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The Canadian Engineer

ESTABLISHED 1893

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CIVIL, MECHANICAL STRUCTURAL, ELECTRICAL, MARINE AND MINING ENGINEER, THE SURVEYOR, THE MANUFACTURER AND THE CONTRACTOR.

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TORONTO, CANADA, MAY 22nd, 1908.

CONTENTS OF THIS ISSUE.

THE "ARCHITECT AND BUILDER."

After having been published for twenty-one years as a monthly the "Architect and Builder" now appears as a weekly. Shortly after the "Architect and Builder" was established the "Contract Record" appeared as a weekly intermediate edition to furnish advance information of projected works. With the large growth in the Canadian building trade both publications have enlarged in an endeavor to satisfy the requirements of their patrons.

That more attention may be devoted to a weekly publication the two journals have now been amalgamated. "The general character of both journals will be maintained, and many new and valuable features introduced."

The Hugh C. MacLean, Limited, are to be congratulated on the make-up of the first number of the united journals. Both the presswork and the selection and arrangement of articles are such as to call forth commendation from their readers.

SHIPPING ON GREAT LAKES.

Although the romance and beauty have, to those who remember the graceful sailing fleet of the Great Lakes, vanished, the freight-carriers of that great waterway, the steamers which now replace the "white wings" are remarkable in their turn—though beauty is not one of their attributes, to the eye of a sailor. They are utilitarian, narrow "tanks," of enormous size, vieing in length with an ocean ship, but in no other respect resembling one. And they carry loads, coal westward and of ore or grain eastward, of an extent undreamt of at a time within the memory of living men.

Within ten years, or less, the dimensions of lake freighters have steadily grown, not so much, however, in width as in length. Draft cannot be increased beyond the twenty feet prescribed by the deepened channels of the connecting rivers; nor has the average beam become much greater. Length, however, has gone from 500 feet, say, in 1898 to 600 feet to-day, in the case of the largest steamers.

It has been found necessary to build, on Lake Erie, a dry dock for the accommodation of these monster ships, iron ore carriers, plying between Lake Superior and Lake Erie. This has been completed at Lorain, about fifteen miles west of Cleveland, Ohio. The dimensions of this dock are 745 feet long and 125 feet wide. The dock is 140 feet longer than the longest ore-carrier afloat, and there are but few ocean ships of greater length. It is conceded to be the largest fresh water dry dock in the world. Five thousand piles were driven to form the foundation. The gate which closes the river end of the dock is built of steel; it is 82 feet wide and weighs 110 tons. The dock is so built that it can be used as a slip in which to launch vessels when built, berths for which have been constructed on either side of it. When this dock was first planned, the longest vessel on the great lakes was the "Wolvin," length 560 feet. Since then the size has increased to 605 feet, four vessels of this size having been constructed during the past year.

In 1900 the largest steel ships on the Great Lakes measured 400 feet; in 1903 and 1904 the 500-footer came; in August, 1906, the lines of twelve 600 foot steamers were laid down—mostly since built; and in 1907 the American Shipbuilding Company had one planned 645 feet long; 8,441 tons ore and 7,668 tons coal were two cargoes of 1902.

FUSIBLE PLUGS FOR THE PREVENTION OF BOILER EXPLOSION.

The Board of Railway Commissioners for Canada are considering the issuing of a regulation requiring railways to place fusible plugs in the crown sheets of all plugs in the crown sheets of locomotive boilers.

That they may have the co-operation of the railways they have issued a circular outlining the instructions the order will contain. The chief points raised are that two plugs shall be placed in each crown sheet, and they shall be removed and inspected every fourteen days.

COBALT

Fred. W. Field.

COBALT IN BRIEF.

Ore shipped in 1907	14,876 tons.
Value	$ 6,157,871
Ore shipped since January, 1908	5,985 tons.
Estimated value	$ 2,313,124
Ore shipped since 1904	27,456 tons.
Estimated value	$13,331,621

When some enthusiastic broker, or engineer, or mineral historian compiles a mines encyclopædia, its classification will have to be extended. There will be a separate head for Cobalt. The day of swelled head came to it—admitting that some of your stock brokers punched it big—and it enjoyed the glory of a boom with the ensuing trouble—scored faces and pockets full of fresh air and lining. Otherwise Cobalt might blush with pride at its honorable conduct during its four years' lease of this world.

The camp is rich; it is also law-abiding. And someone has discovered that the mining engineer's axiom that it takes at least three years to develop a mine has there been disproved. Its history is punctuated by notable events. First its discovery, a mere accident, of which all the world knows. Then the stock market excitement, manufacturing millionaires and paupers as fast as foresight and the lack of it would permit. Labor came along and played its part in Socialistic gown. Depression then ruled the stock markets and the camp. Since the first of April slipped away, Cobalt stocks have given habitually a lesson in the upward movement. The men who beat the drums, whose arms became tired last year —maybe they were needed to collect fistfuls of money—have begun again to swing at sixty to the minute. If you think people once bitten are twice shy, just glance at the thousands of shares traded in during the past few weeks. But, perhaps, a new generation has grown old enough to dabble with stocks. There is fascination in grabbing the evening papers to learn what surprise Fate and its manipulators have sprung upon the stock markets.

All this brings the country to Cobalt. A circus passing down a city's main street, the banker, the merchant, the manufacturer give it a thought, because it is there. Their day's laugh at clownish jokes, their bated breath at the lion's antics, is over. But they think of that circus and its effect upon their city. So with Cobalt. It exists; and its advent has meant many additional pages of financial history. Again attracting attention, and incidentally bank deposits, most people are directly or otherwise interested. Mention that wonderful Northern Ontario country to the man who lost his fortune there. "To —— with Cobalt" is all you will get from him. Talk of it to the man who cannot find time to count his automobiles. He will wink his eye and rub his palms. Which, translated, means, "Cobalt made me rich." It is easy to pick out stock-gambling innocents who put a thousand dollars into Cobalt scrip and sold out for half a dozen five dollar bills. It is quite as easy to find men, a trifle more wise, who put a few thousands in and took a few millions out.

No wonder is it that millions of dollars have been sunk in mining shafts and fakirs' pockets. Men who desire to hide their feelings frequently assume the pastor's garb. Half the world, thinking that clothes make the man, believe in his goodness. And so Cobalt personified wears a halo of morality; it abounds in wealth. The impressive scoundrel follows in the shadow. These two facts are alone sufficient to make Cobalt attractive to the investor, to everybody. A law-abiding mining camp is more scarce than the great auk's egg. Liquor does not flow as freely in that region as spring freshets. Those whose daily work takes them into the bowels of the earth, those who came from South Africa, from the United States, from Europe to look at this Canadian and silvered chunk of the globe, know that their hip pocket equipment is as out of place as a button on a church collection plate. Which reminds one of the story of two disputing miners in British Columbia. "You just come across the border," said one, "and I'll let daylight into you." At Cobalt they all know, from the messenger boy upwards, that the use of bullets to herald the daylight is infra dig. Under the British flag at Cobalt law is law.

The strenuous times of the average mining camp come as a rule but once. When Nipissing tumbled from its high point somewhere around thirty-five dollars per five dollar share down to fourteen points, people looked pretty glum. The leader having come to grief, the followers followed suit. A strange sullen feeling settled on thousands of shareholders. They knew well enough their mines had not been spirited away in a night. If any thought deeply, they figured their foolishness was responsible, and that some others had played the game of sharp practice. In other words, everybody knew that to manipulate the stock markets is simple enough. To manipulate the actual mines in a similar manner is not so easy. There have been months of patient waiting—through a winter, a spring, a summer, a fall, a winter and a spring again. Is the beginning of another boom in sight? is the question they ask. The Ontario Government in its Bureau of Mines report for 1906 regretted "that the signs are too evident that the Cobalt mining district is to be the scene of another joint stock company boom." The signs were in evidence. Probably the only factor preventing the replete fulfilment of ministerial predictions was the fact that money was scarce. Everything being done to work up sentiment to a high pitch, the lack of funds postponed all effective efforts. Mr. Thomas W. Gibson's words well may be used again. The signs are more in evidence than ever. Someone will say, "But there is good reason for activity." Agreed. There are many excellent reasons.

The most weighty, literally and figuratively, is the matter of ore shipments. When one knows that since 1904 some 26,000 tons of ore have come out of the Cobalt mines, there is something substantial on which to base opinions. Then, again, nearly thirty mines are in the shipping list. The work of concentration and development is prominent. A number of mining companies are paying dividends, and at least half a dozen others are raising the hopes of shareholders in this respect. Many shares are quoted on the transaction sheets at below par value, which in many cases means below real value. Altogether, then, there is a plethora of good reasons for a bull market.

In some ways this is unfortunate. These points may be used as a lever by which the investors' commonsense may be hoisted out of its correct position. After all, one is brought back to a primary investment fact—no sane man but himself has a right to dictate to his commonsense. If the market activity places Cobalt stocks in their right position, all well and good. But the chances are largely against this. The public as a whole must act cautiously. Enthusiasm may bring a repetition of the late boom. The average shareholder may be most likely cautious, but then there is the hazard of his hope strangling his wisdom. So much for the mining markets.

A revival of public interest in the Ontario mining region means many new mine flotations. Therein is another speculative pitfall. It is not suggested that the

properties of the present organized mining companies have exhausted the field. But it is well to recollect that a stock of literature, a lump of gaudy-looking ore, a shack and half a dozen photographs do not make a mine. As for new capital for new and old mnies, Cobalt must look to Canada and the United States. In neither case will money be handed out liberally with two hands and eyes shut. But the Yankee picked out many of the plums in Northern Ontario. The Canadian followed a little too slowly. And the Englishman—? He being three thousand miles away, came in for the plum stones, which were good for nothing except to hurt his teeth. English capital may yet come to Cobalt in millions; but not from the small investor. It will drop into the foot-prints of some world-renowned mining engineer, the missionary of men who help change the swinging of the financial pendulum.

And the mines? Someone writes me that so far as he can see there is at Cobalt now "between twenty and thirty million dollars' worth of ore in sight ready to be mined, and development work is exposing more ore every day." This estimate is from a reliable expert, but it seems to lurch largely toward the optimistic. A mining camp which has three years' ore in sight has been declared by one of the greatest mining authorities as an ideal camp. One comes across the ideal in mines as often as the ideal in men—which is seldom, if ever. If thirty million dollars worth of ore is in sight at Cobalt, that region would be ideal. But just as it has assets in its unusual features, so has it liabilities in its erratic mineral moods. Another estimate, which seems nearer the mark, makes the ore in sight tot up to about twelve million dollars. This would be, roughly, a year and a half's quota. So this aggregation of mines is but semi-ideal—compared with the world's mining camps, a very good showing.

It has been demonstrated beyond doubt that the silver-bearing veins there are very rich. One mine manager says samples from his property have assayed as high as 10,758 ounces of silver to the ton. This vein wealth is on the surface, and it has continued rich to moderate depths. The ultra-conservative have practically refused to recognize Cobalt until it has proved that the ore is rich at depth. Many a geologist thinks that the value of rich bearing veins on the surface will taper off, carrot-shaped, to nothing. But all this is supposition. One fact certainly has to be proved to ensure a long life for the Cobalt camp, i,e., that the rich ore does not peter out the deeper goes the shaft. But then official figures show that since 1904 the annual value of the companies' silver production has increased from $111,887 to $6,157,871, a gain of 5,403 per cent. Cobalt has at least justified its existence.

One has but little sympathy for the man who comes to bury Cobalt, not to praise him. On the other hand, there is sympathy for him who comes to praise and not to bury. For this reason—if you go on record with ten words of appreciation diluted with five words of caution, what happens? Your ten will be quoted far and wide; your five will be overlooked. The Ontario Government, a score of reliable mining engineers, the legitimate mining companies, all have faith in the Cobalt camp. Wherein they show good sense. But unfortunately all these heartsome facts may be used judiciously to make the cheese for the stock manipulation mousetrap.

COBALT CONDITIONS.

Impressions of the Camp and Reflections Concerning the Markets.

By J. B. Tyrrell, Mining Engineer.

The past year has been marked by steady progress and improvement in the mines of the township of Coleman and its vicinity. The majority of these mines are now more developed, and are much better equipped to handle ore cheaply and efficiently, than they were at this season last year, and consequently they have a higher market value now than they had then.

As is very well known, many of the silver-bearing veins were exceedingly rich on the surface, and have continued rich to the moderate depths to which they have been followed. But we are constantly asked, how far will the rich ore go down; or if low grade ore is found in a vein at the surface is it likely to improve in grade with depth?

From the known mode of formation of these ore-bearing veins it is certain that they will taper off and disappear in depth, but at what depth is not yet known, and it is possibly quite different in different places. It may be two hundred or it may be a thousand feet or more. No one should be disheartened if an individual vein that is being followed down from the surface loses its value or pinches out and disappears, for it may be replaced to one side or the other by a so-called "blind vein" which did not show at the surface, but which will carry the values to greater depths, perhaps to be replaced in time by another lower "blind vein," these together forming an imbricated or step-like ore-bearing series. Many of the poorer surface prospects may also represent the upper edges of veins similar to these "blind veins," which swell out and contain rich ore-bodies below.

Up to the present the optimists have had it nearly all their own way in Cobalt, new veins have been and are being constantly discovered, narrow veins have widened and poor veins have grown rich. The wildest kind of wild-cat prospects have turned into producing mines within the space of a few weeks.

Some people are now saying that the days of the optimist are over, but this appears to me to be improbable. There is much more reason for rational optimism now than there was twelve months ago, more ore-bearing veins are known now than then, and the development which has been done on the veins shows that they hold their character remarkably well both horizontally and vertically.

In regard to the value of ore which the camp will produce, let us suppose that all the veins at present known on

COBALT TOWN.

Bird's-eye View of Northern Ontario's Silver Camp—a demonstration of the power of mineral as a town grower. The present population is about 5,000.

the surface extend down on an average to a depth of 200 feet, how many millions of dollars would they represent. In addition to this how many millions of dollars will be taken out below the 200 foot level, no one is at present able to answer either of these questions, but in both cases the totals would undoubtedly be large.

We do know, however, that in the Cobalt camp there is a large number of silver bearing veins, and that many of these veins are marvellously rich, perhaps richer than any other bonanzas of similar extent in the world.

Is it any wonder then that there was a wild scramble to participate in the riches here being discovered, fortunes made in a day, and no apparent probability of losses. The scramble is over, and like the rush to the Klondike ten years ago it may not be repeated, but the silver mines are realities which will yield a large amount of wealth to the people of this province and will render many of them rich, and at the same time they are giving an irresistible impulse to the development of northern Ontario, so that before many years not only will other mining districts be opened up, but the great wheat belt of the north, with its sixteen million acres of rich clay land, will be sending out its produce to supply the cities of Eastern America and Europe.

But the value of the mines themselves should be clearly and sharply dissociated from the market value of the stock bought on margins to hold for a rise.

In this connection the mines at Cobalt may be compared to a herd of cattle on a farm. The cattle are sleek and fat, and not only beautiful to look at, but very profitable to their owners, who are very proud of them. Many people come to look at them, and stand around by the fences and bet with each other which way the animals are going to jump or run next. Such people would be about as much interested in cattle raising as the ordinary investors in mining stocks are in the intelligent working of mines. The men who could drive or coax the cattle would be the men who would win the bets, and the men who can manipulate the stocks are the men who will win in the stock game.

There is an old game which was played in England with thimbles and a pea, but in America is usually played with halves of walnut shells and a pea, and is colloquially called a "shell game." The pea is put under one of the shells in plain sight, and all you have to do is to pay so much, guess that the pea is exactly where you yourself saw it put, and get back double your money. Nothing could be simpler and easier, and probably the first guess you make will be right, but afterwards the pea will rarely be where you think it is, and you will continue to lose the money you pay for your guesses to the man who handles the walnuts. In buying mining or other stocks on margins the people are very like the men crowding in front of the tables on which the walnut shells are lying, and the faster they buy (or bet) the faster their money is being taken away from them, and the more money the men handling the shells are making.

But of course the people like to gamble, and doubtless will gamble till the end of time, but this occupation or diversion should be called by its right name, and not "Mining" or "Taking an interest in Mines," any more than playing the shell game should be called "Taking an interest in raising walnuts."

Interest so taken in mines is distinctly injurious to the mining industry, for it diverts useful capital from productive into unproductive channels.

The country needs every dollar of capital that the people can spare to develop its vast latent mineral resources, so that the people who wish to invest in going mines should buy their stock in these mines on a definite dividend-paying basis, or if they wish to invest in more speculative enterprises they should put their money into prospects and take care that every dollar which they pay, beyond a reasonable price for the prospects, should be put into the proper development of the property under competent supervision. Money so spent is well spent in the development of the country, even if the prospect itself does not prove valuable, and if it does prove to be a rich mine the fortunate investors will have the satisfaction of knowing that they have made their money by honest enterprise and not by outwitting their neighbours in a gambling deal.

The people of this province will then, and not till then, have a right to say that they are heartily interested in mining enterprises.

CAMP'S MAIN FEATURES.

Phenomenally Rich Veins—Wild Cats—Prospects Excellent.

By H. E. T. Haultain, Mining Engineer.

The amount of work that has been done and the amount of good ore that has been exposed in the Cobalt district during the past year or so is truly astonishing. There are many in the camp who have of late been sawing wood and saying nothing. It is hard to realize that within a night's ride in a Pullman from Toronto there is a mining camp that produced last year six million dollars worth of silver, and that so far this year is doing still better. It is less than four years since the first shipment was made to a smelter from this district, and in this short period the camp came into existence, suffered an hysterical boom and its consequent relapse, killed off several hundred wild-cats, fought through a strike engineered by the Western Federation, and has now settled down to steady business-like mining. All in the short space of four years; a remarkable record.

The main features of the camp as they appear to me are:

1. There are a few phenomenally rich mines in the small area of twelve square miles surrounding Cobalt lake.

2. There has been a truly wonderful litter of wild-cats, most of which fortunately are dead.

Development Work Ahead of Production.

3. Several of the mines have development work far ahead of production, and have paid dividends out of this development work.

4. There is much sound mining development going on throughout the district.

5. Good commercial values in silver are being developed in all three geological formations, but little has been found in the Keewatin except in the neighborhood of the Diabase.

6. Last season showed up excellent high grade ore in commercial quantities, both to the north of Cobalt up the Montreal River, and to the south in Lorrain, as well as in the neighborhood of the Lady Evelyn Lake, and the prospects for further discoveries this summer are good.

7. The wonderful richness of some of the veins has a tendency to upset the balance of ideas in both managers and prospectors, and there is a tendency to overlook low grade but commercially profitable ore bodies. The child fed on candy despises bread and butter.

8. There is a remarkably healthy tone in the mines. The managers work well together, with very little friction or jealousy; they freely interchange ideas and information which is a matter of very great importance in a new camp. They are on excellent terms with their men despite a strike and a card system. Officially and nominally a strike exists, but it is like the war between the United States and the Seminole Indians. There is no fighting and nobody knows anything about it.

More than Five Hundred Companies.

Take it all round the conditions in the mines are excellent, and the prospects for the new areas are excellent. There is no desire for a stock boom, it could only injure the camp and, while it might help to attract some money to the new outlying districts, it would breed a new litter of wild-cats which would result in very much more harm than good. It must be remembered that the six millions of silver produced last year came from less than thirty mines. More than five hundred companies have been formed to mine in that north country. A few of them are based on legitimate prospects and will probably succeed, but by far the greater number had no promise whatever in their mineral claims and were swindles of the plainest sort, promoted not for the purpose of developing the country but to sell stock to the public. And it is always the unexplainable thing that our business men, men of reputation and worth, men of the soundest judgment in their own affairs will not only buy stock in these wild-cats but will lend their name as presidents and directors.

There are magnificent opportunities for conservative business men to invest in legitimate mining enterprises and to speculate in legitimate ventures in the undeveloped prospects. This is the praiseworthy gambling of pioneer enterprise and developes the country. Speculation in the much-advertized wild-cat stocks is playing with loaded dice. This new country to the north is good; to use an effective slang phrase, it has delivered the goods and continues to do so. Outside of Nevada there is not a camp in the United States or Canada where the ratio of profits to working costs is so great as in Cobalt. This is not due to the economy of methods, because the camp has hardly yet settled down to a serious consideration of costs, but is due to the richness of the deposits.

Money Out of Public Instead of Ground.

What strikes me as a miner more than anything else is the luck of the camp. In the good areas development work and exploration work seldom meet with disappointment, and the good areas are extending. Many parts of B. C. were notoriously unlucky, pay chutes pinched out and did not come in again, values disappeared in depth. But in Cobalt pay chutes follow pay chutes, and many of the shipping properties are continually finding new veins.

If the business men of Ontario will avoid the promotions that look to making money out of the public instead of out of the ground they could not have a better mining field for their money.

ORDERS OF THE RAILWAY COMMISSIONERS OF CANADA.

Copies of these orders may be secured from the Canadian Engineer for a small fee.

4687—May 7—Authorizing the People's Telephone Company, Limited, to make telephonic connection with the ticket office and freight office of the C.P.R., Sherbrooke, P.Q.

4688—May 7—Ordering the People's Telephone Company to substitute copper wires for the existing iron wires where they cross the right-of-way of the C.P.R. on College Street, Lennoxville, P.Q.

4689—May 6—Granting leave to the Toronto and Niagara Power Company to erect its wires for the transmission of electrical power across the track of the G.T.R, on the Welland Division, near Allanburgh, Ont.

4690—May 5—Authorizing the G.T.R. to reconstruct and strengthen the subway where the tracks of the C.P.R. cross the G.T.R. main line east of the G.T.R. station, Brockville, Ont.

4691—April 30—Granting leave to the North American Telegraph Company to erect its telegraph and telephone wires across the track of Bay of Quinte Railway, west of Marlbank, Ont.

4692—May 5—Dismissing application of Edward Scott Brennan, of Hamilton, County of Wentworth, Ont., for a writ of sequestration to sequester the goods, chattels, and personal estate and the rents, issues, and profits of the real estate of the Grand Trunk Railway of Canada.

4693—May 5—Ordering the Vancouver, Victoria and Eastern Railway to pay costs incurred by the municipality of Delta in connection with application for leave to carry its railway along the river road on the south banks of the Fraser River, in the municipality of Delta, Province of British Columbia.

4694—May 5—Dismissing application of the G.T.R. for an Order to vary or amend paragraph 5 of the Order of the Board, dated April 5th, 1904, re wages of watchman at crossings with N., St. C. and T. Railway at Merritton, Ont.

4695—May 7—Authorizing the C.P.R. to reconstruct bridge No. 86.4 over Maple Creek, Sask., on its Medicine Hat section.

4696—May 4—Authorizing the Bell Telephone Co. to erect, place and maintain its aerial wires across the tracks of the C.P.R. at public crossing 400 yards south of Linwood Station, Ont.

4697—May 4—Authorizing the Bell Telephone Co. to erect, place and maintain its aerial wires across the tracks of the C.P.R. at public crossing 1½ miles north-west of Guelph Station, Ont.

4698—May 7—Authorizing the C.P.R. to construct, maintain and operate a branch line to and into the premises of Messrs. Oliver & Webster, situate on Lots 4 and 5, Township 7, Owen Sound, Ont.

4699—May 7—Authorizing the C.P.R. to operate its trains over the crossing with the C.N.R to Bird's Hill gravel pit.

4700—May 6—Approving location of the Esquimault and Nanaimo Railway Co. from mile 87.5 to mile 89, in the Province of British Columbia.

4701—May 6—Approving revised location of the G.T.P. Railway Co., mileage 103.00 to 119.58 (Section 16), and mileage 0.0 to 10.238, west of fifth meridian.

4702—May 6—Approving location of the C.P.R. from Wellington to Alberni, from mile 97.9 to mile 135.34, through the Districts of Nanoose, Cameron, and Alberni, Vancouver Island, Province of British Columbia.

4703—May 6—Authorizing the Niagara, St. Catharines and Toronto Railway Co. to open for the carriage of traffic that portion of its line of railway from Fonthill to the Welland River, near the town of Welland, County of Welland, Province of Ontario, a distance of five miles.

4704—May 6—Approving deviation in the location of the C.P.R. Co.'s line of railway at the crossing of the St. John River, between the Parish of Woodstock and Parish of Northampton, County of Carleton, Province of New Brunswick.

4705—May 6—Granting leave to the London Township Telephone Co. to erect, place and maintain its wires over the tracks of the London, Huron and Bruce branch of the G.T.R., one and one-half miles south of Denfield Station, Ont.

4706—May 6—Authorizing the C.P.R. to construct a branch line to and into the premises of the Hastings Shingle Manufacturing Co., Limited, New Westminster, District British Columbia.

4707—May 6—Authorizing the Canadian Northern Quebec Railway to construct a pile trestle over the St. Charles River, Parish of St Sauveur, P.Q.

4708—Authorizing the C.P.R. Co. to construct a bridge over the highway, near Highlands, on the Lachine Canal, south bank, Province of Quebec.

4709—May 7—Authorizing the C.P.R. to reconstruct its bridge, No. 118.0, over McKay Creek, on its Medicine Hat Section, Alta.

4710—May 13—Granting leave to the Saraguay Electric Light and Power Co. to erect, place and maintain transmission wires across the track of the G.T.R. at Cote St. Paul Road, Turcot Village, P.Q.

4711—May 13—Directing the C.P.R. to remove barbed wire or any other obstruction placed across or in the vicinity of the crossing over its Atlantic and North-Western Division connecting Crescent Avenue and Fenwick Avenue, in town of Montreal West, P.Q.

4712—April 30—Application of the M.C.R.R. for authority to amend plan filed in connection with branch line or siding to and into the premises of the Essex Canning and Preserving Co., Limited, Essex, Ont.

4713—May 11—Authorizing the Yarmouth Rural Telephone Co. to erect, place and maintain its wires across the track of the G.T.R. between Lots 25 and 26, Concession 9, Township of Yarmouth, County of Elgin, Province of Ontario.

4714—May 11—Authorizing the Yarmouth Rural Telephone Co. to erect, place and maintain its wires across the track of the G.T.R. between Lots 20 and 21, Concession 9, Township of Yarmouth, Province of Ontario.

4715—May 6—Authorizing the C.P.R. to construct branch line to and into the premises of the Estevan Milling Co., Estevan, Sask.

4716—May 11—Authorizing the C.P.R. to construct its railway across Sixth Street and Ninth and Tenth Avenues, Estevan, Sask.

4717—May 11—Authorizing the Yarmouth Rural Telephone Co. to erect, place and maintain its wires across the track of the M.C.R.R. between Lots 20 and 21, Concession 9, Township of Yarmouth, Ont.

4718—April 30—Approving character of work proposed to be constructed by the Municipal Council of Township of Harwich upon, along, across and under the lands of the Pere Marquette Railway Co. in connection with the "McGregor Drain."

4719—May 11—Authorizing the Central Ontario Railway to construct its railway across the highway at Station 984.73, Township of McClure, Ont.

4720—May 13—Authorizing the Central Ontario Railway to construct its railway across the highway at Station 1049.60, Township of McClure, Ont.

4721—May 13—Authorizing the Central Ontario Railway to construct its railway across the highway at Station 1110.43, Township of McClure, Ont.

4722—May 13—Authorizing the Central Ontario Railway to construct its railway across the highway at Station 1154, Township of McClure, Ont.

4723—May 13—Authorizing the Central Ontario Railway to divert the highway in several places in the Ninth and Tenth Concessions of Township of McClure, Ont.

4724—May 13—Granting leave to the corporation of the city of Ottawa, Ont., to lay brick sewer under the track of the G.T.R. where the same crosses Richmond Road, Ottawa.

LEGAL NOTES.

[**This department will appear in the third issue of every month. Should there be any particular case you wish reported we would be pleased to give it special attention, providing it is a case that will be of special interest to engineers or contractors.—Ed.**]

DAMAGE TO SHADE TREES.

Sir,—A property owner has a row of shade trees on the front of his lot. An electric railway secures a charter and the privilege of running their car line on the highway. Their pole line and wires are fifteen feet from the front of the said lot, and the limbs of the trees extend over the road to within eight feet of the railway company's wires. The company undertakes to trim these overhanging limbs back to the lot line. Have they a legal right to do this, which is damaging private property?

Yours, Councillor.

OVERHANGING BRANCHES—RIGHT TO REMOVE.

If trees overhang the public highway they are a nuisance, and may be removed by the public, but not by any private person who happens to object. This case is to be distinguished from that in which branches overhang a neighbor's land, in which case there is one person and only one aggrieved, and he may lop off such overhanging branches, for they constitute an interference with his personal rights—a trespass to his lands. But in case of the highway there is no one person especially aggrieved, but all to some extent, no trespass to the lands of any particular individual, consequently it is not every person who can remove the obstruction, but only such as are inconvenienced thereby. All persons have a right to the use of the public highway for legitimate purposes, and to every part thereof. Now, when a charter was granted to the Electric Railway it was granted for the purpose of running cars; and they, of course, must have all powers incidental to, or necessary for, the running of cars, for without such the charter would be meaningless. No action will lie for doing that which the Legislature has authorized if it be done without negligence, and even though it occasion damage. There may in such a case be some question of damage, just as a statutory right to expropriate lands does not entitle the taker to acquire such lands without compensating the owner, but the fact of legislative power having been given to the Company shields the Company from any charge of wrong-doing.

But in carrying out the work the Company must have due regard for the rights of others; in other words, they must exercise a reasonable degree of prudence, considering all circumstances, and if they fail to do so, and to the extent to which they fail, they will be liable. They are authorized to carry on a work, but are not authorized to interfere with the rights or property of others, and consequently they must conduct their work so as to interfere with others to the least possible extent. They will be liable for all avoidable damages they occasion.

Now, coming to the case in hand, it is difficult to give an opinion without knowing all circumstances in that particular locality, but it is also difficult to see the necessity of cutting branches back to the distance of fifteen feet. Indeed, it seems that eight feet clear space should be sufficient, and in that case the Company will be liable for going beyond necessary bounds. The burden will be upon the Company to show that the trees were interfering with the working of their plant, or that their charter authorizes them to cut trees to that extent.

A learned text writer discusses the point as follows:—

Reasonable Prudence Required.

If an authorized railway comes near my house and disturbs me by the noise and vibration of the trains, it may be a hardship to me, but it is not a wrong, for the railway was authorized and made in order that trains might be run upon it, and without noise and vibration trains cannot be run at all. But if the Company makes a cutting, for example, so as to put my house in danger of falling, I shall have my action; for they need not bring down my house in order to run their trains or to make their cutting. They can provide support for the house or otherwise conduct their works more carefully. Pollock on Torts, 5 Ed., 124.

Hodgins vs. City of Toronto and Bell Telephone Co. 19 A. C., 537.—The plaintiff was the owner of lands in the city of Toronto fronting on Bloor Street, an original road allowance.

The defendants, without any notice or compensation to the plaintiff cut off branches overhanging the street from trees growing within the plaintiff's ground, alleging that the branches interfered with the use of the wires of the telephone system for police purposes, which the Company and city had agreed mutually to maintain.

Held, that as overhanging branches of the trees were not a nuisance, and in no way interfered with the highway, the defendants had no right to cut them, and must compensate the owner, Hodgins.

LIABILITY OF CONTRACTORS—EXTENDS TO ALL ACTS DONE IN THE COURSE OF THEIR EMPLOYMENT.

Malcolm vs. McNichol and the Standard Plumbing Company.—McNichol was the owner of a certain shop in Winnipeg which he let to the plaintiff, McNichol agreeing to heat said premises. Complaints were made as to the heating, and finally the landlord engaged the defendant Company to make alterations. Before the work was completed and during the absence of the tenant the plumber's men, who were at work in another part of the same building, with steam cut off for that purpose, were requested by the landlord's caretaker to turn the steam on again, and they did so. The steam passed through unfinished pipes, escaped from an open valve, and ruined the plaintiff's valuable stock of millinery.

The plaintiff then brought action against her landlord, McNichol, and also against the contracting plumbers. The Court of Appeal for Manitoba gave her judgment against the landlord, holding that the act of the caretaker in carelessly requesting the steam to be turned on without ascertaining that everything was in proper order above, was really the act of his master, the landlord; but refused her judgment against the plumbing contractors, who acted by request.

The Supreme Court of Canada upheld the judgment against the landlord, but gave her judgment against the contractors as well, holding that the plumbers' men were acting in the execution and discharge of their employment. Their acts were, therefore, for the benefit of the contracting firm, although done by request of the landlord, and the contracting firm is jointly liable. 39 S.C.R., 265.

PATENTS—FAILURE TO MANUFACTURE.

Hildreth vs. The McCormick Manufacturing Company.—The plaintiff applied for, and on February 17th, 1908, obtained letters patent for a candy-pulling machine, char-

acterized by certain new and useful improvements, and on May 15th, 1906, brought action to trial against the defendants for infringement of his patent. Upon trial it appeared that the plaintiff had not placed his invention for sale upon the market in the meantime, but had made some arrangements, such that any person desirous of using said machine could get one upon lease or hire. The defendant Company, therefore, contended that upon the true construction of the Canada Patent Act, Secs. 21 and 38, the plaintiff had forfeited his patent and all rights thereunder, and consequently they could not be liable for infringement.

The said Act provides: That the duration of a patent in Canada shall be for eighteen years, and shall give the patentee exclusive right and liberty of making, constructing, using and selling the said invention to others to be used; but such patent and all privileges thereby granted shall cease and determine, and the patent shall be null and void at the end of two years from date thereof unless the patentee does within that period commence and continuously carry on in Canada the manufacture of the invention in such manner that any person desiring to use it may obtain it at a reasonable price at some manufactory or establishment in Canada.

The defendant Company offered to buy machines of the kind in question, but were refused, and the most they could do was hire same. The plaintiffs made arrangements to manufacture such machines in Canada, but did not offer them for sale, but, on the contrary, refused to sell, although they knew certain persons were desirous of buying these articles After the expiration of two years the plaintiffs became aware that the defendant Company were manufacturing, and brought this action.

The Court held that, by manufacturing for lease only, the plaintiffs had not fulfilled the requirements of the Act, and that by their failure to do so had caused a forfeiture of their rights under the patent. The patent was, therefore, declared void, but inasmuch as it appeared the defendants had started to manufacture, even before the expiration of the two years, and while the plaintiffs' patent was still in force and valid, the plaintiffs are entitled to succeed to that extent, and recover damages for infringements committed prior to the expiration of two years. 39 S.C.R., 499.

BREACH OF CONTRACT—MEASURE OF DAMAGES.

Thompson et al. vs Corbin.—The defendant carried on lumbering operations in the Province of Nova Scotia, and agreed to purchase an engine and boiler for use in his mill. The plaintiff guaranteed the same efficient, but when delivered it proved insufficient, and some two months were lost while necessary alterations and adjustments were being made. In the meantime the plaintiffs gave the defendant to understand that the engine would be in shape almost any day, and consequently the defendant kept up his gang of men and neglected to hire another boiler for the interval. When the plaintiffs sued for the price of the boiler the defendant counter-claimed for damages, and upon trial was awarded $427 for wages and expenses incurred in consequence of the failure of the boiler to come up to the guarantee, and $150 as damages for loss of the use of the mill.

The Supreme Court held that the item for wages and expenses incurred should be allowed, as such losses were direct and immediate results of the failure to fulfil the contract. They, however, rejected the item of $150 for loss of anticipated profits as being secondary and uncertain earnings, and not arising directly from the contract; such profits as these are expected, but uncertain benefits as a result of the contract, and cannot be recovered. In this case they do not arise directly out of any fulfilment of the contract, and were not in contemplation of the parties when they made the bargain about the engine. 39 S.C.R., 575.

BOUNDARIES—EXISTENCE OF POSTS AND BLAZINGS.

Laurentides Mica Company vs. Fortin, et al.—The plaintiffs and defendants were owners of contiguous lands in the township of Hall, Quebec, and had been thus related for a number of years, the plaintiffs owning the mines and mineral rights in the south halves of certain lots, and the defendants owning similar rights in the northern half. Following repeated requests for a fresh survey, to which the defendants would not consent, the plaintiffs brought action for a new survey and marking out of the dividing line.

On trial the defendants showed that there was a line in existence; that eighteen years prior to this action the lots were marked off by the then owners, as still appears by boundary marks and blazes, as well as by posts planted at the northern and southern extremities of the lots; that throughout the whole course between these posts trees had been blazed to show the division line; that this operation was but the retracing of an old line drawn in 1862 between the same lots, which has always been visible, and acknowledged by the successive owners of these lots as being a true division of their respective properties, and that for more than thirty years preceding the action the defendants, by themselves and their predecessors in title, had without interruption been in public and peaceful possession of such lands up to the said line of blazings.

Held, in view of the above evidence that the boundaries in question are already settled and cannot be disturbed after such lapse of time, the more so as the plaintiffs bought from a vendor, who indicated the line of blazings at that time, and, therefore, they cannot have been deceived. The plaintiffs must pay the costs of this action. 39 S.C.R., 680.

SOCIETY NOTES.

Toronto Branch of A. I. E. E.

The regular May meeting of the Institute was held at the St. Charles Cafe on the 15th inst., following a luncheon at which seventeen members of the Section were present. The total attendance was twenty, fifteen members and five visitors. This meeting was made the annual meeting of the Section. After the minutes of the previous meeting had been read and approved, the report of the secretary was adopted on motion of Messrs. Chase and Richards, which was as follows:—

"Report of Secretary, Toronto Section A.I.E.E.—Eight meetings, including this present one, have been held this season: an inaugural in October, one each in November, January, February, April and May, and two in March. Two meetings, the fourth and sixth, were addressed by visiting members of the Institute, Messrs. Moody and Rushmore, and the eighth is to be addressed by an engineer not yet associated with the Institute. Four meetings have been addressed by members of the Section. Only once were the New York papers made use of during the winter. The attendance has been approximately as follows:—

	Members.	Visitors.
October 11th	6	1
November 8th	8	17
January 17th	40	In all
February 20th	50	In all
March 13th	25	In all
March 30th	31	8
April 24th	24	11
May 15th	15	15

Luncheons were partaken of on six occasions by 122 in all. Six meetings were held at the Engineers' Club, one at the Engineering Building of the University, and one at the St. Charles Cafe. The Executive held ten sessions, with a gross attendance of 45. The expenditure has been as follows:—

Printing (old account)	$ 3 50
Printing (new account)	54 65
Hall rent (1906-7)	30 00
Postage	22 65
Lantern	12 00
Sundries	7 85
	$130 65

The Section has started a movement looking to a reclassification of the membership of the Institute, and replies have been received from fourteen Sections and Branches. There are twenty-one Sections and nineteen Branches in all. Those giving endorsation—Arkansas, Toledo, Michigan, St. Louis. Those apposed—None. Those considering — Montana, Worcester, Schenectady, Boston, Ithica, Pittsburg, Philadelphia. No reply—26. No action to be taken—Stanford, Missouri. All of which is respectfully submitted. W. G. Chase, Secretary."

It was moved by Mr. E Richards, seconded by Mr. J. J. O'Sullivan, "That this Section extend to the family of the late H. L. Price its sympathy with them in their bereavements. He was a graduate of McGill University, and has been employed in Mexico before taking up work in Canada. Mr. Price joined the American Institute of Electrical Engineers in January of this year, and has been a regular and interested attendant at our luncheons and meetings." Instructions were given that a copy of this resolution should be sent to the bereaved family. On motion of Messrs Ashworth and Young the Section carried a recommendation submitted by the Executive that the Executive Committee for the next season should consist of the following: Chairman, W. A Bucke; vice-chairman, H. W. Price; secretary, W. G. Chase. Executive Committee—S. Richards, W. H. Eisenbeis, and R. J Clark. The chairman made announcement of the convention of the Institute. The members of the Section then visited the Main and College Exchanges of the Bell Telephone Company, and were courteously received and accompanied by Messrs. Patterson and Moffatt, who exercised every care that the visitors should gather as thorough a grasp of the present state of the art and its development as the brief time would allow.

The Concrete Institute.

In order that the professional and industrial interests connected with concrete may have a centre for discussion, investigation, and research work, the Concrete Insititute has been formed in London, England, under the presidency of Lord Plymouth (late First Commissioner of Works). The objects of the institute are: (a) To advance the knowledge of concrete and reinforced concrete, and to direct attention to the uses to which these materials can be best applied; (b) to afford the means of communication between persons engaged in the design, supervision, and execution of works in which concrete and reinforced concrete are employed (excluding all questions connected with wages and trade regulation); (c) to arrange periodical meetings for the purpose of discussing practical and scientific subjects bearing upon the application of concrete and reinforced concrete, and to conduct such investigations and to issue such publications as may be deemed desirable. The temporary offices of the institute are at 1 Waterloo Place, S.W.

Canadian Electrical Association.

In Toronto on June 17th. 18th and 19th, the Canadian Electrical Association will hold their annual Convention. It is expected that the meetings will be held in the Engineering Buildings of Toronto University.

Among the papers to be read will be papers on "Loss and Unaccounted-for Current," "Various Electrical Power Plants by European Designers" (illustrated), "Modern Arc Lighting," "Grounding of Transformer Secondaries," "Long Distance Transmission by Means of Direct Current," "Electrical Plant Earnings per Capita," "Large Power Plants of America" (illustrated).

Further information may be secured from the secretary, T. S. Young, Confederation Life Building, Toronto, Ont.

The American Society of Mechanical Engineers.

The semi-annual meeting of the American Society of Mechanical Engineers will be held in Detroit, Mich., June 23rd to 26th. An entire session will be devoted to papers on the conveying of materials, when hoisting and conveying machinery, including belt conveyors, the use of conveying machinery in cement plants, etc., will discussed.

Among other subjects which will be taken up by professional papers are: "Clutches," with special reference to automobile clutches, by Henry Souther; "Some Pitot Tube Studies," by Prof. W. B. Gregory, of Tulane University, New Orleans, La., and Prof. E. W. Schroder, of Cornell University; "Thermal Proportions of Superheated Steam," by Prof. R. C. H. Hock, of Lehigh University; "Horse Power, Friction Losses, and Efficiencies of Gas and Oil Engines," by Prof. Lionel S. Marks, of Harvard University; "A Journal Friction Measuring Machine," by Henry Hess, of Philadelphia; "A Simple Method of Cleaning Gas Conduits," by W. D. Mount; "A Rational Method of Checking Conical Pistons for Stress," by Prof. G. H. Shepard, of Syracuse University, and "The By-product Coke Oven," by W. H. Blauvelt.

A lecture on "Contributions of Photography to Our Knowledge of Stellar Evolutions" will be delivered by Prof. John A. Brashear, of Alleghany, Pa. The usual receptions will be held and excursions will be made to manufacturing plants, the shipbuilding yards and various points of interest in and around Detroit. Among the excursions planned is one to the University of Michigan at Ann Arbor. The Gas Power Section of the Society will hold a session, and the Society for the Promotion of Engineering Education and the Society of Automobile Engineers will hold a meeting in Detroit at the same time. As far as possible, sessions will be arranged so that members interested in subjects treated by the other societies may attend their sessions without missing papers on related subjects read before their own Society.

NEW BRUNSWICK LUMBER CUT.

The total receipts from stumpage on Crown Lands in the Province of New Brunswick last year were $180.135.44. The following quantities and kinds of lumber cut from Crown Lands, for which stumpage bills were rendered during the year ended 31st October, 1907:—

Spruce and pine (sup. ft,)	113.443,500
Hemlock logs (sup. ft.)	3,192,110
Cedar logs (sup. ft.)	10.296,040
Hardwood timber (tons)	55
Wood—fire and pulp (cords)	5,542
Hemlock	865½
Shingles	5,000
Railway ties	141,155
Cedar posts	100
Piling (pieces)	375
Telegraph poles	900
Boom poles	4,793
Brackets	3,750
Laths (M.)	1,600

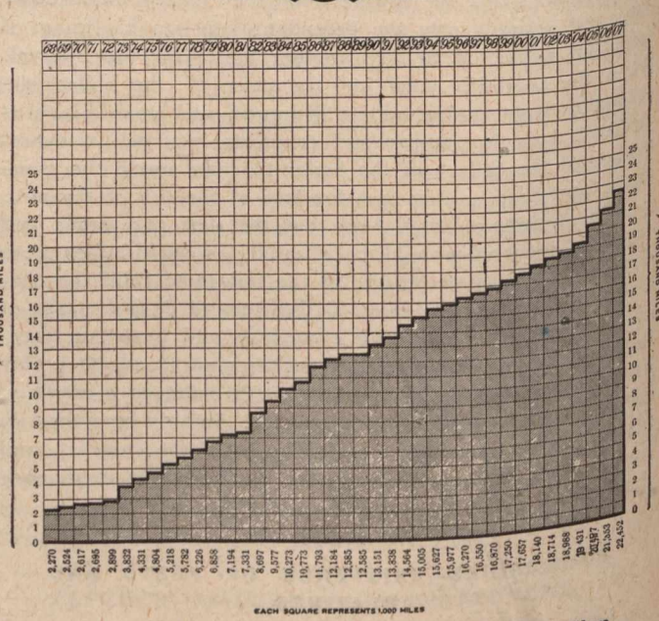

Diagram Showing the Increase in Miles of Canadian Railways Since 1868.

CONSTRUCTION NEWS SECTION

Readers will confer a great favor by sending in news items from time to time. We are particularly eager to get notes regarding engineering work in hand and projected, contracts awarded, changes in staffs, etc. Printed forms for the purpose will be furnished upon application.

RAILWAYS—STEAM AND ELECTRIC.

Nova Scotia.

SYDNEY.—The City Council propose extending the present tramway of this city.

New Brunswick.

FREDERICTON.—T. R. Hinds, of Toronto, A. E. Rigby, of Montreal, G. F. Johnston, of Toronto, and J. F. Hyland, of Montreal, arrived here, and left for Stanley to look over some of the territory through which the Grand Trunk Pacific Railway passes north of the crossing of the Canada Eastern branch of the I.C.R. The gentlemen represent the Toronto Construction Company, and are in other construction companies, and may take over the contract for building the G.T.P. from the crossing of the Canada Eastern to Tobique, where the Willard Kitchen Company contract starts. This distance is 64 miles and the contract will be worth several million dollars.

ST. JOHN.—It is probable the I.C.R. authorities will bore an artesian well near the elevator. An official from the head offices at Moncton was in the city and obtained samples of water from several concerns, which are now supplied by artesian wells, and the matter is now being considered by the authorities. It is proposed to supply the elevator, the freight sheds, and possibly the locomotives from this source.

Ontario.

BROCKVILLE.—Relaying the G.T.R. main lines with 100-pound rails between here and Montreal is again in progress. Last year the section between here and Cardinal and from Montreal to Mill Roches were relaid and now a gang of fifty men are working westward from Mille Roches.

LONDON.—The city will receive $16,627 from the Pere Marquette Company for the use of the London & Port Stanley Railway last year, $10,000 fixed rental and $6,627 per centage of earnings.

Manitoba.

NEEPAWA.—The first evidence has been given of the intention of the Canadian Northern Railway to make Neepawa a divisional point on that system. Ed. Cheetems has been appointed divisional roadmaster with one clerk. Both will make their residence and headquarters here.

WINNIPEG.—A new company which has started operations in Winnipeg is that of the Brydges Engineering and Supply Company, Limited, who are going into railway and contractors' supply business on an extensive scale. Mr. F. H. Brydges is the president of the company, J. C. Waugh, vice-president, and C. Brydges, secretary and manager. Their offices will be located at 249 Notre Dame Avenue.

British Columbia.

PRINCE RUPERT.—The steamer "Henriette" arrived here with a large general cargo, and thirty-three tons of dynamite for Foley, Welch & Stewart.

LIGHT, HEAT, AND POWER.

Quebec.

MONTREAL.—At a meeting of City Council recently it was decided to accept offer of Robert Company for the supply of electric light and power. This company is composed of several financial men such as E. B. Greenshields, E. A. Robert, H. J. Fuller, G. G. Foster and W. S. Leslie. They offer to supply light cheaper than present figures of Montreal Light, Heat and Power Company, and their advent into the city's business will mean serious inroads into the monopoly so long held by the power company. The new company will secure their power from Beauharnois Canal.

Ontario.

BRANTFORD.—The Toronto and Niagara Power Company, which has its right of way completed from Hamilton to Cainsville, announces that it will not enter Brantford at present, pending the outcome of the Hydro-Electric scheme. Brantford had counted on this company as a valuable competitor, which would bring cheap rates.

HUNTSVILLE.—C. H. Mitchell, C.E., hydro-electric engineer, Toronto, has been called in by this town to make an investigation into power possibilities for municipal purposes. If a suitable site can be developed at reasonable cost it is likely installation will proceed the present year.

LONDON.—The city's special Power Committee, who have been studying the Niagara contract, find that under its provision London would be liable for the sum of $702,658 for thirty years. The city's proportion of line loss, cost to operate, etc., would be $31,578, and a distributing plant would cost $300,000—making the total liability of the city over $1,000,000.

MERRITTON.—Merritton village has decided to construct an electric light plant at a cost of $5,500, to be controlled by the municipality. Streets will be lighted and electricity supplied to citizens at cost price. Three commissioners will be elected to handle the plant, the offices to be honorary.

PRESTON.—This town has signed the Hydro-electric Power Commission contract for the supply of electric power from Niagara Falls. The town is to get 600 horse-power at $23 per horse-power. Of this quantity the electric light plant will take over 200 horse-power. The power is to be here on December 19th, 1909.

Saskatchewan.

PRINCE ALBERT.—This city will be lighted in future by arc lights. The city owns its own lighting plant and will replace the present electric lights on the streets with arc lights. It is proposed to turn the old electric light plant into a power house for a municipally-owned electric street railway. The plant is worth $6,000, but the best offer the city has received is $2,000. The Council thinks more advantages can be secured from keeping the plant and operating a railway with it.

TENDERS.

New Brunswick.

Tender for sewers will be received until Tuesday, May 26th, 1908, for the construction of brick and pipe sewers. J. Edington, City Engineer.

Ontario.

FINCH.—Tenders will be received by the undersigned up till Wednesday, May 27th, 1908, for the construction of about 25,000 square feet of granolithic sidewalk in the village of Finch. Specifications, plans and profiles may be seen at the office of Geo. L. Brown, C.E., Morrisburg, or at the office of James R. Simpson, Esq., village clerk, Finch. James R. Simpson, clerk village of Finch.

PORT ARTHUR.—Tenders will be received up to Monday, May 25th, 1908, for the construction of a reinforced concrete bridge across McVicar's Creek on Algoma Street. Corporation Offices, Port Arthur, May 12th, 1908. J. McTeigue, city clerk.

OTTAWA.—Tenders for steel bridges will be received at the office of the Commissioners of the Transcontinental Railway until 12 o'clock, noon, of the ninth day of June, 1908, for the construction and erection of the steel superstructures and

floor system required for bridges at the points named below in District "A":

Mile.	Bridge.	Date of Completion.
21.7	Canaan River	1st March, 1909.
57	Salmon River	1st March, 1909.
184.0	Little Salmon R. Via'ct.	1st May, 1909.
197	Four Mile Brook	1st May, 1909.
207.8	Grand River	1st May, 1909.
209.8	Sigas River	1st May, 1909.
213.8	Quisbia River	1st October, 1908.
220.9	Green River	1st October, 1908.
227.8	Iroquois River	1st October, 1908.
230.2	Madawaska River	1st October, 1908.
243.8	Baker Brook	1st May, 1909.

P. E. Ryan, Secretary the Commissioners of the Transcontinental Railway.

TORONTO.—Tenders for coal will be received up to noon on Saturday, May 30th, for the delivery of coal in the sheds of the following provincial institutions, on or before the 30th day of July next, viz.: Toronto, London, Kingston, Hamilton, Mimico, Brockville, Cobourg, Orillia, Penetang, Woodstock Hospitals for Insane; also the Central Prison and Mercer Reformatory. W. J. Hanna, Provincial Secretary.

Manitoba.

WINNIPEG.—Tender for St. Andrew's Rapids Works will be received until Wednesday, July 8, 1908, for the construction of movable dam, steel service and highway bridge, repair shop, etc., at St. Andrew's Rapids, Red River, Province of Manitoba. Fred. Gelinas, Secretary Department of Public Works, Ottawa.

WINNIPEG.—Tenders for telephone lines will be received May 25th, 1908, for the building of about 320 miles of long distance telephone lines, in the Province of Manitoba. J. H. Howden, Minister of Telephones and Telegraphs.

Saskatchewan.

REGINA.—Tenders will be received up to the 26th May, 1908, for the erection of a brick veneer school for Wellington School District. John Martin, secretary, Glen Valley P.O., Sask.

Alberta.

CALGARY.—Tenders for General Hospital, Calgary, will be received up to the 8th day of June, 1908, for all trades in connection with the erection and completion of a New General Hospital Building for the Calgary Hospital Board, Calgary, Alberta. F. J. Lawson, architect, Calgary, Alberta.

EDMONTON.—Tenders for Court House, Edmonton, will be received up to June 13th, 1908, for the supplying of all plant, material, labor and performing all necessary work in the erection of a Court House in the city of Edmonton, Alta., and complete the following: 1st, all necessary excavation; 2nd, all concrete work for basement; 3rd, all stone and brick masonry, concrete floors and roofing, together with certain woodwork; 4th, the supplying of all structural steel. John Stocks, Deputy Minister of Public Works.

EDMONTON.—Tender for iron posts will be received at the Department of the Interior up to the eighth day of June, 1908, for the furnishing of forty-five thousand iron posts, small size, and thirteen hundred iron posts, large size, for use on the survey of Dominion Lands, to be delivered in specified lots at Winnipeg, Man., Saskatoon, Sask., and Edmonton, Alta. P. G. Keyes, Secretary Department of the Interior.

British Columbia.

NELSON.—Tenders are asked for the following work in connection with the erection of a school building for the school board of the city of Nelson. Alex. Carrie, architect, Nelson, B.C.

VANCOUVER.—Tenders will be received up to May 26th, 1908, for the construction of wood block pavements for several sections of streets. Wm. McQueen, city clerk.

CONTRACTS AWARDED.

Ontario.

NORTH BAY.—The following contracts have been awarded by the T. & N. O. Railway to Fraser and Clemens, New Hamburg: Two 10-foot concrete culverts at mileages 210 and 212, one 10-foot culvert at mileage 118, one 40-foot concrete arch at mileage 184, one 5-foot culvert at mileage 64, three concrete abutments at Englehart.

NORTH BAY.—A number of tenders have been accepted for work on T. & N. O. Railway. The work of painting the stations has been given to the O'Boyle Construction Company, Limited. J. K. McConnell, of Sturgeon Falls, will build the five section-houses and the stations at Moose Lake and Dane. L. C. Wideman, of Guelph and Englehart, will build the waiting-room at Thorneau. The O'Boyle Construction Company was also awarded the contract for the office and store buildings at Englehart, as well as for the water tanks.

St. THOMAS.—No. 2 committee of the City Council and the Public Improvement Committee of the County Council meet as we go to press to open tenders for the Ashery and Brewery bridges. Mr. Bell has the plans for both structures prepared so there will be no delay caused from that source.

WILLOWDALE.—Clarke & Monds, of Toronto, have been awarded the contract for a 60-foot reinforced concrete arch over the Don River east of Landsing.

Manitoba.

VERMILION.—Mr. S. Brown has been awarded the contract for building a new school here at a cost of $28,000.

Saskatchewan.

PRINCE ALBERT.—The City Council has let the contract for the excavation for the waterworks extensions to McVean and Craig. The contract price is $31,761.

British Columbia.

VANCOUVER.—The contract has been let and the permit taken out for the Winch building, the contractors, it is understood, being the National Construction Company. This structure will be one of the finest in the city, and will be erected at a cost of $380,000.

United States.

BOSTON.—George A. Kinhall, chief engineer of elevated and subway construction for the Boston Elevated Railway, has awarded the Raymond Concrete Pile Company, of New York and Chicago, the contract for placing concrete piles for the foundations of the incline walls, at the north approach to the East Cambridge extension of that road.

MISCELLANEOUS.

Ontario.

MORRISBURG.—The mills of the Canada Tin Plate and Sheet Steel Company, after being closed since 27th January last, because of the serious fire which occurred on that date, have resumed manufacturing operations.

LAKEFIELD.—The big lift lock at Peterborough is now ready for the season's operations. The lock has undergone many improvements this spring, including the painting of the interior of the big pontoons.

Manitoba.

GLADSTONE.—The Algoma Bridge Company, who have offices in Winnipeg, have just started a 100-foot span steel bridge at Gladstone, Manitoba, and have just completed a 250-foot span over the Bow River at Calgary, which will be opened on the 25th of May. They have also just completed a 150-foot span bridge at Wawanesa, and a 75-foot span at Roblin, Man.

MOOSOMIN.—Carter Halls Aldinger Company, of Winnipeg, have a contract for building a jail here. This will be a fire proof building. Work is being commenced on it at once. This company are also building two subways for the C.P.R. at Calgary. Both subways will be built of solid concrete, using steel trusses for the span. Work has been commenced on the 1st Street subway and will be completed by June 1st. The 2nd Street subway will be finished by August 1st.

WINNIPEG.—The measures voted on by the ratepayers of Winnipeg are as follows: To authorize an expenditure of $600,000 for school purposes; to authorize an expenditure of $90,000 for a new superstructure for Louise Bridge; to authorize an expenditure of $25,000 for stocking the Carnegie Library with standard works.

WINNIPEG.—The Dominion Bridge Company have secured the contract for the structural steel work of the Bank of Nova Scotia building in Winnipeg, the amount of the contract being $30,000. All the steel is being shopped in the Winnipeg branch of this company. They have commenced work on the Redwood Avenue bridge, Winnipeg. The approximate cost will be $100,000, and have started operations on the Rachel St. Subway, Winnipeg, for the C.P.R. The five girders used in this subway weigh 18,000 pounds each.

Alberta.

EDMONTON.—The plans are under preparation in the Department of Public Works for an asylum to be erected at Ponoka at a cost of $200,000. Excavations will commence this year.

British Columbia.

VANCOUVER.—Two large sawmills are to be built at a cost of three quarters of a million, one at Harrison Lake and the other at Vancouver or New Westminster, according to M. J. Scanlon, of Minneapolis, principal shareholder of the Scanlon-Brooks Lumber Company.

PERSONAL.

ARMSTRONG & ROBINSON, iron and steel contractors, Orangeville, Ont., report being busy even during this quiet season.

MR. STOKES, of Harpell-Stokes, Limited, Winnipeg, has arrived in Toronto and will take charge of the Toronto office at 155 King Street West.

BAULNE, BERTRAND & GAGNON, structural engineers, Montreal, are designing several highway bridges for different municipalities in the Province of Quebec, and tenders will be invited during the summer.

MR. WALTER B. SNOW, publicity engineer, has recently increased his facilities by removal to larger quarters at 170 Summer Street, Boston, Mass., and the establishment of an addressing and mailing department in connection with which select mailing lists will be maintained for the special use of his clients.

MR. JOHN LEITCH, C.E., son of James Leitch, K.C., chairman of the Ontario Railway and Muncipal Board, formerly of Cornwall, has left for Prince Rupert, where he will fill the position of assistant divisional engineer on construction of the Rocky Mountain section of the Grand Trunk Pacific Railway. The work is said to be very heavy and difficult. For the last two years Mr. Leitch has been resident engineer on construction on the Fort William branch of the G.T.P. Railway.

MARKET CONDITIONS.

Toronto, May 21st, 1908.

A steady, but not rapid, improvement is reported by merchants in metals and hardware and other building material. A feature of the week in heavy goods is the breaking of the Middlesboro' corner in pig iron. This has not, however, much affected business here. Things are described in Toronto as getting a lot better these few past weeks, in bars, sheets, and other heavy goods, perhaps because dealers had not stocked up last year, and are, therefore, to-day buying more from jobbers than from mills or wholesale dealers.

C. S. French and Company's New York circular of last Saturday notes a decided improvement in the tone of metal business, indicated by the watchful, but more hopeful attitude of dealers. Consumption, however, does not seem to increase; purchases are by no means freely made. There is a meeting of American steel-making companies this week, which may have some effect on prices.

"Two features which hinder recovery in business," says French's circular, "are the artificial efforts made to hold the price of finished steel and wages at the high prosperity level of 1906 and 1907, and the tariff question, which is certain to come up after the next Presidential election."

The following are wholesale prices for Toronto, where not otherwise explained, although for broken quantities higher prices are quoted:

American Bessemer Sheet Steel.—Fourteen-gauge, $2.45; 17, 18, and 20-gauge, $2.60; 22 and 24-gauge, $2.65; 26-gauge, $2.80; 28-gauge, $3.

Antimony.—Not a great deal doing, 9½ to 10c. is present price.

Bar Iron.—$2 base, from stock to the wholesale dealer.

Beams and Channels.—Active demand from Toronto builders; prices continue to be $2.50 to $2.75, according to size and quantity; angles, 1¼ by 3-16 and larger, $2.55; tees, $2.80 to $3 per 100 pounds. Extra for smaller sizes.

Boiler Plates.—¼-inch and heavier, $2.50. Fair supply, prices steady. Boiler heads 25c. per 100 pounds advance on plate.

Boiler Tubes.—Prices are lowered by the manufacturers; no overstock here in wholesale hands. Lap-welded, steel, 1¼-in., 10c.; 1½-in., 9c. per foot; 2-in., $8.50; 2¼-in., $10; 2½-in., $10.60; 3-in., $12.10; 3½-in., $15.30; 4-in., $19.45 per 100 ft.

Building Paper.—Plain, 32c. per roll; tarred, 40c. per roll. Much has gone out on May 1st, which went out last year at April 1st. Orders are all small.

Bricks.—Common structural, $9 to $10 per thousand, wholesale; small lots, $12; there is a good demand. Red and buff pressed are worth $18 at works.

Cement.—Price of Canadian makes to the dealer in 1,000 barrel lots and up is $1.75, in cotton bags, on car, Toronto. The dealers' price to the contractor up to car-load lots without package price, are general at $1.80 per barrel in cotton bags and $2 in wood, weight in each case 350 pounds. April demand was good; prospect for May is fair; prices are unchanged.

Copper, Ingot.—Believing that consumption must increase, holders show much firmness. Consumption has greatly increased in Europe. Business here quiet; price, 13¾c. for large purchases and 14¼c. for small.

Detonator Caps, 75c. to $1 per 100; case lots, 75c. per 100; broken quantities, $1.

Dynamite, per pound, 21 to 25c., as to quantity.

Felt Paper—Roofing Tarred.—Market steady at $2 per 100 pounds. A good many small orders.

Fire Bricks.—English and Scotch, $32.50 to $35; American, $25 to $35 per 1,000. Demand, moderate.

Fuses—Electric Blasting.—Double strength, per 100, 4 feet, $4.50; 6 feet, $5; 8 feet, $5.50; 10 feet, $6. Single strength, 4 feet, $3.50; 6 feet, $4; 8 feet, $4.50; 10 feet, $5. Bennett's double tape fuse, $6 per 1,000 feet.

Galvanized Sheets—Apollo Gauge.—Sheets 6 or 8 feet long, 30 or 36 inches wide; 10-gauge, $3.25; 12-14-gauge, $3.35; 16, 18, 20, $3.50; 22-24, $3.70; 26, $3.95; 28, $4.40; 29 or 10¾, $4.70 per 100 pounds. Stocks very low.

Iron Pipe.—Black, ¼-inch, $2; ⅜-inch, $2.25; ½-inch, $2.72; ¾-inch, $3.68; 1-inch, $5.28; 1¼-inch, $7.20; 1½-inch, $8.64; 2-inch, $11.50; 2½-inch, $18.40; 3-inch, $24.15; 3½-inch, $30.40; 4-inch, $34.55; 4½-inch, $38; 5-inch, $43.50; 6-inch, $56. Galvanized, ¼-inch, $2.85; ⅜-inch, $3.05; ½-inch, $3.57; ¾-inch, $4.83; 1-inch, $6.93; 1¼-inch, $9.45; 1½-inch, $11.34; 2-inch, $15.12.

Lead.—The market may be described as firm, but quiet; quotation, $4.

Lime.—In plentiful supply and moderate movement. Price for large lots at kilns outside city 21c. per 100 lbs. f.o.b. cars; Toronto retail price 35c. per 100 lbs. f.o.b. car.

Lumber.—A moderate movement of pine is reported, and the supply is adequate. The price holds its own. Dressing, we quote, $32 to $35 per thousand for usual lengths (12, 14, and 16 ft.) and stock sizes of boards, and $38 to $40 for special lengths, common stock boards, as to grade, $24 to $28; culls, $22. Southern pine and Norway pine are somewhat easier. Hemlock moves more freely and quotes at $19 to $21.50, according to size. Much spruce comes from the East and is in better demand; the price asked for flooring is $27 wholesale and $30 retail. Shingles, B.C., in more active demand, retailing at $3.75 per thousand. Laths are quiet, No. 1 quote at $4.25 on track, No. 2 at $3.75.

Nails.—Wire, $2.55 base; cut, $2.70; spikes, $3.15.

Pitch.—Fair demand at 75c. per 100 lbs.

Pig Iron.—The Middlesboro' corner, which has lasted a number of weeks, is broken, and prices in England shrank for a time, but are becoming normal. Business here is quiet and of small volume. Summerlee quotes: No. 1, $25.50; No. 3, in car load lots, $22 to $23 here; Glengarnock, $25.50; Clarence, No. 3, $19.50 to $20; No. 1 Cleveland, $20 to $22.

Steel Rails.—80-lb., $35 to $38 per ton. The following are prices per gros ton; Montreal, 12-lb. $45, 16-lb. $44, 25 and 30-lb. $43.

Sheet Steel.—In moderate supply; 10-gauge, $2.65; 12-gauge, $2.70.

Tar.—There is some activity in a small way; $3.50 per barrel the ruling price.

Tank Plate.—3-16-in., $2.65.

Tin.—Steel remarkably firm, price here continues at 33 to 34c. The price in England has gone up £2.

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Montreal, May 21st, 1908.

The pig iron markets of the United States are at present in an even more unsatisfactory condition than usual. This is owing to the circumstance that many of the larger producers, who have heretofore been parties to the understanding for the maintenance of prices, are now quoting in competition with several concerns. The result is that prices on foundry iron are now down to a basis of $15 at the Valley, or equal to Bessemer at $16 at the Valley and $16.90 at Pittsburg. Even at these figures, Southern iron can be laid down at Atlantic coast points at figures which will take practically all orders, Southern being on a basis of about $11 per ton at Birmingham, Alta. Many producers claim that they are now down to cost and in view of the circumstance that the prices on ores have not been reduced, it would look as if the chances are favorable to the bottom being reached. The volume of business being done shows a slight increase, particularly for prompt deliveries. As a matter of fact, sellers will not contract far ahead at the present prices.

The English market is not so firm as it has been. This is owing to the shipbuilders strike, coupled with small inquiries from Germany, in which country stocks are increasing. The prospects for pig iron in the principal producing districts in England are not good at the present time, and it is claimed by many that prices have to be materially reduced to induce anything like heavy orders. Steel-making metal is weak in sympathy with other grades, and is now being offered freely at several shillings per ton lower than the prices ruling at the beginning of the year. Generally speaking, the tendency is downward, with a rather pessimistic feeling as to the future.

In the local market, demand is improving slightly. A greater tonnage is now entering into consumption and inquiries are principally for prompt delivery. Orders are being taken by Canadian furnaces. The furnaces are producing almost sufficient to cover requirements throughout the country, at the present time. Low prices have naturally to be offered in order to meet the United States and English competition. There is no great activity but the movement is a little freer and the feeling is more hopeful on the part of consumers, particularly in Western Ontario where pessimism has heretofore been very prevalent.

Antimony.—The market is firm and sales are being made at 9½ to 10c. per lb.

Bar Iron and Steel.—Bar iron, $1.90 per 100 pounds; best refined horseshoe, $2.15; forged iron, $2.05; mild steel, $1.95; sleigh shoe steel, $1.95 for 1 x ⅜-base; tire steel, $2 for 1 x ⅜-base; toe calk steel, $2.45; machine steel, iron finish, $2.05.

Boiler Tubes.—The market holds steady, demand being fair, prices are as follows:—2-inch tubes, 8 to 8¼c.; 2½-inch, 11c.; 3-inch, 12 to 12¼c.; 3½-inch, 15 to 15¼c.; 4-inch, 19¼ to 19½c.

Building Paper.—Tar paper, 7, 10, or 16 ounce, $2 per 100 pounds; felt paper, $2.75 per 100 pounds; tar sheathing, No. 1, 60c. per roll of 400 square feet No. 2, 40c.; dry sheathing, No. 1, 50c. per roll of 400 square feet, No. 2, 32c.

Cement—Canadian and American.—Canadian cement, $1.70 to $1.75 per barrel, in cotton bags, and $1.95 and $2.05 in wood, weights in both cases 350 pounds. There are four bags of 87½ pounds each, net, to a barrel, and 10 cents must be added to the above prices for each bag. Bags in good condition are purchased at 10 cents each. Where paper bags are wanted instead of cotton, the charge is 2½ cents for each, or 10 cents per barrel weight. American cement, standard brands, f.o.b. mills, 85c. per 350 pounds; bags extra, 10c. each, and returnable in good condition at 7½c. each.

Cement—English and European.—English cement is steady at $1.85 to $1.90 per barrel in jute sacks of 82½ pounds each (including price of sacks) and $2.20 to $2.30 in wood, per 350 pounds, gross. Belgian cement is quoted at $1.75 to $1.85 per barrel in bags, and $2.05 to $2.20 per barrel, in wood.

Copper.—The market is steady at 14 to 14½c. per pound. Demand continues limited.

Iron.—Prices of pig iron continue steady here, foreign markets being, however, weaker. The following are quotations for pig iron now arriving: No. 1 Summerlee, on cars, Montreal, $20.50 to $21 per ton; No. 2 selected Summerlee, $20 to $20.50; No. 3, soft, $19.50 to $20; Cleveland, $18.50, and No. 3 Clarence, $18; No. 1 Carron, $22 to $22.50; Carron special, $20.25 to $20.75; Carron, soft, $20 to $20.50.

Lead.—Trail lead is weak and prices are steady at $3.80 to $3.90 per 100 pounds, ex-store.

Nails.—Demand for nails is moderate, but prices are steady at $2.30 per keg for cut, and $2.25 for wire, base prices.

Pipe—Cast Iron.—The market shows but little change and prices are as follows: $34 for 8-inch pipe and larger; $35 for 6-inch pipe; $36 for 5-inch, and $36 for 4-inch at the foundry. Gas pipe is quoted at about $1 more than the above.

Pipe—Wrought.—The market is quiet and steady at last week's range:—¼-inch, $5.50, with sixty-three per cent. off for black, and 48 per cent. of for galvanized; ⅜-inch, $5.50, with 59 per cent. off for black and 44 per cent. off for galvanized. The discount on the following is 68 per cent. off for black and 58 per cent. off for galvanized; ½-inch, $8.50; 1-inch, $16.50; 1¼-inch, $22.50; 1½-inch, $27; 2-inch, $36; and 3-inch, $75.50; 3½-inch, $95; 4-inch, $108.

Spikes.—Railway spikes are in fair demand, $2.60 per 100 pounds, base of 5⅝ x 9-16. Ship spikes are steady at $3.15 per 100 pounds, base of ⅝ x 10 inch and ⅝ x 12 inch.

Steel Shafting.—Prices are steady at the list, less 25 per cent. Demand is on the dull side.

Steel Plates.—Demand is good, and the market steady. Quotations are: $2.55 for 3-16, $2.40 for ⅜, and $2.30 for ¼ and thicker, in smaller lots.

Tar and Pitch.—Coal tar, $4 per barrel of 40 gallons, weighing 575 to 600 pounds; coal tar pitch, No. 1, 75c. per 100 pounds, No. 2, 65c. per 100 pounds; pine tar, $4.35 to $4.50 per barrel of about 280 pounds; pine pitch, $4.25 per barrel of 180 to 200 pounds.

Tin.—The market is steady at 33⅜ to 34c. per pound.

Tool Steel.—Demand is light, but the market is firm. Base prices are as follows: Jessop's best unannealed, 14½c. per pound, annealed being 15½c.; second grade, 8c., and high-speed, "Ark," 60c., and "Novo," 65c.; "Conqueror," 55 to 60c.; Sanderson Bros. and Newbould's "Saben," high-speed, 60c.; extra cast tool steel, 14c., and "Colorado" cast tool steel, 8c., base prices. Sanderson's "Rex A" is quoted at 75c. and upward; Self-Hardening, 45c.; Extra, 15c.; Superior, 12c.; and Crucible, 8c.; "Edgar Allan's Air-Hardening," 55 to 65c. per pound.

Zinc.—The market is unchanged, at 5¼ to 5⅜c. per pound.