of Lake Huron. The purchase was made from the Muskoka Mill and Lumber Co., of Toronto, and the price paid was \$340,000. Messrs Hale & Booth have already made purchases this year to the extent of \$700,000, which gives good evidence of their great faith in the future of lumber tributary to Lake Huron and Georgian Bay.

The iron industry of Nova Scotia is doing well. During the past twelve months the new Glasgow Iron, Coal and Railway Co., has been united with the Nova Scotia Steel Co. The company is extending its operations and is supplied with an admirable Bessemer pig from its furnace at Ferrona. After a long vacation the Londonderry works went into blast again and it is reported are contemplating the re-opening of their roller mills. The large contract secured by this company for the pipes of the new gas company in Halifax will keep their foundry running for some time. The Torbrook mine has been running very steadily, with a total output of 29,940 tons, divided between Londonderry and Ferrona. The Nova Scotia Steel Co. have suspended operations at their Arisaig mine, having discovered a deposit of ore of higher grade at Bell Island, near St. John's, Newfoundland, which they are opening for shipment next spring. The production of pig iron stands as follows for the twelve months ending Sept. 30th, 1895, although the output is more truly for the last six months of that period:—

	Tons.
Picton Charcoal Iron Company.....	323
Nova Scotia Steel Company.....	17,321
Londonderry Iron Company.....	11,446
Total.....	29,090

Returns so far received show that during the year there were 79,636 tons of ore mined.

The revised figures for last year's Canadian trade have now been compiled and show, as the monthly statements have already demonstrated, that Canada's trade during the period of depression had been better than any other years since confederation, except 1892, 1893 and 1894. Only once before has the balance of trade been in our favor. In 1880 the exports of Canada exceeded the imports by about \$1,500,000. In 1895 the excess of exports over imports was nearly three million. Since confederation we have spent in foreign markets five hundred millions more than we have received from them. This year the outside world bought from us goods to the value of \$113,638,803, and we bought abroad goods to the value of \$110,178,682. The most striking feature of our export trade was the increase in the shipment of animals

and their product. Under this head we sent abroad in 1894, which was an exceptionally good year, \$30,040,407, while in 1895 we exported to the extent of \$35,656,394.

The hematite iron deposits in the Mattawin range in north-western Ontario, are commencing to attract the attention of foreign capitalists, and their development will be carried on in the future with considerable vigor. The Bethlehem Iron Company, of South Bethlehem, Pa., has secured an option on several properties from Messrs. Folger, of Kingston, Hammond, of Port Arthur, and the other parties interested, and a party of miners with an expert will be sent out immediately to explore the locations and report upon them with the view to purchase, in which case work will be vigorously prosecuted. Heretofore this company has brought its hematite ore from Cuba and elsewhere, but the proprietors have now turned their attention to the Ontario fields. The range across the Mattawin river is in the vicinity of the Three Falls and it is possible that electric power may be obtained from this source, not only for working mines but to operate the railway branch which will have to be built. Mr. Archibald Blue, director of mines, who recently visited the range is reported as expressing himself confident that developments will show a great amount of mineral which will prove of much value to the country.

English capitalists are showing a large interest in Canadian industrial affairs. Among recent visitors have been Messrs. L. L. Watson, L. R. Cooper, and J. R. Whitesides, and Samuel Morris, the two former from England and the latter couple from

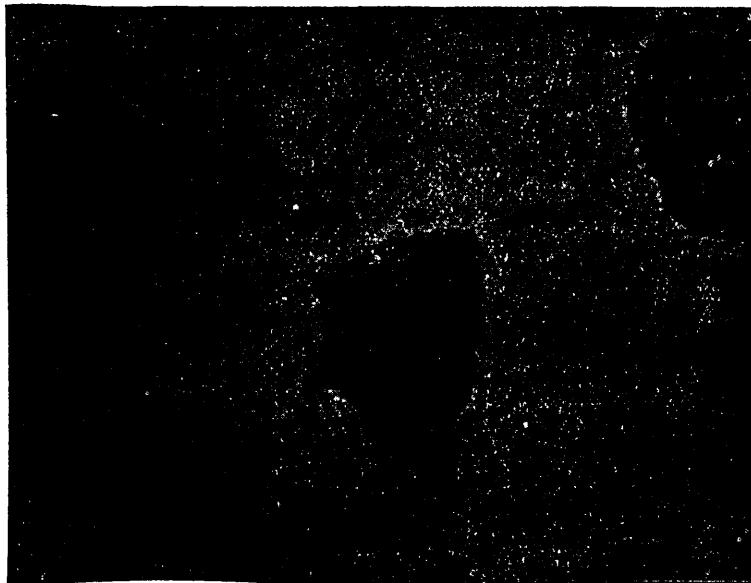
Scotland, who have been interviewing the government relative to the development of a Canadian pulp wood industry to be established in Canada. The idea is solely in the interests of paper manufacture and articles in the make of which paper enters largely, such as paper mache and other articles made of the same material. Mr. Watson admits the superiority of Canadian pulp and prefers to deal with Canada rather than with either Sweden or Norway as at present.

The visit of Sir Chas. Tupper, Canada's High-Commissioner in England, is connected with the proposed fast Atlantic service and the Pacific cable. A few days ago intimation was re-

ceived from the Colonial Secretary that the Imperial Government is disposed to assume one-third of the subsidy that would be required to secure a twenty-knot service between Canada and the mother land. The offer of £75,000 a year is coupled with conditions that will require minute and careful consideration by the Canadian Government, and Sir Chas. Tupper will be called upon to act for the Dominion in framing the joint arrangement that is contemplated.

The reduction in freight rates made by the C. P. R. is welcomed by the grain trade of Manitoba. The new rate for this season is 30 cts per 100 pounds of grain, from Fort William to Atlantic ports. Last year the rate was 35 cts. The actual reduction is therefore 5 cts. per 100 pounds or 3 cts. per bushel. This covers all classes of grain. The rate to Fort William remains as before, at 17 cts. from Winnipeg, 18 cts. from Portage La Prairie, and 19 cts. from Brandon, making a through rate from Manitoba points to the Atlantic seaboard of 47 cts. to 49 cts. per 100 pounds exclusive of terminal charges. The reduction will be a material assistance in exporting wheat now that navigation has closed.

During his recent trip through the northwestern portion of the Province, Mr. Archibald Blue, Director of the Bureau of Mines, became interested in the question of using trap rock as a material for roadways. The City of Cleveland has been using this material in the construction of about two miles of road bed of a width of 30 feet, importing the rock from the Island on the Canadian side of the St. Mary's River, north of St. Joseph's Island. Enquiries made by Mr. Blue seem to show that the new road will prove one of the finest in America. The road bed cost per square yard \$3.10, \$3.19 and \$3.65, according to the grade



SMALLER FLOWER POT, FLOWER POT ISLAND, GEORGIAN BAY.

of work. Mr. Blue says that the supply of trap rock on the north shore of Lake Superior is simply unlimitable and can be obtained at a low price for quarrying and transportation, and he is of the opinion that Canadians should take steps to utilize the natural resources which have placed within their reach at a moderate cost a paving material which bids fair to prove in the future a formidable rival to other and better known substances.

The company that bought the water power of Sault Ste. Marie, on both sides of the river, and are now erecting pulp and paper mills on the Canadian side, have also acquired the Kakabeka Falls, near Fort William. This is one of the finest powers in the world. The company intend erecting pulp mills at the Falls. There is practically an unlimited supply of pulp wood in this district.

The annual statement of the Montreal Street Railway Co., recently issued, shows a most gratifying increase in the paying character of that railway. The report says that while the receipts for 1895, as compared with 1892, have grown from \$564,466.57 to \$1,102,777.57, the operating expenses have only increased \$186,166.76, and the net earnings have increased from \$97,761.59 to \$449,465.83. The number of passengers carried has grown from 11,631,386 to 25,465,830. "No other company, your directors can truthfully say, has experienced more gratifying results than these in the conversion of its system to electricity."

According to Hardware and Metal, American pig iron has been displaced almost entirely in Canada by the domestic product. The reason assigned for this is, first, because of the activity in the markets of the United States, and secondly, because the price of Canada pig iron has not advanced as rapidly as that of the United States. Nova Scotia iron number two can be laid in Toronto at about \$17.50 per ton, while a similar iron is quoted at from \$14.25 to \$14.50 in Pittsburg. To lay this down in Toronto would entail an addition of from \$7 to \$9 per ton on the cost, duty and freight to the city. Canada pig is the only iron that is being used in eastern Canada, in Ontario as far west as the city of London. The prospects of the iron industry in Canada are bright.

Shipbuilding operations are somewhat active. The keel of the new boat for the Niagara Navigation Company, the successor to the Cibola, has been laid in the yard of the Bertram Company at the foot of Bathurst St. Toronto. The steamer is to be of the side-wheel passenger boat type, having three decks, will be 277 feet over all, 269 feet on the water line, 32 feet beam, 59 feet 2 inches over guards, and 13 feet 6 inches moulded depth. The hull is to be built of steel throughout; the engines are compound condensing, of the inclined type, with cylinders 45 inches and 85 inches by 5 feet 6 inches stroke, turning paddle wheels 22 feet in diameter. The boilers are six in number, of the gunboat type; each boiler 8 feet diameter by 16 feet long, having two furnaces, 37 inches in diameter. The deck arrangements and the cabins have been laid out to suit the particular business for which the steamer is built—that is to ply as a day boat between Toronto, Niagara and Lewiston. Mr. A. Angstrom, the general manager of the Bertram Company, is the designer. The Cibola's successor is to cost a quarter million. She will be launched in April and will be ready for business some time in June. Two other new steamers are also on the stocks for the Upper Ottawa Improvement Company. They will be built entirely of steel, 140 feet in length, with 26 feet beam, side wheelers, for use in towing rafts. They are to be ready by May.

A valuable department of Printer and Publisher, of Toronto, is that devoted to the interests of Canadian pulp and paper-making. As we have had occasion to remark elsewhere this is a growing industry in Canada. In last issue of Printer and Publisher some of the disadvantages under which Canada labors in furthering the pulp industry are pointed out. Canada has, par excellence, the product required in pulp manufacture. The tariff, however, works to the country's disadvantage. To quote Printer and Publisher: "Owners of pulp mills in Canada are beginning to realize the fact that the American paper makers must come to Canada for their wood. As those who have been investigating the question point out, the sources of supply in the United States are almost entirely exhausted. They must come to Canada for their pulp. As long as we permit them to have our spruce logs free and they charge a duty on our pulp, the logs will go over the border to be made into pulp and paper. The general feeling seems to be to ask the government, if they refuse to put an export duty on logs, that they give an export bounty on pulp to develop our own mills and to force the Americans to erect mills and grind the pulp in Canada. There are others who advocate a policy which shall also continue the development of the industry and manufacture the pulp into paper in this country. Instead, therefore, of the bounty being on pulp they want it on the finished paper. This last is more in keeping with the theory on which all bounties are paid."

Canada has the trump card. It depends on the business ability of the members of the Dominion Government whether it will be properly played.

PUBLISHERS NOTES.

WHAT WE HAVE TO OFFER.

The prospectus of INDUSTRIAL CANADA, which is published on page six, affords the reader a very fair idea of what we have to offer in exchange for the price of a subscription. We have entered upon the work of publishing a journal for the people, a journal for Canada. We have a large field to work upon and our plans embrace a wide and important range. The industries and resources of Canada are of special interest and importance, and their extent, their development and their progress, should be studied and encouraged by every inhabitant. To cultivate and encourage a greater knowledge of these interests and to assist in their development is the special mission of INDUSTRIAL CANADA. With many years practical experience in journalism, and with a large array of help already well organized, the publisher has every assurance of success. We only ask the reading public and the business men of the country to extend the support and patronage the enterprise deserves, in order to place INDUSTRIAL CANADA in the front rank of journalism from the beginning.



OUR ADVERTISING PAGES.

Advertisers can rely with confidence on our determination to make INDUSTRIAL CANADA not only the leading journal of the Dominion, but also the leading medium for advertisers,—a medium through which the inventor, the manufacturer, the merchant, the financier, and business men generally, may tell the people,—the wide-awake, up-to-date people—what they are doing and what they have for them.

Advertising has developed into a solid commercial enterprise. It has out-grown the wily tricks of the cheap vendor and novelty fakir, and is now conducted with dignity and honor. It is as important to a man's business as his well kept stock, his manufactures, his ledger or his bank account. It is the modern way of reaching the people. The successful business man, the shrewd and enterprising manufacturer, recognize this, and they spend thousands of dollars annually to tell the reader just what he wants to know. The advertiser is as important to a well conducted journal as the reader is to the advertiser. It is through the advertiser that the reader keeps in touch with progress, with the trend of prices, with inventions and improvements, and as we aim to make INDUSTRIAL CANADA a mirror of industrial enterprise, so also do we hope to make it a mirror of honest and dignified advertising.



IT WILL PAY YOU TO COME IN.

INDUSTRIAL CANADA will go into the best business houses and families in both city and country. We believe you cannot afford to stay out of its columns. A space in its advertising pages will pay a big percentage on the investment. It will reach the class of people you want to talk to. Every ad. in it will be set in attractive form from the most modern type, and each space will command the attention of thousands of readers.



OUR OFFICE OF PUBLICATION.

The office of publication of INDUSTRIAL CANADA is at one of the best equipped printing establishments in the city of Toronto. The firm of W. S. Johnston & Co'y., 34 Adelaide St., West, who will do the printing and binding, need only be mentioned to ensure confidence that the mechanical work on the journal will be first-class in every respect. The reputation of this firm is well known. They do a large range of printing and binding, a special feature being made of trade and high class journals. In typographical appearance INDUSTRIAL CANADA will be found up to-date.

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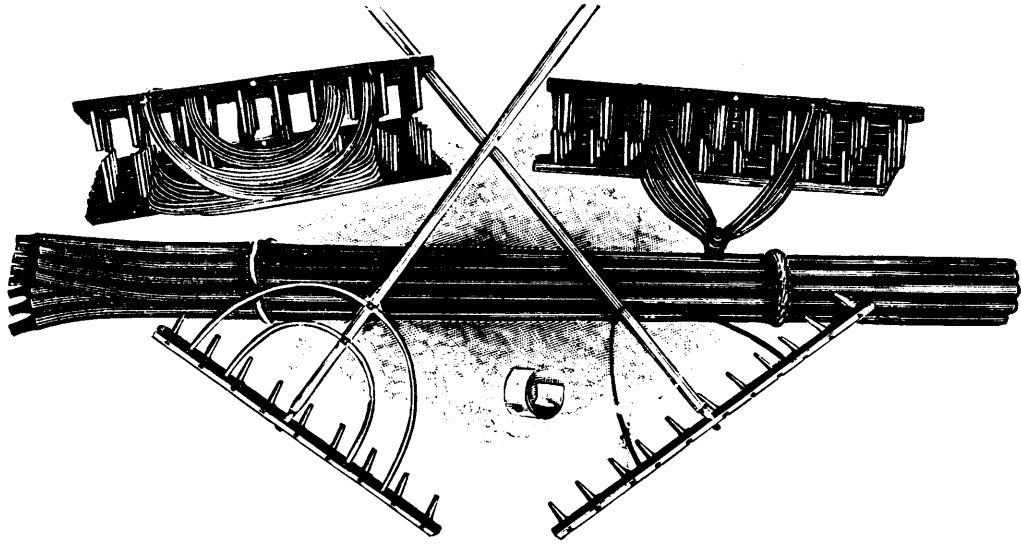
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31 KING STREET EAST,

TORONTO

Buschlen's Handy Hay Rakes

PATENTED



TO THE TRADE



Many firms have lately bought their Hay Rakes "knocked down," in consequence of the increased freight rates upon the mounted rakes; but have generally found this unsatisfactory, because of the trouble and expense of mounting them, as the work requires special appliances and experienced workmen. It will be seen at a glance that the rakes illustrated above overcome these objections entirely. The bows are set ready into the heads, and there can be no trouble with bows not fitting, or their breaking when being mounted.



In the **WOOD BOW RAKES**, shallow slots are made in handle, into which the bows set. The rake is mounted by simply putting the end of the handle into the head and nailing on the "clips." In the **WIRE BOW RAKE**, the bow is secured to handle by staples.

The handles are not weakened by having holes bored in them for the bows, as in the old style rakes, and any boy can mount them without experience. Clips, nails and staples accompany each bundle.

The Principal advantages of BUSCHLEN'S HANDY RAKES to the Wholesale Merchants are



- 1st.—They secure the low freights, same as ordinary rakes "knocked down," which are about 50 per cent less than on mounted rakes.
- 2nd.—They save room in warehouse, as they occupy about one-fourth the room of mounted rakes.
- 3rd.—They may be mounted for shipment as needed, or may be shipped as received (saving cost and trouble of mounting), and mounted by the retailer, thus giving the latter the benefit of lower freight.
- 4th.—Anybody can mount them without previous experience, and more rakes can be put together in the same time, than of the usual knocked down rakes.
- 5th.—They are less liable to get broken in shipment.

We sent out large lots of these rakes last season, and all who had them were fully satisfied with them and appreciated their advantages.

MANUFACTURED BY

EASTERN AGENTS
W. L. HALDIMAND & SON,
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Samuel Buschlen

PORT ELGIN, ONT.

CANADA'S GREAT CHANCE.

It looks as though in a trip around the world distance will cut a small figure in the not far distant future; and that Jules Verne's "Around the World in Eighty Days" was less fanciful than people regarded it when first written. As a matter of fact a trip around the world may to-day be made in sixty-six to sixty-eight days, and a writer in a German paper points out that this time could be easily reduced another four days. He discusses the different routes across the American continent and comes to the conclusion that Canada holds a pre-eminent position in its ability to provide the shortest route. More than that, Canada could steal a march on Russia and prevent the Trans-Siberian road from becoming such an important factor in the world's traffic as the Russians hope to make it. Some years, thinks the writer, perhaps some decades, must elapse before the Trans-Siberian road is finished or the Nicaragua canal has been opened. By that time Canada may establish a route which will not lose its importance even if the other enterprises succeed. We quote as follows from a translation of the German, for which we are indebted to the Literary Digest:

"The shortest route across the Atlantic Ocean is across the Strait of Belle Isle, the distance from Liverpool to Battle Harbor being only 1,950 nautical miles—about four days' run for a first-class, twin-propeller mail-boat. Halifax is 2,463 miles from Liverpool, Boston, 2,940. New York 3,060. At present, however, the steamers which cross by the shortest route are compelled to proceed to Quebec. This is only 700 miles from Battle Harbor, but the tides are very strong there, and the coast is very stormy. Canada can overcome this difficulty and create a new channel for the traffic of the world, if she builds a road from Quebec to Battle Harbor or to the mouth of the West River. Such a line must be fit for travel during all times of the year. This would reduce the passage across the ocean to four days, and lower its cost nearly one third. Quebec could then be reached from Liverpool within five days, Montreal in five and a half, New York in six, Chicago and Cincinnati in six and a half; the Pacific Coast in less than twelve. Honolulu would be only twenty days' travel from Liverpool, Yokohama between twenty-four and twenty-five, Shanghai about thirty, Auckland, Brisbane, and Sydney, from thirty-two to thirty-four days. The voyage around the world would occupy only sixty-two to sixty-four days. The proposed road would be only 750 miles long, through a comparatively level country, which does not lie within the zone of the blizzard, and is not noted for heavy snowfalls. From two to two and a half years would be sufficient to complete the road, which would not cost more than \$20,000,000.

"The Canadian Pacific Railroad seems specially fitted to become the principal road of the North American continent, and to carry the mails and passengers to and from Eastern Asia and Australia. Who would care to encounter the danger of a seven to eight days' sea voyage from London to New York if the ocean could be crossed in four days? The rest of the distance could be covered in a luxurious palace car in two days. What European business man would care to communicate with Japan, China, Australia, and Polynesia along the Eastern route, if several days, or even weeks, can be saved by choosing the Battle Harbor-Vancouver route, and that at a saving of the cost of transport?

"Canada and the Canadian Pacific Railroad would not only become leaders in trade and traffic on the North American continent, but also force Newfoundland to join the Dominion. Immense tracts of land would be opened for cultivation, and the majority of emigrants would settle in the Dominion. England would gain a counterpoise against the Siberian railroad. The plan is so easy to carry out that its realization may be hoped for in the near future.

THE VILLAGE BLACKSMITH.

THE illustration that forms a frontispiece to the first number of INDUSTRIAL CANADA will be admired by many readers of town and country. For a period of time last fall a painting representing the village blacksmith was on exhibition in Toronto, for several days on one of its main thoroughfares, and again at the Toronto Industrial Exhibition. The life-like character of the picture won the highest admiration for the artist. It brought to memory many a village scene, a recollection of early Canadian days, when the smithy was the popular resort, alike of the children of the village and the older ones who delighted to gather there, and were not unmindful of exchanging a word of gossip of local or more national affairs.

The picture appropriately takes a place in a journal like INDUSTRIAL CANADA, for in the background of much of the manufacturing progress of the country stands the village blacksmith. New inventions and improvements in the manufacture of machinery have taken off some of the prominence of his calling, but none the less he has proven the pioneer in not a little of the manufacturing of all countries.

We see also in the village blacksmith a model representative, in many particulars, of the hardy son of toil of to-day, and methinks there might be fewer strikes in these later days, and less friction between capital and labor, if the spirit of the village blacksmith permeated labor's ranks.

THE GLOBE NEWSPAPER.

IRRESPECTIVE of individual opinion as to the politics of the paper it will be freely admitted that the Globe newspaper, of Toronto, deserves to take a foremost position among the industries of Canada. If we take a retrospect of the paper during the fifty-one years that it has been published an illustration is furnished of the progress made in the printer's art, and especially in the making of a great newspaper. In its early days the individuality of the Browns gathered around the paper, and when these men passed off the scene the question was not an unnatural one to raise whether the paper would continue to hold its old-time supremacy. It will be generally admitted, we fancy, that the position of the Globe to-day is stronger than at any time during its history. It has not only broadened out as regards its treatment of public questions, in contrast with the time when the personal element unfortunately entered too largely into public affairs, but it has shown a measure of enterprise and push that from a business point of view has brought forth the admiration of business men everywhere. The Globe is in the fortunate position of being well manned at both ends in the person of Mr. J. S. Willison in the editorial chair and Mr. C. W. Taylor, who has practically grown up with the paper, at the head of the business management. The big fire of twelve months since in no way daunted the courage of the management, and almost simultaneously with the issuing of the first number of INDUSTRIAL CANADA the Globe will move into its new building, corner Yonge and Melinda Sts., an illustration of which we are pleased to give on another page, and so far as one can judge by a study of the plans, and the condition of the building as completed at this writing, few newspapers on this continent will possess a home more thoroughly equipped in all its details for the printing of a great daily newspaper.

CURRENT COMMENT.

Buschlen's Handy Hay Rake is well illustrated on another page of INDUSTRIAL CANADA. In a circular to the trade its many advantages are pointed out, and dealers and farmers who have not yet tried this neat, convenient and durable rake should see that they are supplied before next season opens.

The importance of the cheese industry of the province of Ontario has again been shown in the statistics for the past year. According to the Ontario Department of Agriculture there has been an increase of 114 factories, and of 11,117,828 lbs. in the output, while the total amount of money paid to patrons of the factories was nearly \$8,000,000.

Readers of INDUSTRIAL CANADA will not fail to notice the full page adv. of the Western Assurance Co. The Western is one of the strongest and most reliable companies doing business in Canada. The directors are all men of wide experience and ability, and the large volume of business written annually by the company, in both fire and marine insurance, is sufficient evidence of the popularity of the Western.

Mr. Aubrey White, Deputy Commissioner of Crown Lands, received a few days ago a piece of cardboard, part of the first sheet made at the pulp wood mill at Sault Ste. Marie. The letter which accompanied it stated that Mr. Clerque, the manager, fed the machine himself.

Interviewed relative to a recent visit to western Ontario, Mr. Blue, Director of the Bureau of Mines, said of the Petrolea oil fields: "Operations are brisk there, owing to the rise in the price of crude oil. About 40 rigs are employed drilling new wells, and for the last year they have been putting down wells at the rate of 100 per month. The total number of wells is now nearly 10,000, but while a few are relatively good the average flow over all is not more than ten imperial barrels per month. The oil area is now pretty well defined, but it has been considerably extended during recent years. I was told that an English syndicate has secured options on many properties, and it is expected that a large deal will go through soon. The refiners of Petrolea are keenly alive to the value of new processes, and every improvement is quickly adopted. The well drillers of Petrolea are famous for their skill the world over. I met one gentleman who had just returned from drilling a large number of wells in Burmah, and scores of them are employed in Europe and Australia."

A big lumber trust has been formed in British Columbia by which all the mills on the Pacific Coast will unite. The capital represented will total about \$50,000,000 and includes the fifty or sixty mills and all the retailers on the Coast, not a single retailer or mill being left out. The details of the scheme, while very elaborate, are said to be perfected to such an extent that there is no possible chance of any disagreement. The combine will be known as the Central Lumber Co., and all business will be done through the central San Francisco office, but shipped direct from each mill. It is anticipated that immediately after the new year prices of lumber in British Columbia, as a result of this trust, will be largely advanced. Shipping men say that the demand for tonnage for immediate loading to transport lumber to Central and South America, Oriental and Coastwise points, is better than any time since the palmy days of 1889.

It is not improbable that the works of the Watson Heater Co., of Montreal, will be located at Cornwall, Ont. In addition to the manufacture of heaters the company would make all kinds of plumbers' furnishings. They expect to start with 60 and will increase their staff to 200 men.

The city of St. John, N. B., has an ambition to be considered the winter port of Canada and to achieve that end has offered facilities to the different steamship companies running there. Secretary Wills, of the Toronto Board of Trade, received the following from St. John a few days ago: "I am instructed to draw your attention to the fact that the following lines of steamers are now making St. John their winter port, and to ask you to

kindly lay the matter before the members of your board, and also to give it the utmost publicity through your newspapers, and by any other means that may be available, viz:—Beaver Line, to Liverpool; Furness Line, to Glasgow; West India Steamship Line, calling at Bermuda, St. Croix, St. Kitts, Antigua, Dominica, Martinique, St. Lucia, Barbados and Trinidad. As arrangements have been made for through freight rates by the above lines, as low, if not lower than via United States ports, this board trust that from a national standpoint importers and shippers will endeavor to make use of the Canadian winter port for future exports and imports from the various ports named." The letter was signed by Mr. Ira Cornwall, Secretary of the St. John Board of Trade.

The Provincial Government Bulletin of Manitoba, issued Dec. 13th, being the last crop bulletin of the season, gives the total wheat acreage in that province as 1,140,276, from which 31,775,938 bushels were raised, an average of close to 28 bushels per acre. The total grain crop, taking in all grains, is 61,366,472 bushels, an amount nearly 4,000,000 bushels in excess of the Government's estimate, made just before the threshers got to work. The bulletin says that 5,000 harvest hands from Ontario assisted in garnering the crop and were paid \$400,000 by the farmers in wages.

A tourist who recently visited the Keewatin district gives the following account of industrial progress there: "The Lake of the Woods Milling Company's flour mill at that point is one of the most complete on the continent, having a capacity of 2,000 barrels daily. The lumbering industry gives employment to seven large saw mills with a combined output of 100,000,000 board measure per year. A fleet of twenty-three steamers ply regularly on the Lake of the Woods and Rainy River, besides numerous launches and other pleasure crafts, all owned in and operated from Rat Portage. Ten fishing companies employing a fleet of 136 boats ship their catch, the value of which it is estimated will approximate \$4,000,000 this season, from this port. These, with several minor industries, support a population of 5,500, which is rapidly increasing." Activity is further increased in this section owing to the developments in the Lake of the Woods gold mining fields.

ARE YOU A LIVE RETAILER? To dealers in general dry-goods throughout Canada this question is addressed by one of the oldest and most popular wholesale houses in Toronto. The firm of Gordon, Mackay & Co. are known from Halifax to Vancouver, and the few pointers given by them on the first inside cover page of INDUSTRIAL CANADA should be noted by every live retailer throughout the country.

The importance of the Canadian Soo Canal is shown in the returns of traffic through the canal from the opening on Sept. 9th to Dec. 6th, inclusive, the last day on which this canal was opened. The total number of vessels which passed through was 1,189, of which 604 were Canadian, and 585 United States. The tonnage of the Canadian vessels was 126,534 and of United States vessels 623,092. Of the freight carried through the canal the total tonnage was 595,837, of which 362,268 tons were coal, copper, silver and iron ores, and 180,171 tons grain, flour, malt, salt, clay bricks, etc.

A shipment of 10,000 barrels of oatmeal has been made to Copenhagen by an Ottawa milling firm.

The Canadian representatives in the Deep Waterways Commission appointed by the Dominion Cabinet are men well qualified to represent Canadian interests. Mr. O. A. Howland, of Toronto, president of the Deep Waterways Association, is one of them, and he has associated with him two eminent engineers in the persons of Messrs. T. C. Keefer and Thos. Munro. They will act without emolument, but their expenses will be paid by the country.

A rush of gold-miners is going on towards Trout Lake on the C.P.R. 50 miles from Vancouver, B.C., where a rich ledge is reported, bearing \$45 to the ton.