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VOL. II. No. II

NOVEMBER, 1887.

W. J. C.

Railway

TORONTO,

ONTARIO.

WESTERN Assurance Co.



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AGENCIES IN ALL PRINCIPAL CITIES AND TOWNS IN CANADA
AND UNITED STATES.

RAILWAY GAZETTE

A MONTHLY JOURNAL CANADIAN

DEVOTED TO RAILWAY INTERESTS

Vol. II.]

TORONTO, ONT., NOVEMBER, 1887.

[No. 11.]

CONTENTS.

Railway Items	161
Personal	162
Construction	162
The Cost of Building Locomotives	163
EDITORIALS:	
The Labor Commission	164
Grand Trunk Improved Facilities	164
The Sault Connection	164-165
Railways and Nations	165
Editorial Notes:	
G. T. R. Shops at Montreal	165-166
The Launching of the Cibola	166
The English Press on the C. P. R.	166-167
The Dismissed C. P. R. Conductors	167-168
An Important Case	168
A Smoke Consumer	168
C. P. R. Sault Line	168-169
Railway and Forest	169
Rogues of the Rail	169-170
Anthracite in the North-West	170
"Punch" On the North-West Passage	170
The Euphrates Valley Railway	170-171
The Great Silver Country	171
The New Line from Duluth to the "Soo"	172
The Railway Service	172
Mechanical	172
Advertisements	174-176

MR. GEORGE M. PULLMAN and other capitalists are said to be engaged in forming a company that has for its object the erection of works at Pullman, Ill., for the building of locomotives. It is said that Mr. W. H. Fenner will be the leading spirit in pushing this new enterprise.

HEREPATI's *Railway Journal* objects to the Canadian Pacific route to Asia, on the ground that the harbor at Vancouver is liable to be frozen over, and that the Northern Pacific is a frozen sea. The London paper is a little astray in its weather department.

IN order to facilitate the transfer of freight passing to and from the United States over the C. P. R. and connections, the C. P. R. contemplates having a United States custom official stationed at Winnipeg instead of Emerson, as at present, thus obviating to a great extent the possibility of delays at the boundary.

IT is reported at Emerson that the "Iron Range" Railroad will build across Northern Minnesota to Emerson, as soon as the Red River Valley Road is running. This "Iron Range" road is in the hands of capitalists of almost unlimited resources, who can secure money at the lowest rate of interest for their undertaking.

THE Russian Minister of Railways has appointed a commission to select a method of lighting cars with electricity, and all the principal companies will hereafter be compelled to use the light on passenger trains. The South Russian railway has for some time used electric lights on all its fast trains from Odessa to Kioff, and the Czar's special trains have been so lighted for a long time.

THE Dominion Government has given explanations to those interested in the Trent Valley Canal as to the reason why the Commission to investigate the project has not been set to work. The principal reason is that the chairman, ex-Judge Clark, has accepted the appointment of solicitor of the Canadian Pacific Railway, vacated by the resignation of Hon. J. J. C. Abbott.

THE Canadian Pacific railway land department shipped another large exhibit of agricultural products, consisting of threshed grains, grains in the straw, native and cultivated grasses, and field and garden roots and vegetables. The greater portion of this exhibit goes to Europe, being consigned direct to Liverpool, and the balance is for the C. P. R. exhibition car, which will travel again in the eastern and maritime provinces.

A DESPATCH from Victoria, B. C., says:—The Provincial Government has entered suit against the C. P. R. to recover the \$250,000 guarantee given by the company when the agreement was entered into between the province and the railway to extend the line from Moody to Vancouver. The defence was that the court had granted an injunction which prevented the railway from building the line in the allotted time through no fault of their own. Judgment was reserved.

YOUNG Charlie Parmelee, of Ansonia, Conn., had a tremendous scare the other night. He was walking on a railroad track and caught his foot between a plank and rail at a crossing. While trying to get free he heard an approaching train. As he struggled it came nearer and nearer until, just as he had made up his mind for death, the headlight showed him that he was on a switch and not the main line. After the train thundered by, a watchman released him. He was very lame for several days.

AT a meeting of the French Chamber of Commerce a resolution was passed asking the Federal Government to fix rates on Canadian railways at two cents a mile first class, and one cent second. The resolution set forth that the Government had paid \$150,000,000 in subsidies; that they had reserved the right to fix rates by order-in-council, and that the maximum rate had been fixed by several of the American State Governments at two cents a mile. They also asked that fares for palace or sleeping cars be fixed at \$1 each berth for each twelve hours the journey lasts.

AN Ottawa newspaper estimates the output of logs on the Ottawa region alone at about a thousand millions of feet.

SMITH'S FALLS is growing fast. During the past year \$187,000 has been expended in building. Of this \$40,000 was spent by the C. P. R.

THE village of Watford and Townsend Township will each grant a bonus of \$5,000 to the Brantford, Waterloo and Lake Erie Railway.

SIR GEORGE STEPHEN is now in England arranging contracts for the construction of three new steamers to ply between Vancouver, B. C., and Japan.

NEW YORK is about to have a new elevated railway, this time probably with an electrical plant. It will run up in the proposed Elm Street thoroughfare. The projected underground systems are all condemned as unhealthy and dangerous.

Personal.

JUDGE CLARK, of Cobourg, will accept the position of solicitor of the Canadian Pacific, rendered vacant by the resignation of Hon. J. J. C. Abbott. The salary attached to the position is \$15,000. Judge Clark was head of the Pacific Railway Commission, whose report is one of the most important state papers ever presented to the Canadian Parliament. He has also been chairman of commissions of inquiry in relation to the Intercolonial and other railways. In these several positions he has acquired a deep insight into railway affairs, which, added to a wide reading and great natural ability, make him eminently fit for the position he is to occupy.

MR. GEORGE LAIDLAW has retired from active participation in railway affairs, and devotes his energies to his farm, which is conducted on scientific principles and with the aid of all the best modern appliances. Mr. Laidlaw is writing to the press advocating the establishment of stock fairs under the auspices of the counties. These he believes would bring buyers and sellers together, make prices steadier, and relieve stock farmers of the discouragement under which they now labor of holding stock sales at special seasons at much greater expense than would be involved in the county taking the matter up.

THE *Winnipeg Free Press* says: A number of changes went into effect Tuesday in the local freight office of the C. P. R. Mr. A. Martin, chief clerk, has accepted the position of traffic manager of the Galt road, with headquarters at Lethbridge. Mr. J. H. Longworth, of Portage la Prairie, has been given the position vacated by Mr. Martin, and Mr. Durrant, chief accountant in the Winnipeg office, leaves for the Portage to take the station agency at that point. Mr. James Williams, assistant accountant, has been appointed accountant in the Winnipeg office. Mr. A. Harstone, who has been acting agent at Portage la Prairie, will return to the city and accept a position as clerk in the local freight office.

Construction.

THE snow sheds in the mountain section of the Canadian Pacific are of an aggregate length of seven miles.

THE Canadian Pacific Railway is now practically finished from Algoma Mills to Sault St. Marie. The men at work on the contract have all returned east.

IT is stated that the company recently formed to build steel tubular car works has decided to locate its works at Christy Park, near McKeesport, Pa. The company has a capital of \$5,000,000 and will build shops to give employment to from 1,000 to 2,000 men.

OFFICIALS of the Manitoba and North-western road who have returned from Montreal say that the line cannot be further extended this fall, though it may be in the spring, and

that the present independent character of the company will be maintained.

MR. JOHN GRAHAM will supply 500,000 bricks to Contractor Davis for the new C. P. R. depot in Montreal. Mr. Graham intends to increase his brickyard next year and turn out 5,000,000 bricks in order to keep fully up with local demand, which he will attend to as usual promptly.

MESSEURS. W. A. ALLAN and A. Charlebois, of Ottawa, have returned from a trip over the North-west Central Railroad. They report the progress made on the road as highly satisfactory. Over thirty miles of the road are graded, and it is expected that fifty miles will be ready for track laying before the winter sets in.

NOTICE is given of application to Parliament to incorporate the Tobique Gypsum and Colonization Railway Company to construct a line from a point on the New Brunswick Railway at Perth Centre, up the St. John and Tobique rivers, with a view to connecting with the proposed Restigouche and Victoria Colonization Railway at or near Nictaux lake.

MR. J. C. BAILEY, C. E., is making exploratory surveys for the Grand Trunk Sault line. He is at present in the district between Milland and Parry Sound. The *Railway Age*, speaking on what information is not known, says that by another year the Grand Trunk will probably compete at the Sault for the grain traffic of the North-West.

THE *Bryson Equity* publishes a rumor that the Pontiac & Pacific Junction Railway is likely to pass into the hands of the Grand Trunk Railway. Railway authorities in Ottawa say there is nothing in the matter, but state that such a deal has been largely talked of by the people in the Pontiac district, who would be glad to see the Grand Trunk in possession.

A NUMBER of new iron snow sheds are being erected on the line of the Intercolonial Railway east of Riviere Du Loup. They are the first of the kind introduced on the road, and as the old ones lose their usefulness they will probably be replaced by iron. The cost is just double the price of the wooden shed, but the new departure will be found to be in the direction of economy in the end, as they will last very much longer.

A CABLE despatch to the *Toronto Mail* says: The scheme of connecting Prince Edward Island with the mainland by a submarine tunnel is attracting much attention in England. The English syndicate's offer to construct the tunnel for a subsidy of £40,000 per annum for fifty years is regarded as reasonable, although doubts are entertained whether the Dominion Government would feel justified in undertaking the expenditure.

THE *New Brunswick Reporter* says:—A great public work that is now engrossing the attention of railway engineers, is the Chignecto Ship Railway. The feasibility of the plan is acknowledged by the chief engineers of the Dominion, and the cost has been estimated to be within \$9,000,000. The Do-

minion Parliament has voted a subsidy toward the work, but the subsidy is not available until the canal is in full operation. The subsidy is \$150,000 for twenty-five years, and if this sum could be available while the work is in progress there would soon be found capitalists to take hold of the matter, but in its present form and when it requires such a large expenditure it is very difficult to find men with sufficient money to carry it on.

THE Qu'Appelle *Vidette* confirms the report that Mr. T. W. Jackson, of Qu'Appelle, has floated the bonds of the Wood Mountain & Qu'Appelle Railway, and that a contract has been let to Mr. C. V. Nedell, of New York. The *Vidette* says the secretary of the company has shown its papers by which it appears that an agreement has been entered into with an English financial institution of the highest standing for the disposition of the bonds of the company, and pending their issue on the security of an earned land grant, the same institution furnishes funds to carry on the work. The contract has been let for the construction and equipment of seventy-five miles, with the option of taking another seventy-five miles, or as much more as the company wish to build next year, to one of the most reliable contractors on the American continent, who gives every guarantee that the work will be pushed forward at the very earliest practicable moment. He will have all the plant necessary for the construction on the ground in a short time. The only contingency that can arise to prevent the work progressing, so far as the *Vidette* can learn, is that of the parties who have had the management of affairs from the commencement, and have carried all the arrangements through so successfully, without drawing from the company and allowing it to collapse, which is not at all likely.

MR. W. MARGACH, crown land agent, of Port Arthur, when in Tower, Minn., recently was interviewed by a reporter of the *Vermilion Journal of Iron*, and said: "I am here for the Canadian Government, looking up several things for them. I am exploring the country lying between Whitefish and Basswood Lakes, on the Canadian side. As you already know, there is a contract for forty miles of the Port Arthur & Duluth Railway. Of this, fifteen miles will be ready for iron by January 1st, and the balance will be finished by next June. The line is surveyed up to Gun Flint Lake, where several companies are prepared to operate iron mines. I have no doubt but the work will proceed rapidly till it connects with your Duluth & Iron Range Railway. I am of the opinion that the timber interests ought to be considered as well as the iron in the construction of the road I have just referred to. If the line should cross the water, at the east end of Basswood Lake, then all the timber in that part of the country tributary to the lake as well as the timber from the east end of Knife Lake, on both the Canadian and American sides, would be tributary to the railway. With some improvement, timber could be taken from the east end as far as Gun Flint Lake, which would be about seventy miles, the greater part well timbered."

The Cost of Building Locomotives.

THE following concise but most valuable article appeared in the *National Car & Locomotive Builder*. The writer is Mr. Francis R. F. Brown, Mechanical Superintendent of the Canadian Pacific, an authority on this and cognate questions:

The cost of a finished locomotive necessarily depends to a large extent on the design, class and materials used in its construction, and to insure success in economy of production the designing and building departments should work together in harmony, and under an undivided authority; so that while on the one hand any improvement in design, or means of cheapening construction which may be brought to light by shop experience may be considered by the head of the department, and if advisable adopted without being blocked by the draughtsmen, who as a rule forcibly object to their designs being interfered with or their drawings altered; yet, on the other hand the draughtsmen should be allowed free access to the shops, and full opportunity given them to inspect the work as it goes on, and to report to the superintendent whenever they find that drawings are not adhered to, inferior workmanship is being allowed, or materials used such as are contrary to specifications.

Under such circumstances, combined with some years experience in building the class of engine described, the results given below are attained in Canada by the writer:

The engine is an eight-wheeled road engine, American type, cylinders 17 in. by 24 in.; drivers 62 in. diameter. Boiler pressure, 160 lbs. to the square inch, and weight of engine in working order, 87,000 lbs.

The weight of the engine empty is 77,400 lbs., and that of the tender 30,100 lbs., making a total of 107,500 lbs., and the cost of ten engines, lately built with ten per cent. added on to both material and labor, was \$5,740 each, or 5.34c. per lb, this cost including a complete set of tools, jacks, lamps, headlight and U. S. packing in pistons and valve stems. Some of the principal detailed costs with 10 per cent. added to both material and labor are given below.

Frames.—Both back and front frames are forged from No. 1 scrap, they weigh when machined and finished ready for the erecting shop 4,220 lbs. per set, and cost 5.3c. per lb.

Boiler.—The finished boiler, without tubes, weighs 14,680 lbs. and costs \$1,116, or 7.6 cts. per lb.

Cylinders.—Fitted up ready for erecting, with steam chests, all covers and studs weigh 5,400 lbs. per pair, and cost \$517.46, or 4.16 cts. per lb.

Wheels, Axles and Tirrs.—Finished ready to put under the engine, weigh per set for the engine, 12,440 lbs. and cost \$517.46, or 4.16 cts. per lb.

Crank Pins.—Are made from Low Moor iron and case hardened, they weigh per set of four, when finished ready for use, 287 lbs., and cost 10.5 cts. per lb.

Side Rods.—Are made with ends and oil onps forged solid, then slotted out and fitted

with half brasses and cotter, and when complete for erecting weigh 580 lbs. per pair, and cost \$87, or 15 cts. per lb.

Brass Boiler Mountings and Fittings.—Including injector, check and steam valves, whistle, water gauge mountings, try cocks, etc., cost on the average 50 cts. per lb.

Smoke Stack.—With cast iron top, fitted with netting and cone ready for use. Weighs 930 lbs., and costs \$37, or 4 cents per lb.

Cab.—The cab, fitted with doors and sashes glazed, weighs 750 lbs. and costs \$55.

Pilot.—Ready for use weighs 420 lbs., and costs \$14.

Tender.—The tank is so designed that every rivet in it can be closed by the hydraulic machine. The capacity of the tank is 2,800 imperial gallons. The trucks are made of wrought iron, with semi-elliptic spring, and the frames are of oak.

It weighs, complete, 30,100 lbs., and costs \$924, or 3.07 cents per lb.

Commenting on this article the *Car & Locomotive Builder* says:

The article in another column by Mr. Francis R. F. Brown, mechanical superintendent of the Canadian Pacific Railway, on "Cost of Building Locomotives" gives detailed and valuable information on a subject which is of living interest to nearly all railroad men. The Canadian Pacific Railway has an excellent system of keeping the record of the cost of all work done, and the information given in Mr. Brown's article is of the most reliable character. The cost of work and material is very low, as viewed from an American stand point, but both material and labor are cheaper in Canada than they are in the United States, and the system under which Mr. Brown gets his work done compares favorably with any system in operation for facilitating the production of work accurately and cheaply.

The paper by Mr. Brown on Construction of Canadian Locomotives, read last May at the meeting of the Institution of Mechanical Engineers, in London, which we have largely quoted, excited unusual interest, and the cost of the engines has been the subject of considerable controversy. British locomotive builders were unwilling to admit that locomotives could be built more cheaply in Canada than they could be made in the British shops that had much cheaper labor, cheaper material and had been in the business for half a century. Some American critics, on the other hand, taking the cost of locomotives built by the Pennsylvania Railroad Company as a basis of comparison, questioned the possibility of a Canadian shop producing good work at a cheaper rate. Yet it appears to be done. In all essential particulars the system of building locomotives followed by Mr. Brown is the same as that followed in all first-class railroad and contract shops in the United States. The work is produced on a manufacturing basis, with first-class tools and good workmen operating on the subdivision of labor plan and as far as practicable under contract. For some departments of work, Mr. Brown's figures agree very closely with the cost of work in certain American shops noted for economical production; but the run of his material, owing

to the lighter tariff, is cheaper than that which has to be paid for by railroad companies in the United States, which tells on the total cost of the Canadian locomotives. Having recently enjoyed the opportunity of minutely examining the locomotives built by Mr. Brown, we willingly testify to the excellent work put upon them. They have received no superfluous finish, but the working parts are all well fitted and designed to produce a durable and serviceable engine. We are convinced that the real test, viz., that of hard service, will demonstrate that Mr. Brown has produced not only a very cheap locomotive, but one that will work satisfactorily and wear as well as anything built on the American continent.

Steel Lace for Feminine Wear.

THE question of making laces of iron and steel for ladies' and children's wear is again being discussed in art, mill and fashion circles. At the Centennial in 1876 a piece of steel rolled by a Pittsburgh mill was on exhibition, which was so thin and light that it weighed much less than a book leaf, and could be blown from the hand easier than a piece of paper of the same size. The iron leaf was rolled on a train of rolls upon which heavy tank and boiler iron is now rolled.

Experts say that curtains and other fine laces can be made of soft malleable iron, and in every way be used with greater satisfaction than cotton laces. The sheets will necessarily have to be rolled down to an exceedingly low gauge and then pressed into any desirable pattern and shape. There will be no trouble in furnishing iron laces for ladies' and children's wear, with their names and other ornaments in a filagree design. An introduction of steel lace would establish in Pittsburgh an industry that would give work to at least 3,000 men, and consume annually not less than 76,000 tons of steel, which is now a drug in the market at less than two cents a pound. Steel lace, unlike cotton, can be made light or heavy without affecting the grade, color or brightness. We may yet see fashionable ladies wearing steel shawls and trimmings for their hats and dresses.—*Pittsburgh Chronicle*.

Legislation.

THE following notices relating to railway affairs are published in the *Canada Gazette*: By Hon. Senator Billa Flint, of Belleville, for a charter from Belleville to Tweed and Bridgewater and on to Bannockburn to connect with the Ontario Central, with running powers over that road to Coe Hill and to continue the line to meet the Canadian Pacific main line at Lake Nipissing or some other point, also with power to build to some point in the Province of Quebec.

For the incorporation of the Tobique, Gypsum & Colonization Company, the road to run from Perth Centre on the New Brunswick Railway to the mouth of the Tobique River and thence along that river to "The Plaster Rock" and on to connect with the proposed Restigouche & Victoria Colonization Railway.



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Post office boxes or street and number should be added to address to secure a safe delivery.

Correspondence invited. Write on one side of paper only, and be specially careful with names and dates.

Our readers are requested to send us court decisions and newspaper clippings relating to railway interests.

It is desirable that communications, new advertisements and changes in old advertisements be handed in before the 10th of the month.

W. B. CAMPBELL, J.
A. C. CAMPBELL, J. Publishers.

Offices—64 Bay Street, Toronto.

TORONTO, NOVEMBER, 1887.

THE LABOR COMMISSION.

THE Labor Commission, which has opened its sittings in this city, is almost as important to the railway interest as the Railway Commission, of whose proceedings notes have from time to time appeared in these columns. Fortunately there is now and has been for years good feeling existing between the principal Canadian railway companies and their employees. But this is due mainly to the good judgment of the parties interested and partly to the prosperity which the country has enjoyed, and not at all to any peculiarity in the social system of Canada. There are problems of great moment to be solved for this Dominion as there are for Great Britain and other countries. We have often protested against the assumption that employees should be contented with what they get, that they should regard the social machine as too sacred to be interfered with or too complicated to be dealt with by common men. There never was a time when politics were so pure the world over as they are now,

and there never was a time when the sacred right of the people to rule themselves was so fully recognized. As the franchise has extended the stability of society and its self-regenerative power have grown greater. Not only is it the right and duty of all men to consider and seek to influence public affairs, but it is their interest to do so.

Canadian railway employees are fairly well paid as wages go, but they, like other workers, do not get the advantage they should out of the advance of civilization. Whether it be true, as some allege, that the struggle of life constantly grows fiercer and harder, it is undoubtedly true that the vast body of men get less advantage from the progress of invention and thought than do the fortunate few. This of itself is enough to condemn our present social organization, for it fails to approach even that poor standard, "the greatest good to the greatest number," while it boldly sets at defiance all ideas of abstract justice.

We are glad to note that the Commission will take evidence on all points that can affect the laborer. It is a good thing to let every man be heard. It is not to be expected that the Commission will be able to report a system of change which will commend itself to any large class of people. But if it brings out evidence from all sides it will give great impetus to the work of reform.

GRAND TRUNK IMPROVED FACILITIES.

THE completion of the double-track work for this season on the Grand Trunk will result in great immediate improvement of the facilities for handling the traffic. The bulk of freight to be handled has been very heavy and will naturally grow as the system extends and the country advances in prosperity. So far as this city is concerned, an idea of the extent to which the traffic has grown may be gathered from an interview in the *Toronto Globe* with Foreman J. B. Hay:

About 200 cars a day are unloaded, over a hundred teams with great lorries being constantly engaged. Yet there are now 650 loaded cars in the yard, besides 100 at York, for which there is no accommodation here. The freight receipts at this station last week were \$3,000 more than for the same week last year. There never has been such a volume of freight at this station as during the present

season. The freight sheds, though extending from Simcoe to Peter Street, a distance of 600 yards, are too small to accommodate the business.

The handling of such a mass of freight with a single track says a great deal for the management and operative staff of the road, particularly in view of the fact that even during the work of double-tracking accidents were almost unheard of, and delays were so few that shippers and consignees were not inconvenienced.

THE SAULT CONNECTION.

ACCORDING to an interview with Vice-President Van Horne, the Sault Line will be finished early next month and connection made with the Minneapolis and Sault Ste. Marie for the twin cities of the North-West, and so with all the vast western land. Considering the enthusiasm with which this Sault connection was spoken of a few years ago, before the main line of the Canadian Pacific was built around the north shore of Lake Superior, it seems strange that so little attention is paid to it now. The construction of the main line undoubtedly has something to do with this change in public feeling, but the rapidity with which events in connection with the Canadian Pacific have moved has tended to dull public appreciation of even great events. That the establishment of this connection for freight this season, with the promise of a first-class passenger line next summer, is an event of transcendent importance to Canada, must be perceived by all who have paid even the slightest attention to the subject. The importance of the through trade grows every year, not only because of its increasing bulk but because invention tends constantly to reduce the cost of the long-haul. Where the goods have to be handled often invention is of little avail. It is impossible to invent appliances which can be used under all the varying circumstances of local traffic to reduce the cost of labor. But constantly means are being found to reduce the cost of the simple haul, and every improvement in maintenance of way, engine power or train appliances, means an enormous aggregate betterment on the through traffic. For this reason it is that the opening of this new route means such great things for Canada. The ad-

vantages of distance alone must predispose a large traffic toward this route, and the people of Canada know that in the hands of the Canadian Pacific management the benefit of natural advantages will not be lost, but, on the contrary, the most will be made of them.

The Duluth, South Shore & Atlantic, which will also be a most important feeder for the Sault Line, cannot be finished this season, but the small gap which still exists, it is expected, will be filled up next spring and direct communication established with the head of navigation of the lakes on the American side. These two lines, pouring traffic into Canada, must be of the greatest benefit to us. Toronto is not in a position to get as much benefit as some other points will, especially Montreal. The traffic *via* the Sault must be a bonanza to the Canadian metropolis, making it the depot for a large portion of the business of the American as well as the Canadian North-West.

RAILWAYS AND NATIONS.

THE *Railroad Gazette* has a brief but comprehensive article taking a bird's-eye view of the effect upon international relations of railways already built or prospected. Evidently as being most important, it mentions first the Canadian Pacific, pointing out the many advantages it offers for British trade over other routes and the great advantage it gives Britain over other countries. In this connection the *Gazette* says:

The English mail contracts with the steamers on the Suez route require a speed of only 11 knots per hour, while 16 knots are demanded of the steamers on the Atlantic and 14 of those on the Pacific portion of the Canadian route, allowing about 38 days to reach Shanghai by Brindisi and about 29 days by Vancouver. England, however, is no less anxious because of the Canadian route to secure the neutralization of the Suez Canal, and lacks, apparently, only Russia's acceptance of the articles of agreement. These, as drawn, prevent the canal's blockade in time of war or any combat within or near it, and place it in charge of an international commission, the most active member of which is the Khedive of Egypt. The canal has increased British trade with the east, but not in the same proportion as of the eastern trade of countries nearer the Mediterranean ports. The Canadian route will have a double value as a new line for commerce, and as a military highway to India, which, except upon the high seas, where England is still without a rival, lies within British territory.

Negotiations are in progress which, if successful, will make a new route from England to the South African colonies through the European continent taking ship at Lisbon.

Russia's railways into her outlying provinces do not directly affect international relations but consolidate the Empire having marvellous effects in pacifying turbulent tribes. The trans-Siberian railway, if finished, will threaten Corea and perhaps China also. On her southern boundary also China is threatened by the French railways now building in Tonquin. It is natural therefore that the Chinese should begin to consider the advisability of building railways to meet the difficulties with which she is threatened because of the activity of her rivals. But in no country do these improvements threaten such tremendous consequences as in China. The people have been in a rut for thousands of years and have consistently set their faces against mechanical improvements because of the social problems to which they give rise. Railways would throw thousands of drivers and porters out of employment, and, owing to the conservative character of the people, these would not adapt themselves readily to new conditions. The introduction of railways would mean the use of machinery for a thousand industrial employments now laboriously carried on by hand and so the danger of sudden change would be vastly increased. In order to effect these far-reaching political changes must be made and how the general upheaval which must follow all these would result none can foresee.

Editorial Notes.

THE last issue of the *Canadian Lumberman* presents a great advance in typographical appearance over former ones, good as they were. Not only has an entirely new dress of type been secured, but the better paper is used, the size of the journal is increased, and in every way the *Lumberman* presents the appearance of a thoroughly successful newspaper. At the same time the editorial management is even more vigorous than before, and altogether in this wide-awake journal the milling and wood-working interests of Canada have a representative in the newspaper

world of which even so large and important an industry may well be proud.

THE comments which are now being made in the English press on the Canadian route to the Orient must be most gratifying to all Canadians. In another column we give a summary of what the papers are saying, including an article taken recently from the *London Times*. The completion of the Canadian route, as will have been seen by extracts published in previous issues of RAILWAY LIFE, has attracted great attention in Russia and has led to the virtual abandonment of the policy of suspending for the present the construction of railways. The Russian Government clearly perceives the great advantage which great Britain secures in having communication through her own territory with the illimitable markets of the east, and activity in the direction of building a trans-Siberian Pacific railway may be looked for.

THE two new pullman cars placed on the Grand Trunk for the accommodation of passengers between Toronto and Montreal are now in service and are found to be all that the builders intended. There are no better cars on the American continent and very few as good. The lighting arrangements are especially worthy of attention. The Julien system of storage batteries has been adopted and the result is a number of incandescent lamps, including one on either platform, which give the most perfect light ever seen on any cars in Canada. The charging of the batteries is a simple operation and can be done from an ordinary arc circuit. No particular skill is required in taking out or replacing the batteries and the mere putting them in place makes the connection which furnishes the light. The cars ride easily, and their luxurious appointments make the trip of over three hundred miles as easy as a day at home.

THE arrangements for the entrance of the Canadian Pacific into Toronto from the east are progressing none too fast. The company has secured a 28-foot strip along the water front from Berkeley Street, where it is proposed to cross the Grand Trunk to Yonge Street, and from Yonge to York Streets it controls the whole water front out to the "windmill

line," or limit of possible private possession. There are causes of delay innumerable relating to improvements being made in the Don River, which runs through the eastern part of the city, crossings, bridges over tracks, etc., and the Grand Trunk Railway, the Canadian Pacific and the city are all interested more or less in these questions. It seems probable that legislation will be needed to straighten out some of the tangles. In the meantime the Canadian Pacific is compelled to refuse trade for Toronto in many cases, owing to the lack of facilities for handling it. The Grand Trunk, which has prior rights over a large part of the esplanade, finds itself cramped for room and compelled to enforce the strictest regulations as to sidings and unloading of cars, owing to the tremendous traffic which is pouring in over its various lines. The Grand Trunk declare that they have no objection whatever to the Canadian Pacific getting into the city. In fact they have, in important respects, facilitated the trade of the rival system here. The Canadian Pacific say they only want room to carry on their trade here without interfering with others. The city, of course, is most anxious to facilitate the entrance of the Canadian Pacific in every way. There ought, therefore, to be comparatively little delay in the negotiations preliminary to getting down to the work of construction, and the people of Toronto have good reason to hope that soon the Canadian Pacific will have established here complete facilities for handling the great traffic which undoubtedly it can command.

G. T. R. Shops at Montreal.

THE correspondent of the *National Car and Locomotive Builder*, the American authority on its particular branch, has this to say of the Grand Trunk shops at Montreal:

In the course of a pleasant visit with Mr. Herbert Wallis, mechanical superintendent of the Grand Trunk Railway, I was shown the records of a great variety of experiments they had made to ascertain the economy or otherwise of using various forms and material, and I received the impression that the railroad companies of America that are still groping in the dark about the utility of adopting certain things would be very much enlightened if they could receive the information acquired by the Grand Trunk Railway. They have, for instance, the best, most accurate and fullest record of steel tired wheel service of any company in America. They have a good recording system, and it has been well kept up

for many years. When any improvement is brought before the mechanical officers as being worthy of adoption, it is examined, and if found promising of success is given a trial and a close record kept. Upon this record depends the rejection or the adoption of the device. When the extension smoke-box as a spark-arrester was first tried a few engines were equipped with it and put in competition in similar service with engines of the same class having diamond stacks. From all parts of the system and from all kinds of service where this test was going on, the testimony came in pointing to the fact that the extension smoke box saved about 8 per cent. of fuel, compared with engines having the diamond stack. These experiments were protracted and thorough, and led to the decision to adopt the extension front as the standard spark-arrester.

The car and locomotive shops belonging to this company constitute what appears to me to be the largest mechanical headquarters belonging to any railroad company on the American continent. They have some of the finest machinery for railroad work that I have ever seen, but the arrangement of the locomotive shops makes a mechanical man melancholy and leads him to reflect on what a blessing to the company a disastrous fire would be. The place has "grewed" like Topsy, but "grewed" much bigger than nature or man's original plan anticipated. Mr. F. L. Wanklyn, assistant mechanical superintendent in charge of these shops, must have an arduous task getting work carried on cheaply, laboring under the disadvantages that badly-arranged shops entail; but he appears to secure a good showing nevertheless. For thirteen years Mr. Wallis has maintained the motive power and the rolling stock belonging to the road entirely from revenue, all renewals being charged as maintenance, and the machinery has been kept up in first-class order, bettering rather than depreciating. At present there are over thirty engines in the shop undergoing repairs, some of the work being equivalent to rebuilding. They are working to reduce their motive power to four classes. A large proportion of the engines in the repair shop have plate frames, but they are not putting that form of frames on any of the new engines. The boiler shop of these works has the best equipment of boiler-making machinery that I have ever seen in a railroad shop. Riveting, flanging, punching and shearing are all done by hydraulic machinery.

The car shops, presided over by Mr. Wm. McWood, appear to be more modern than the locomotive shops, or the original plan has been susceptible of more harmonious growth, for they are well arranged and compact for such large buildings, the passenger car building and repair shop being no less than 1,000 feet long, with three tracks and room between for a narrow gauge track, which is used for the transportation of material.

They are very busy in the shops at present and are building among other things two exceedingly handsome Pullman cars 65 feet 2 inches long. The inside is finished in mahogany and the carving work is very elaborate.

The cars are carried on six wheel trucks with 42 inch wheels of German make. They are heated by the Baker heater and lighted by the Juhn electrical system with storage batteries. The lighting apparatus alone of each of these cars is said to cost five thousand dollars. They are building a number of first-class day passenger cars of their ordinary pattern. They put up an unusually strong framing, and the seat plank is so designed that it acts as a strong truss to keep the middle from sagging. A lining of heavy paper thickly painted is put under the sheeting of these cars, and is said to aid materially in keeping out the cold. They are building a new style of horse car for the transportation of fancy equine stock. It looks like a baggage car, but is divided up into stalls that are thickly padded. Nearly all fittings for the building, equipment and repair of cars are manufactured in these shops from the rough material.

The *Car and Locomotive Builder* also gives drawings and specifications of standard freight locomotive on the Grand Trunk, of which the journal says:

The accompanying cuts illustrate a class of locomotive which Mr. Herbert Wallis, mechanical superintendent of the Grand Trunk Railway, has designed and adopted as standard for freight traffic. The engine appears to strike a happy medium between the awkwardly heavy and the weakly light freight locomotive, and it is said to give the highest satisfaction in service, not only in convenience in handling trains, but in efficiency and durability.

The Launching of the Cibola.

On 1st instant the *Cibola* the new sister ship of the *Chiara* for the Toronto and Niagara route was launched at Deseronto, where she was built. The event was celebrated in splendid style. A special car on the early Grand Trunk train conveyed a select Toronto party including Hon. Frank Smith, President of the Niagara Navigation Co.; Barlow Cumberland, Vice-President; John Foy, Manager, and R. N. McBride, of the same company; W. J. Meneilly, R. St. John and Capt. Dick, of the Steamboat Inspection Department; J. H. G. Hagarty and W. A. Geddes, vessel owners; John Donaldson, J. Munroe, Gus Foy, Austin Smith, Fraser Macdonald, Harold Parsons, Mrs. John McMurrich, Mrs. A. F. Campbell, Miss Constance Cumberland, and representatives of the Toronto press. In Deseronto business was suspended and the place was in its holiday best. The main stay of the village is the great business of the Rathbun Company, by whom the boat was built, and all the hands in the employ of this great firm, as well as the people of the village generally, were out to witness the great event. Of the launch and the boat the *Toronto Globe* has the following:

At a little before two o'clock the vessel was fairly in the cradle, and keen eyes detected a slight movement; the chains were cut with sharp axes, and then in the space of a few seconds all these things happened: the bottle

was dashed against the vessel with hearty good will, and the wine foamed upon the bow. The name *Cibola* appeared, and the vigilant Vallance secured his trophy; and amid the rousing cheers of the crowd the vessel swept down the ways as straight as an arrow and with ever increasing speed, linged for a moment in the cradle, leapt into the water, and floated gracefully away. Everybody who had done an hour's work on her was a proud man, and among the proudest was W. C. White, of Montreal, the master builder. After much handshaking and congratulations the launching party were invited to Mr. E. W. Rathbun's house, where lunch was awaiting them. After everybody had fared sumptuously there were some toasts, with short speeches. The health of Mr. and Mrs. Rathbun, of Hon. Frank Smith and other officers of the company, of the Dominion Government, and of Messrs. Mencilly, St. John and Dick, were drunk, and speeches were made by the gentlemen named and by Hon. Mr. Bowell and Mr. Barlow Cumberland. Many pleasant things were said about the boat, the company and the Rathbuns. Mr. Cumberland told the story of the names of the sister boats. *Chicora* was the old name for the eastern part of Florida, and means "land of pretty flowers"; *Cibola* was the old name for western Florida, and means "land of the buffalo." It was remarked that the *Cibola* was the first vessel of so large a size built upon the lakes, and the hope was expressed that it would be the beginning of a great industry.

The following is a detailed description of the new boat:—The length of the *Cibola* is 260 feet, and her beam 23 feet. She was modelled by E. Morton, of Glasgow, who has designed some of the fastest steamers on the Clyde. The high power of the engines necessitated great strength in the hull, and careful attention has been paid to this matter. A network of cellular divisions in the centre forms the foundation of the machinery. Great stiffness is given to the hull by five keelsons amidships, and three four and aft, with six longitudinal braces extending throughout from stem to stern, three on each side. Then at the gun-whale a shelf-piece 33 inches wide, made of three-quarter inch steel, secured to the frames by steel gussets, extends the whole way round the vessel; and diagonal braces of steel one foot wide cross and recross above the deck beams, tying everything together. The deck is laid with 3½ inch pine, supplied by Messrs. Rathbun & Co., and is a fine piece of work.

The material used throughout is the best "Dalzell ship steel." The frames and plates are imported from Scotland and were put together at Deseronto by Messrs. W. C. White & Co., of Montreal, who built the steel hulls of the boats *Montreal*, *Quebec* and *Canada*, of the Richelieu line. The rivets used are three-quarter inch best Lawmoor iron, such as is used on high class boilers, and the workmanship throughout is excellent. The hull is divided into five compartments by water tight bulkheads.

The engines were built by Messrs. Rankin, Blackmore & Co., of Greenock, who make a specialty of fast paddle engines for the cele-

brated Clyde passenger steamers. They are of the direct-acting, diagonal, compound type, having two cylinders 47 inches and 85 inches in diameter. These cylinders weigh twelve tons each, and experts say they are the finest specimens of large castings they have ever seen. The effort of Messrs Rankin & Blackmore in designing these engines was to make the machinery as light as possible consistent with ample strength, and to this end a pocket was substituted for the exhaust steam-jacket around the high-pressure cylinder. This effected a considerable saving in weight. The exhaust pipe from the low pressure cylinder to the high-pressure is also made of copper, instead of cast-iron, which is the usual material. The condenser itself is a cylindrical casting, with light malleable iron doors lying snugly beneath the diagonal bracings. The diagonal bracings are usually of cast-iron, but in this case they are solid forged malleable iron, with T heads for attachment to the main framings. The connecting rods are of the double-jawed type, fitted with gun-metal bushes having extra large surface. The reversing is done by one of Brown's steam and hydraulic engines of the latest design, working horizontally from the bed-plate of the main engines. There are two single-acting air pumps with Kinghorn's patent metallic valves, so arranged that the various buckets and plungers will serve to counterbalance to a considerable extent the weight of the high and low-pressure cylinders and so do away with the unpleasant jerk noticeable in so many paddleboats.

The paddle shaft is all made with double wrought iron for extra strength. The paddle wheels are of the "feathering" kind, similar to those of the *Chicora*, these latter having been the model which has led to their adoption on the recently-built fast American paddle steamers.

There will be six steel boilers in the *Cibola* 79 inches in diameter and 16 feet long, with a working pressure of 90 pounds. Three of these will be placed forward and three aft of the engines. They are now being constructed, three by Messrs. White, in Montreal, and three by Inglis & Hunter, in Toronto. With these working at full power the guaranteed result of 2,600 horse power will be developed by the engines, and the speed of 22 miles obtained; but in ordinary running the great surplus of power, combined with the compound type of engine, will give very economical results.

The engineers leave Scotland the first week of January to come out and set up the engines, and Mr. Morton, the designer, intends to come out and superintend the trial trips.

The designs for the cabin accommodation will give every comfort suggested by the experience of past years. The winter will be occupied in carrying them out, and the steamer will be ready for her route early in May.

At the time of the launch the *Cibola* drew about 2 feet 10 inches of water at the bow, and 3 feet 6 inches at the stern. Her draught when fitted out will be about 6½ feet.

It is thought that when the *Cibola* is put upon the Niagara route it may be possible, owing to her superior speed, to change the

hour of leaving Toronto from 7 to 7.30 and from 2 to 2.30. The *Chicora* will probably run between Toronto and Hamilton.

The English Press on the C. P. R.

An English paper, speaking of the Canadian Pacific route, says: It is destined to effect great and vital changes in our communication with China, Japan and far east generally. The new route thus made available has been aptly termed the "Empire route," because it passes entirely through portions of the British Empire except where it crosses the high seas. All other routes either cross foreign countries or skirt their coasts, with obvious resulting disadvantages in the event of war or serious complications. The Suez Canal route, for instance, might be stopped in an hour, whereas it would be practically impossible to close the Empire route. Amongst the other strategical and commercial advantages of the new road to the East are supplies of excellent coal which exist near to Halifax, Vancouver, and Sydney. On the existing routes coal has to be sent out from England at great expense, 3,000 miles to Port Said, 4,500 miles to Aden, and 6,500 to Ceylon or the Cape of Good Hope. This advantage alone ought to greatly reduce the cost of travelling and freightage to China, Japan, New Zealand, Australia, and other parts of the east and south. In point of actual distances the saving of the Empire over the other routes is, in most instances, very marked, as is shown by the following table, the figures being in thousands of miles:

	Via Canada.	Via Suez.	Via the Cape.	Via Cape Horn.
England to—				
Japan	9½	13½	15½	15½
Shanghai	10½	12½	14½	16
Hong Kong	11	11	13½	16
Singapore	12½	9½	12½	12½
Brisbane	11½	12½	14½	13½
Sydney	12	12	13½	12½
Auckland	12	12	14	11½

In an interesting article on the subject, the *Times* thus aptly sums up the four features of superiority possessed by the Canadian or "Empire" route: First, it follows, as it were, a great circle, or, in other words, travels at latitudes where degrees of longitude are shortest; secondly, the seas crossed are cool, a matter of immense advantage to marine engineers as well as to passengers, and they are for the most part free from monsoons and tropical cyclones; thirdly, 2,500 miles of the route consist of a comparatively direct and easily worked line of railway; and fourthly, the sea courses are direct and do not have to follow the sinuosities of coast lines or encounter the dangers of coastwise navigation.

The governments are believed to fully recognize the great importance of the new route from strategic as well as from commercial and mail standpoints, and arrangements are in progress for the building and subsidizing of steamers which will enable passengers and goods to reach Halifax from Liverpool in five days, and China and Japan in considerably under one month. Already boxes of tea have reached London from China over the Empire

route in less than one month, and with faster steamers there is no doubt that this performance can be greatly improved upon. It is estimated, indeed, that the actual saving in time by the Empire over all competing routes will be, at the least England to Sydney, two days; England to Brisbane, four to five days; England to Hong Kong, two days; England to Shanghai, seven to nine days; England to Yokohama, 17 to 20 days. Such economies of time as these when realized will be of vital importance, and they foreshadow the restoration to England of that commercial equilibrium which has been so much impaired by the opening of Suez Canal. The immense importance of the new route via Canada can be better appreciated when it is carefully considered in relation to the development of trade and commerce between Great Britain and Australasia, and Great Britain and China, Japan, the Straits Settlements, the Philippines, etc.

The following comparisons is made by the *Times*, showing the growth of trade during the past quarter of a century and the estimated expansion by the end of another 25 years:

In Millions Sterling.			
Between the United Kingdom and	In the Year 1860.	In the Year 1885.	Estimate, 1910.
Australasia	17	51	153
Straits Settlements	3	7	16.5
Java, Philippines, etc	3	7	16.5
Hong Kong and China	15	20	26.5
Japan	.2	3	4.5
Total	38.2	88	217

These figures are great and impressive; should the estimates given above be realized their meaning for Great Britain will be most momentous. Our trade with Australasia is already of magnitude and importance, but it may be trebled in the course of another quarter of a century. Consequently our manufacturers cannot possibly make too great or sustained efforts to gain their respective footing in those markets without delay, so that they may grow up, as it were, with the colonies and share in their progress. Of almost equal importance is the trade with China and Japan, particularly China. That country, with its population of 400,000,000, is likely to commence railways on a liberal scale. With such a market thrown open to the influences and appliances of Western civilization, the new Canadian route must be absolutely indispensable to us. To sum up, there needs no argument to demonstrate that the Empire route will not only be beneficial to Great Britain and Australasia as a direct link between two, but of even greater importance to British North America. Manufacturers who appreciate these facts and figures properly, and who will apply them thoughtfully to the requirements of their own individual business, should not be slow in making up their minds to enter these greatest markets of the near future whilst they can do so with comparative ease and celerity.

The Dismissed C. P. R. Conductors.

According to the statement of those who know, it appears that the correct number of those discharged by the C.P.R. Company are five conductors and six porters. A reporter saw Mr. James Kearney, the old and well known conductor. He said: "Yes I have got my conge apparently on the 26th inst."

Mr. John Elliott, station agent here, received a telegram from James Wilson, General Superintendent of the Ontario & Quebec Division of the C. P. R., at Toronto, to this effect: "Mr. Kearney's services are disposed with; give his punch to Mr. Cardul. There was no explanation of why I was no longer wanted, nor any previous warning. I wrote to Mr. Wilson last night and told him that I was astonished at what had happened. I have a good record. For nineteen years I was conductor on the Grand Trunk Railway, and left it with flying colors to work on the C. P. R., on which I have been employed for the past eleven years. I consider that an investigation ought to be made in this matter, for I think I am entitled to it, and I am awaiting Mr. McKinnon's return to day, to see him about it."

Mr. A. Younger, another discharged conductor, said to day: "I was very much surprised to find that my services were dispensed with. I know where the trouble in my case lies, however. The porter on my train omitted to punch a ticket belonging to a passenger. I was away at the time, and was only made cognizant of the fact afterwards, but the C. P. R. authorities have seen fit to discharge me for the porter's misdoings. Mr. McKinnon will not arrive till to-morrow morning. The Company and their employees refuse to make any statements regarding the affair, it is the accepted opinion that the discharge of most of the men is owing to their indulging too freely in the "knocking down" system. This, however, is strongly repudiated by those discharged conductors who have been seen." *Montreal Star.*

An Important Case.

The Hamilton Iron Forge Company vs the Kingston & Pembroke Railway Company. Mr. MacKeelan, Q. C., and Mr. Gaudy for plaintiffs; Mr. Kirkpatrick, Q. C., and Mr. Bruce, Q. C., for defendants. This was an action brought by plaintiffs for the recovery of \$1,432.60, being the balance of an account for iron car axles sold and delivered by them to the defendants. The defendants claimed that by their contract with the plaintiffs the latter were bound to deliver to the defendants 400, and of the Master Carmakers' standard, and consequently of 4 1/2 inches in diameter at the centres, at 2 cents per pound. The plaintiffs claimed that by the contract they undertook to deliver axles of a smaller diameter at the centres, inch axles, and that the Master Carmakers' standard did not call for 4 1/2, and they delivered only 95 of 4 1/2 inch diameter and declined to furnish any more of that size for less than 2 1/2 cents per pound, which price the

defendants objected to pay, claiming that the plaintiffs were bound by their contract to deliver the Master Carmakers' standard axles, and that these were 4 1/2 inches in diameter. The defendants also claimed in their counter-claim as damages the difference in price between that named in the contract with the plaintiffs, namely, 2 cents per pound, and the price which they would have to pay now for the Master Carmakers' standard axles, namely, 2 1/2 cents per lb., the price of iron having risen through the increased duty imposed since the making of the contract in question. The judge held that the defendants' contention as to the size of the axles of the Master Carmakers' standard being required to be of 4 1/2 inches diameter was correct. Judgment was for \$1,432.60, the balance of account for axles delivered, but he allowed the defendants on their counter claim \$600, leaving the balance in plaintiffs favor, \$832.60, neither party being allowed any costs. *Hamilton Times*

A Smoke Consumer.

The *Montreal Star* says: A genuine smoke consumer has been adopted by the Canadian Pacific Company at their works, De Lorimier Avenue. In the presence of several engineering authorities it has been thoroughly tested, with the result that beyond the emission of a very thin vapor during the moment of firing, no smoke escapes from the stack.

The principle of its construction is that a certain regulated proportion of the air admitted into the ash pit is taken in a heated condition into an air chamber placed immediately in rear of the bridge, and thence passes out in finely divided streams to mingle with the gases holding in suspension the particles of carbon arising from the fuel at the point at which they are most highly heated, igniting them and consuming the carbon which would otherwise be carried away into the atmosphere. The draft of the fire chamber proper is increased by the more perfect combustion in rear of the bridge, and inferior fuel can be used to fire with.

C. P. R. Sault Line.

On 16th inst. Mr. W. C. Van Horne, vice-president of the Canadian Pacific Railway, was in the city. In regard to the new Sault Ste. Marie line, he said:—"Our line will be completed about the end of next week. The bridge over the St. Mary River will be completed and ready for trains by the 7th December. Of the American connections the Duluth, South Shore & Atlantic people inform us that their line is completed from the Sault westward about 250 miles. They have still a small gap to build to complete connection with the line from Duluth, which they expect to finish early in the spring. The Minneapolis & Sault Ste. Marie Road has notified us that their line will be completed through from Minneapolis & St. Paul to the Sault very early next month. The intention is to open the line for freight business as soon as the line

is completed. Passengers will not be taken until next year as there will be some work still to be done in the way of trimming up."

Railway and Forest.

Under this title the *Canada Lumberman* says:

The report of the Forestry Division of the United States Department of Agriculture gives information respecting "The relation of Railroads to Forest Supply and Forestry," which should be of much value to the people of Canada.

The total length of railroads in the United States was at close of

1840	2,795 miles.
1850	9,021 "
1860	30,635 "
1870	52,914 "
1880	93,349 "
1886	137,615 "

It is estimated that about 12,000 miles will be completed in 1887.

The quantity of timber required for ties, bridges, station buildings and other structures over these roads is much greater than most persons suppose. It may, indeed, be justly called enormous. In many of the districts in which railroads have been built timber was so abundant that it was used for every conceivable purpose, as being the cheapest of all materials.

The length of track, it will be understood, considerably exceeds the length of road. The report assumes that it is 187,500 miles. Allowing 2,640 ties for each mile, the whole number would be 495 millions, and as each contains three cubic feet of timber on the average, the whole quantity embedded under the entire mileage is 1,485,000,000 cubic feet.

It is difficult to ascertain the quantity used in bridges, trestles and piles: 2,000 feet per mile is considered a fair average. The total at that estimate is 375 million cubic feet.

Telegraph poles number 30 to the mile and in all about five million. At an average of ten cubic feet for each they require 50 million feet more.

But for every cubic foot ready for use in ties, bridge, etc., 14 feet of round timber is used.

The total quantity cut is therefore 3,150,000,000 cubic feet. It is almost impossible to conceive what these figures mean.

The average life of ties is about seven years; the average life of bridge timber and poles about ten years. To maintain the present roads requires therefore 70,714,286 new ties every year. Allowing for renewals of bridges, trestles, etc., the total quantity required is nearly 255 million cubic feet per year.

Then putting the construction of new roads at the low average of 5,000 miles each year, 13,200,000 new ties and ten million feet of timber, bridges, etc., are required for this purpose.

The total annual demand is now 305,712,858 cubic feet. The demand must increase every year if nothing be done to prevent it. The

waste in getting out ties and railway timber is very great. The railroad managers require the best material. When wood is so abundant that much is burned in order to clear the land, the farmer who generally get out ties and timber do not feel the necessity of care or economy. Young oak, larch and pine trees, which furnish but a single tie each, are recklessly cut down, and the means of restoring the forests from which the larger trees have been taken for other purposes are thus destroyed.

The effects of this recklessness are now very perceptible, especially in the wooded districts from which supplies for the prairie roads have been taken. In vast districts what were valuable forests are now mere wastes of brush and firewood.

It is calculated that all the valuable timber on 296,847 acres of well wooded land is required each year to meet the demands of the railroads, assuming that every acre will yield 300 ties. Vast as is the supply it must soon be exhausted if the consumption continue at this rate ever increasing.

In Europe, where timber of all kinds is comparatively scarce and dear, steel ties are used by some roads and are found satisfactory.

It is hardly to be supposed that steel ties will come much into use on this continent for many years to come. Other European roads use antiseptics to prolong the life of ties and to render wood hitherto not used suitable for this purpose. Antiseptic preparations, it is suggested, could be profitably used in those parts of America in which suitable wood is scarce. The Union Pacific and the Atchison, Topeka & Santa Fe Roads have established works at which soft woods are treated to make them suitable for ties, piling, etc.

In Canada the scarcity of wood for railway purposes has not yet been much felt. But there are some districts to which ties and timber must be hauled for a considerable distance even now, not to speak of the prairie roads, for which in most cases only soft wood can be got.

The report urges the owners of land, and especially those railroad companies which have obtained great land subsidies from the government, to provide against future want by planting extensively now. It tells of instances in which arboriculture has been carried on profitably and satisfactorily on a large scale, as well as of the great success which has crowned the labors of those who have planted trees for farm and homestead purposes on the treeless prairie.

It is asserted that farmers who sell hardwood or pine ties at 30 to 35 cents each waste what must be very valuable in a few years - what indeed is worth now much more than the price they get, and farmers are urged to combine wherever they can to obtain better prices.

Rogues of the Rail.

"RAILROAD confidence men have had their day," said an old Erie Railroad conductor, "but if I had all the money they made in a year, on this road alone, say twenty years

ago, I could rest in clover, and wouldn't be afraid to straddle the ante every time, no matter how big it was.

"The flush times of railroad confidence operators were during the war, and for a few years after it. Money was plenty, morals were lax, and train men didn't seem to think it any part of their duty to stand guard over the property of credulous travellers or those whose cupidity ran away with their reason. I guess there wasn't a trunk line in the country then that didn't have trainmen in its employ whose fees from well known travelling crooks were as much each month as the company paid them for their services, if not more. They were a sleek lot that worked the trains in those days, and no mistake. I know only one of that school of sharpers who is alive, and he is earning his living as a Methodist preacher, and as he is as poor as Job's turkey and has a family of eight children, I really think his reform is genuine. There was 'Wide Awake' Rusby, as the prince of all confidence men of that day, Rush Wakeman, was called; John Bard, or 'Gentleman John'; Warren Kreeck, the 'Professor'; Billy Bartlett, 'Red Shirt' Kelly, and others whose names I've forgotten. Wakeman died in Toronto a year or two ago, a helpless and speechless paralytic. John Bard was killed while jumping from a train with a sum of money he had won from a drover. Warren Kreeck was killed by a gambler in Texas, and 'Red Shirt' Kelly died in a Pennsylvania poor house.

"Nearly all of the smart confidence men that formerly worked the railroad were products of the local towns. Their knowledge of localities and people stood them in such aid that they could work all around New York City operators who once and awhile tried their hands at their games. The cheekiest and slickest piece of confidence work I ever saw done was done by a Waverly expert, a young man whose family is well known in the southern tier. There was a treasurer of a Pennsylvania county who was in the habit of coming over into this State with the contents of the whole county treasury in his pocket and having a good time with the public funds. This sharp young Waverly man came to town one night it happened in Port Jervis and although an entire stranger, soon got acquainted with a crowd who were having a lively racket in one of the saloons. The county treasurer was there. The Waverly confidence man said to one of the men present that he could borrow \$500 of the treasurer if he had it. The other bet \$10 that he couldn't do it. The Waverly man went up to the treasurer and whispered in his ear.

"I've bet \$10 I could borrow \$500 of you. Say nothing, but count out the money in my hand. I'll win the ten and divide with you."

"Certainly," said the model treasurer, and handed over \$500. The bet was paid and divided. When drinks were had on the joke, the treasurer reached to get the \$500 back. But the confidence sharper was too sly for that. The loan had been fair and square, he said, and he had paid a bonus of \$5 to get it. Nothing had been said about how long the

loan was to be for. A great commotion ensued, but in the face of the whole crowd the confidence man kept the money, got in a train and went West, and has never paid this loan yet. The county treasurer disappeared soon afterwards with \$18,000 of the county's money.

"But railroad confidence operators have had their day, not because the people that travel are not just as gullible as they ever were, because they are, and would bite at the same tricks that fooled them twenty five years ago, but the railroad authorities keep too close a watch on the operator nowadays, and there is too much risk to run in working a train." *Ed. Mott in N. Y. Mail and Express.*

Anthracite in the North-West.

A RECENT issue of the *Globe* contained the following. Mr. Macleod Stewart, mayor of Ottawa, was in the city yesterday. He arrived in the morning from the North West via St. Paul, and left for Ottawa in the evening. His visit to the North-West was for the purpose of attending the meeting of a coal mining company, of which he is president. The mines are at Anthracite, about three miles east of Banff, the name of the station having been given because of the mines of the company, where anthracite coal is now produced in large quantities. Mr. Stewart, in his description of the works, the product and the market, declared his belief that it was destined to be the biggest enterprise in the North-West.

"Does your company control all the anthracite lands?" was asked. No," was the reply, "but we are the only company actually at work. We have about 150 hands employed, all told; we have brought in the latest improved appliances from Pennsylvania and are in a position to supply a large part of the demand for anthracite all over the North-West and the Pacific coast. We are supplying the local market from Winnipeg westward and are shipping large quantities to San Francisco, and have even sent some as far south as San Diego. The Pennsylvania coal has to be hauled to the Atlantic seaboard, loaded upon vessels and sent all the way round Cape Horn, while ours goes through to Vancouver and sent by vessel to San Francisco. It takes months to carry coal by Cape Horn, while we can put it on the wharf at San Francisco in a week. We have the market there, no doubt about that."

"Is the coal real anthracite, as good as that from Pennsylvania?" "Yes, it is better. We had a three days' competitive test in Spreckles' great sugar refinery, and the Canadian coal was proven to be superior to that from Pennsylvania." "Is there not a protective duty on the American side?" "Not on anthracite; they took it off some years ago, thinking that there was no anthracite outside of the United States."

"At what price do you deliver coal in Winnipeg?" "At \$9.50 a ton. The coal has to go a long distance and every mile of it by rail. But that rate is a good deal better than it used to be in Winnipeg a few years ago."

"Punch" on the New North West Passage.

LONDON *Punch* for the second week in October gives the place of honor to "The North West Passage." The centre cartoon represents Britannia, with sceptre of power in hand, drawing the attention of her people to the westward course of the new imperial highway through Canada. There follows this:

A COLLOQUY ON THE CANADIAN SHORE.

Canada. "Westward the course of Empire takes its way."

Britannia. The Bishop's famous line, dear, bears to-day

Modified meaning; westward runs indeed
The root of Empire, -ours'

Canada. If I succeed
In drawing hither Trade's unflinching feet
And yours, my triumph then will be complete.

Britannia. Across your continent from sea to sea

All is our own, my child, and all is free.
No jealous rival spy around our path
With watchfulness not far remote from wrath.

The sea ways are my own, free from of old
To keels adventurous and bosoms bold.
Now, from my western cliffs that front the deep

To where the warm Pacific waters sweep
Around Cathay and old Zipangu's shore.
My course is clear. What can I wish for more?

To your young enterprise the praise is due.
Canada. The praise and profit I would share
with you.

Canadian energy has felt the spur
Of British capital; the flush and stir
Of British patriot blood is in our heart;
Still I am glad you think I've done my part.

Britannia. Bravely! You Arctic wastes no more need slay

My gallant sons. Had Franklin seen this day
He had not slept his last long lonely sleep
Where the chill ice-pack lades the frozen deep.

"It can be done! England should do it!"
Yes,
That is the thought which urges to success
Our struggling, sore-tried heroes. Waghorn knew

Such inspiration. Many a palsied crew
Painfully creeping through the Arctic night
Have felt it fill their souls like fire and light.

Well, it is done by men of English strain,
Though in such shape as they who strove in vain

With Boreal cold and darkness never dreamed

When o'er the pole the pale aurora gleamed
Perpetual challenge

Canada. Here's your Empire route'
A right of way whose value to compute
Will tax the prophets.

Britannia. Links me closer still
With all my wandering sons who tame and till

The world's wild wastes, and through each
paradise

In tropic seas or under southern skies.
See, Halifax, Vancouver, Sydney, set
Fresh steps upon a path whose promise yet
Even ourselves have hardly measured. Lo!
Far Chi'm brought within a moon or so
Of tea-devouring London! Here it lies,
The way for men and mails and merchandise,

Striking athwart your sea dividing sweep
Of Land; one iron road from deep to deep!
Well thought, well done!

Canada. No more need you depend
On furtive enemy or doubtful friend.
Your home is on the deep, and when you come

To the Dominion's land you're still at home.
Britannia. And woe to him the Statesman
cold or blind,

Of clutching spirit or of chilling mind,
Pedantic prig or purse-string tightened fool
Who'd check such work and such a spirit cool!

Yours is the praise, and may the profit flow
In furtive stream, 'midst your Canadian snow

A true Pactolus. Trade's prolific fruit
Should freely flourish on our Empire Route.

The Euphrates Valley Railway.

INDIA is, roughly speaking, the fifth great commercial power of the world. Its annual trade amounts to 155 million pounds sterling, of which 70 millions are imports, and 85 millions exports, and it supports a population of over 250 million inhabitants. Burmah has a population of between eight and nine millions and a trade from 20 to 25 millions sterling for the southern part only. Persia, which is a market that would be immediately affected by the creation of a railway, has a population of about eight millions, and a trade which is estimated at over ten millions sterling. Asiatic Turkey, whose trade would be considerably developed and sustained by railway communication, has a population of over sixteen millions, and may be estimated to effect exports of value some twenty millions sterling. Direct through railway communication, via Persia and Kurrachee with our possessions in India and Burmah, would undoubtedly stimulate the production and consumption of those markets as well as of the countries through which it would pass, and from the first it would derive support from countries having a total population of 283 millions, and effecting a trade of 210 millions sterling annually. However small the share of business which might accrue to the railway from such enormous sources, the imperial concerns of interests so vast surely call for their protection and for every means, both for their protection and for their development. We admit, nationally speaking, the soundness of paying of a quarter of a million of money, as an imperial subsidy for the maintenance of a first-class ocean communication with those markets. The same principal applies, surely, to land communication also, and in the greater measure, to our mind at least, that those communications are distinctly menaced by the persistent attempts of Russia to extend her railway system to the

Persian Gulf, if once that result be attained, it will be impossible for this country to create and possess an alternative and overland route to India and China. The insecurity of our present position of reliance on the Suez Canal has surely been strongly enough exposed, both commercially and militarily, to render the creation of an alternative and land route necessary. The action of Russia in hastening the development of her Asiatic railway system appears to leave us no choice of route or time. Our action should be immediate, and the route, which might be either by the Euphrates, the Tigris; or an alternative direction in Asia Minor, should tap the ports of the Persian Gulf and could be carried to a junction with our Indian lines at Kurrachee.—*Chamber of Commerce Journal* (London.)

The Great Silver Country.

THE Duluth *News* referring to the visit to that city of Mr. R. R. Paulson, President of the Detroit manufacturing company, after an extensive trip over the Lake Superior silver region, quotes his remarks upon the famous Beaver Mountain mine: "I saw millions of dollars worth of silver ore in sight, some of it worth \$12 a pound. I saw one vein of virtually pure silver there as thick round and through as my body. The whole section of country for about fifty miles long and ten miles broad is one vast silver deposit, of which the Beaver and Rabbit Mountain mines are at one extremity, and the "Ancient Diggings" mines (ours) at another. The country is exceedingly rough, but is being taken up rapidly. In a few years it will be the greatest mineral wealth producing country on the continent.

Our mines are expected to show fully as rich ore as the Beaver, and we shall probably build and equip our own railroad from Grand Marais to Lake Miranda. An excellent country road is being built part of the way there from Grand Marais, and there will be several hundred men put on our works next spring." The location is thirty miles north of Grand Marais, and President Paulson and Secretary H. F. Ebert are enthusiastic over their company's belongings. The celebrated photographer, Mr. Cox, of London, England, accompanied them for the purpose of taking views of the country traversed. That he has been eminently successful may be gleaned from the magnificent collection of photographs which Mr. Paulson is taking back with him, and the further information that Photographer Cox, who is "well fixed" in this world's goods, is considering the project of draining Lake Miranda, with a view to getting at the veins of silver which deflect from the bluffs toward the lake. The project is not at all difficult, and he will, probably accomplish it next summer. The views alluded to show a very complete panorama of the country, and will probably find their way into magazine pages before long.

As an instance of the difficulty of getting supplies into that region, it may be mentioned that nails cost eleven cents a pound there, and other things in the same proportion.

Fifteen men, under Captain Spaulding, have been working there during the past summer, and in every instance the development of the hiding places of large bodies of silver has rewarded their labors. In one of the pits, about thirty feet from the surface, Captain Spaulding found a broken stone hammer, a quantity of ashes and petrified ends of charred logs. The veins of silver discovered are what is known as "natural fissure" veins, and are exceedingly rich.

The New Line from Duluth to the "Soo."

THE Duluth South Shore & Atlantic railway company has now in operation over 400 miles of its line and will make connection with the Northern Pacific railroad early in December. The Canadian Pacific railway will be completed to the Sault Ste. Marie by the first of November. The great international bridge across the Sault Ste. Marie will be ready for the passage of trains by November 1. The new line is completed for the bridge at Sault Ste. Marie to the Marquette, Houghton & Ontonagon railroad division at Marquette, and also from the straight of Mackinaw, where connection is made with the Michigan Central, to a junction with the main line.

The Marquette, Houghton & Ontonagon railroad and branches were purchased last winter by the Duluth South Shore & Atlantic company, and the track is laid from the junction near Michigamme west nearly to the foot of Lake Gogebic and during the next thirty days will be laid through the Gogebic range to a connection with the Milwaukee Lake Shore & Western and the Northern Pacific over which last road trackage has been secured to the Superior City and Duluth.

The sections of the line already completed and in operation earned during the first eight months of 1887 \$1,000,000 gross and nearly \$400,000 net. The amount of bonds is very light, being only \$12,000 per mile of 5 per cent. fifty year gold bonds, while the cost in money of the entire property with equipment and terminals will be about \$35,000 per mile. The company is already earning its entire fixed charges on the completed sections.

The road is all steel and has been constructed with a view to secure the lowest possible grades between Duluth and Sault Ste. Marie and Mackinaw. The total length of the road and branches including the Marquette, Houghton & Ontonagon divisions is about 600 miles. The company has a large and valuable land grant of white pine lands and both copper and iron ore mineral rights.

The New York parties in interest sent Charles H. Ellis, C. E., over the entire line to make an examination of the character of the work and his report states that the maps profiles of the work show that a maximum grade of 52 feet per mile was adopted on location and adhered to on construction. His inspection of the profiles showed that very expensive work was done in order to avoid heavier grades than 52 feet per mile. Substantially all the grading and bridging is completed as far west as the Iron River junction with the Northern Pacific, about thirty five miles east of Superior.

The traffic through the Canal at Sault Ste. Marie last year was 487,600 tons of freight, of which this company expects to do one half.

James McMillan of Detroit, Mich., is president of the company, and Colvin S. Bruce, of New York, is vice-president. The directors are James McMillan, Colvin S. Bruce, C. R. Cummings, Samuel Thomas, George I. Seney, A. D. Julliard, Nelson Robinson and Hugh McMillan.

A Great Steamer.

MESSRS. THOMAS MARKS & Co. have contracted with Messrs. Napier, Shanks & Bell, of Glasgow, Scotland, for the construction of a steel par decked screw steamer, 250 feet long by 40 feet beam and 23 feet moulded depth. The new boat will have the most modern style of triple expansion 21 31x52 inches bore by 36 inches stroke. Steam is furnished by two steel boilers, with a pressure of 160 pounds. The vessel is estimated to carry, on 14 feet draught, 2,000 tons of cargo; on 16 feet, 2,500, and to have a speed, when so loaded, of 12 miles an hour. There will be no passenger accommodation except 3 spare rooms for the owners. The contract calls for the delivery of the ship on April 15th, and it is confidently expected that she will be in commission on the lakes by June 1st. She is expressly constructed and equipped for the grain trade, and it is believed that between Port Arthur, Duluth and Kingston she will find plenty of work. When built this will be the largest Canadian steamer, and there are very few of even the American barges which will carry more cargo, and none of them will be a finer boat in any particular.—*Port Arthur Sentinel*.

Traffic.

WITHIN the past two months there has been an increase of about 10 per cent. in the Canadian Pacific's new tonnage between the Pacific and Atlantic coasts. A feature of the Canadian Pacific's traffic at present is that it is no longer confined to a few staple commodities, but includes nearly the whole list of items that go to make up the overland freight traffic of the American lines.—*Railway News*.

THE Canadian Pacific Railway Company will shortly begin the construction at Owen Sound of a grain elevator with at least a capacity of one million bushels. Additional docks and warehouses will also be built, and next year one or more steamers will be added to the line running to Port Arthur, and a new line of freight and passenger steamers will very likely be established between Owen Sound, Chicago and Milwaukee.

THE St. Paul *Pioneer Press* of a recent date says: Mr. Robert Kerr, traffic manager of the Canadian Pacific Railway, was at the Ryan yesterday. The road he represents is making a big bid for Pacific coast trade, and his visit to St. Paul has connection with this matter. An effort is being made to induce St. Paul jobbers to import tea and other products

from Japan over this road, and to an extent the company has been successful. Already several firms have received large consignments of Asiatic products.

As tending to set at rest a misapprehension respecting the railway prospect in the north western states, because of a supposed short crop, the *Railway Register* says: There has been no important reduction in the yield in the North-West as compared with a year ago. In special districts particular cereals show a falling off in production, but taking that territory as a whole and having regard to all the leading cereals—corn, wheat and oats the total product for 1887 is found to differ but slightly from that for 1886.

The business of importing milk into this city has grown to very large proportions. There is hardly a passenger train arriving after daylight in the morning that does not bring in a number of cans of the regulation pattern filled with fresh country milk. The cans are supplied by dealers and are filled and shipped under contract by farmers and gardeners at different points. So great is the demand that milk comes in even from so distant a point as St. Mary's, 99 miles away. From Oakville alone an average of 25 cans, or 200 gallons, a day come in, and from Bronte even more. All the stations near at hand contribute to swell the receipts, which in all amount to about 300 cans, or 2,400 gallons, daily.

According to the daily papers Traffic Manager Olds, of the Canadian Pacific, in an interview in Chicago says: There is fair prospect of some sort of agreement with middle and southern transcontinental lines, provided they will allow Canadian Pacific large enough differential in rates. Mr. Olds, however, wanted it distinctly understood that talk of compromise did not include Northern Pacific, with which there must be war to the knife. Mr. Oakes, in invading the Red River Valley, had aimed a blow at Canadian Pacific, but the Manitoba was already cutting the life out of Northern Pacific on Montana business and Canadian Pacific would not be an idle spectator. It being suggested that no peace could be fixed up between Canadian Pacific and competing lines which did not include Northern Pacific, Mr. Olds replied that this was a matter for American lines to settle. He had imperative orders from Vice President Van Home not to become a party to any agreement which included Northern Pacific.

The Railway Service.

RAILWAY conductors have fads, and the latest one is collecting punch holes from other conductors. A conductor on the Delaware and Hudson Railroad has a collection of more than a hundred punch holes, representing disks, hearts, crescents, crosses, birds and many other objects.

THE *Railway Age*, of a recent issue says: Probably no one now is sorry that Timothy Coughlin, the section foreman of the Toledo

& Western Road, who was held responsible by the coroner's jury for the terrible Chatsworth disaster, was discharged by the grand jury, the evidence against him being considered insufficient. Public sentiment at the time of this accident demanded a victim and the unfortunate section foreman was arrested, although no one for a moment believed that he had exhibited any intentional neglect or short-coming in connection with his work. To have punished this man for the occurrence of the fire, because the men under his charge had the immediate supervision of the track where the accident occurred, would have been an outrage on the common sense of justice.

Mechanical.

THE Baldwin Locomotive Works are now building locomotives at the rate of fifteen per week, or 780 per year. This will exceed the output of 1886 by 100. The number of hands employed is nearly 3,000.

AN exchange says: The Grand Trunk Railway Company has decided to test the new system of heating the car direct from the locomotive, abolishing the stoves which have been so disastrous to wrecked trains. The "Martin" system will shortly be tried on the Cornwall branch, and the "Sewell" system on the Ottawa section. The apparatus has been severely tested on the Maine Central Railway, and the results are stated to be most satisfactory. Steam is taken from the locomotive and transmitted through pipes the whole length of the train. The arrangements are very simple and effectual. The coupling of the pipes is perfect, allowing free passage without any obstruction, and the system has proved its adaptability at all degrees of temperature. The cars are thoroughly independent of one another. A single valve in each car regulates the degree of heat. The pipes are also arranged for the drainage of the condensed steam to prevent freezing. It is the intention to ultimately adopt the system on all trains if the present experiment proves successful.

A DESPATCH from Kingston, dated 10th inst., says: Messrs. Dubs and Lorimer, the leading members of the firm of Dubs & Co., locomotive builders, Glasgow, Scotland, have purchased for \$150,000 a controlling interest in the locomotive works here, and assume the active management on December 15. Dubs & Co. are very extensive iron workers, have an establishment in Glasgow in which they employ 2,000 men, and their representatives came to Canada to invest capital in the establishment of such a works as that in this city. Their men have spent a week here, becoming familiar with the condition of the business and its prospects, and left for home. They will send out at once a superintendent, assistant superintendent and draughtsman. Two of these replace Ald. Harty and Mr. Childs, the manager and superintendent, who retire, one going, it is understood, to Toronto to engage in extensive business there, and the other to Boston. The resignations of both were in the hands of the old company. Be-

fore departing Messrs. Dubs and Lorimer negotiated for the purchase of the marine shipyard, with a view of going into iron boat building. Hon. Mr. Kirkpatrick remains president of the company. A contract has just been entered into by the Department of Railways with the locomotive works for fourteen heavy locomotives for the Intercolonial Railway, to cost about \$10,000 each. This is rendered necessary by the steadily increasing traffic of the road requiring an increase of its hauling capacity.

Miscellaneous.

AT the Colonial Institute on 8th inst., Sir James Service, Australian delegate to the colonial conference, said, regarding telegraphic communication between Canada and Australia direct, that an effort had been made to induce the Imperial Government to assist in making the survey, and he believed that some sort of promise had been made that it would come in due course. Meanwhile the Canadians, with the resolution and go-aheadism which distinguished them almost more than their American neighbors, were not allowing the project to slip through their fingers. He believed, at the present moment, communications had been opened with the governments of Australia, asking them to contribute a small subsidy towards cost of survey, which the government would themselves undertake. The project of a direct cable between Canada and Australia would be of immense benefit to the Empire, as it would not touch upon a foreign country.

MORE than half as much traffic passed through the Sault Ste. Marie Canal last year as passed through the Suez Canal! This is something astonishing, and all the more so when we remember that six years ago the traffic on the Suez Canal was six million tons, and the traffic on the American Canal only about a million and a half. While the Suez Canal increased its tonnage 50 per cent., the American Canal increased by 300 per cent. That looks like progress, and, no doubt, this increase is largely due to the C. P. R. and the opening of the North-West. And it is comforting to know that we shall soon have a canal of our own at the Sault, for there will soon be plenty of work on both sides of the stream.

It is expected that before long a practical test of the numerous harnesses for the control of Niagara's power brought into existence under the stimulus of a \$100,000 prize, will receive a practical test, which will demonstrate its use or prove it a failure and give something further, on which to base arguments that Niagara contains no great shakes of available power. An endless chain, with feathering buckets, was the invention of a Buffalo man. The rights for Erie and Niagara counties he sold for \$45,000. He says that he has a contract for that amount. A stock company with \$1,000,000 capital is to be formed if the coming test proves successful. Geo. W.

Smith has obtained backing to the amount of \$10,000 which is the amount a 1,000 horse power machine will cost, and he has received the necessary permission from the Secretary of War to place the machinery in the river. Mechanical drawings are now being made, and it is expected that the machine will be tested this fall.

RECENT statistics show that the number of steamers existing in the world in 1886 was estimated at 9,969, of an aggregate burden of 10,531,343 tons. In the previous year the number was stated at 9,642, of an aggregate burden of 10,291,241 tons. The world's steam shipping in 1886 was thus distributed: Iron steamers, 8,198, of an aggregate burden of 8,911,436 tons; steel steamers, 770, of an aggregate burden of 32,823 tons; and wooden steamers, 832, of an aggregate burden of 380,655 tons. Of the steamers afloat in 1885, 5,797 were owned by the United Kingdom and its colonies, their aggregate burden being 6,595,871 tons. The other countries of the world owned steamers in the following order:—Germany, 579; France, 509; Spain, 401; the United States, 400; Norway, 287; Russia, 212; Denmark, 200; Italy, 173; Holland, 152; Brazil, 141; Japan, 105; Greece and Turkey, 82 each; Belgium, 68; Chili and the Argentine Republic, 43 each; China and Portugal, 27 each; Hawaii, 21; Mexico, 15; and miscellaneous, 50. From the above figures it appears that, notwithstanding the great depression prevailing in the steam shipping trade, the number of steamers afloat last year increased to the extent of 327 as compared with 1885.

Is Railway Building Overdone?

A CORRESPONDENT of the *New York Indicator* asks the above question and answers it himself as follows: There are few people who depend upon a 15-year-old encyclopedia for information who can have any conception of the west. Mr. R. P. Flower, who has just returned from a western trip, says railroad building has just begun. Previous to 1860, on the old school atlas, Nebraska was included in what was called "The Great American Desert." There was no means of transportation except four or six mule or ox-teams attached to "prairie schooners" and no roads, no settlements or population except a thin line of squatters along the eastern border of the territory on the Missouri River.

The population in 1860 was 28,841; in 1870, 122,903; in 1880, 452,402. The assessors make a census on January 1 in each year, which showed, January 1, 1886, 800,000, and I lately saw an Omaha paper with a minute calculation by counties, making 1,100,000.

For the importation and movement of these people, and the agricultural implements, waggons, lumber, groceries and the countless supplies of all kinds which new settlers need, all of which must come from the east and must be done by railroad, and the exportation of their surplus corn, wheat, hogs and cattle, etc., I think they need some facilities which even a bear might deem necessary.

Dakota has shown a similar growth in half the time, while the other states—Texas,

Kansas, Arkansas, Missouri, Iowa and Minnesota—have large districts not yet reached by railroads.

The Cause of Discontent.

THE *New York World* has this to say which reads much like what *RAILWAY LIFE* said in a recent issue. It is not the wealth that is honestly accumulated that gives whatever real ground there is for discontent, but that which comes from dishonesty. The immense fortunes that are piled up through combinations which are in fact conspiracies, through the multifarious methods of "making something out of nothing" of which stock-watering is a prominent feature, and through monopoly, all protected against needed correction by corrupt control of legislatures which frame the laws, are important factors in the trouble.

Does not some responsibility rest with those who, recognizing the heavy burdens these evils impose upon the masses, refrain from lifting up their voices against them in a proper way? The road to reform lies through constitutional channels. Would it not be better for society to travel that road? Anarchy is absurd, preposterous. But discontent on which Anarchy is a murderous and insane exorcism, is something else. It is not a profitable plan to correct an evil condition only at one end.—*New York World*.

All Jay Gould Wants.

My wants are few; I scorn to be
A querulous refiner;
I only want America
And a mortgage deed of china;
And if kind fate threw Europe in,
And Africa and Asia,
And a few Islands of the sea,
I'd ask no other treasure.

Give me but these—they are enough
To suit my humble notion—
And I'll give up to other men
All land beneath the ocean.
Those vast, untilled, ungathered fields,
So fertile and prolific,
That untrod acreage of soil—
The bed of the Pacific.

I only want to own the earth,
And regulate and man it;
My wants are all contracted down
To just one little planet.
A desert tent was good enough
For Abraham and Sarah,
And I'd give all my fellow men
A house lot in Sahara!

—[S. W. Foss in *Tid Bits*.

A PASSENGER on a Georgia railroad with a ticket to Water Station found that the train did not stop there. After appealing in vain to the conductor he went to the front platform of the rear coach, drew out the coupling pin, set the brake, and when the car slackened its speed, jumped off into the darkness. It was not until the train reached Sylvania, some distance beyond, that the loss of the car was discovered.

Mr. Onderdonk's New Contract.

THE city of Chicago has awarded the contract of building a new water tunnel, some four miles out into the lake, to Mr. A. Onderdonk, of New York, the contractor who accomplished some of the heaviest and most difficult work in the construction of the Canadian Pacific Railway in British Columbia, and has carried out many other important engineering achievements. The *Chicago Tribune* says:

He has done his most noteworthy work in Canada, California and British North America, and is well known to the heavy financiers and leading engineers of those parts of the country. One of his biggest undertakings was the building of the western three hundred and fifty miles of the Canadian Pacific from the Rocky Mountains to the Pacific Ocean. There were over forty tunnels on this part of the line, and his work was considered by the best authorities as ranking with the most difficult and scientific ever done on this continent. One of his contracts with the Canadian Pacific amounted to \$9,000,000 and the smaller ones aggregated nearly as much. He built the harbor improvements of San Francisco, including the docks, ferry slips, and stone sea wall in deep water, and is an expert in submarine work. Financially he is entirely responsible, and his past work is a guarantee of his ability to successfully carry the new tunnel to completion.

The bids were as follows: E. Earnshaw, \$823,164; Angus & Robinson, \$1,145,175; A. Onderdonk, \$748,500; McAdams & Amberg, \$1,107,160; Fitz-Simons & Connell, \$887,490; M. P. Garrity, \$800,628.

THERE has been a terrible dearth of bold train robber news since Ernest Smith's innovation against the practice in the west. It used to be the thing for the agent to kindly offer his hand to the robbers and assist them into the mail and express car, and to treat them with all the courtesies due the president of the road, and the business of train-robbing was considered a nice, easy, and highly lucrative pursuit, attended with nothing like the risks of life and limb that the calling of a member of a train crew is. But this sense of entire safety on the part of the robbers was what enabled the heroic Ernest Smith to get in his work.

A RECENT despatch from Montreal says:—The plans for the C. P. R. entrance into its new depot are completed from Guy to Mountain Street. The road will be on solid masonry, arches wide enough for two tracks. A spread of arches twenty feet high and nineteen broad from Mountain street to the station track will be carried on an embankment of solid masonry. The company intends building four thousand cars and one hundred and eighty locomotives within the next eighteen months and in order to do so will immediately commence the erection of large works here, where they will employ continually 2,500 men.

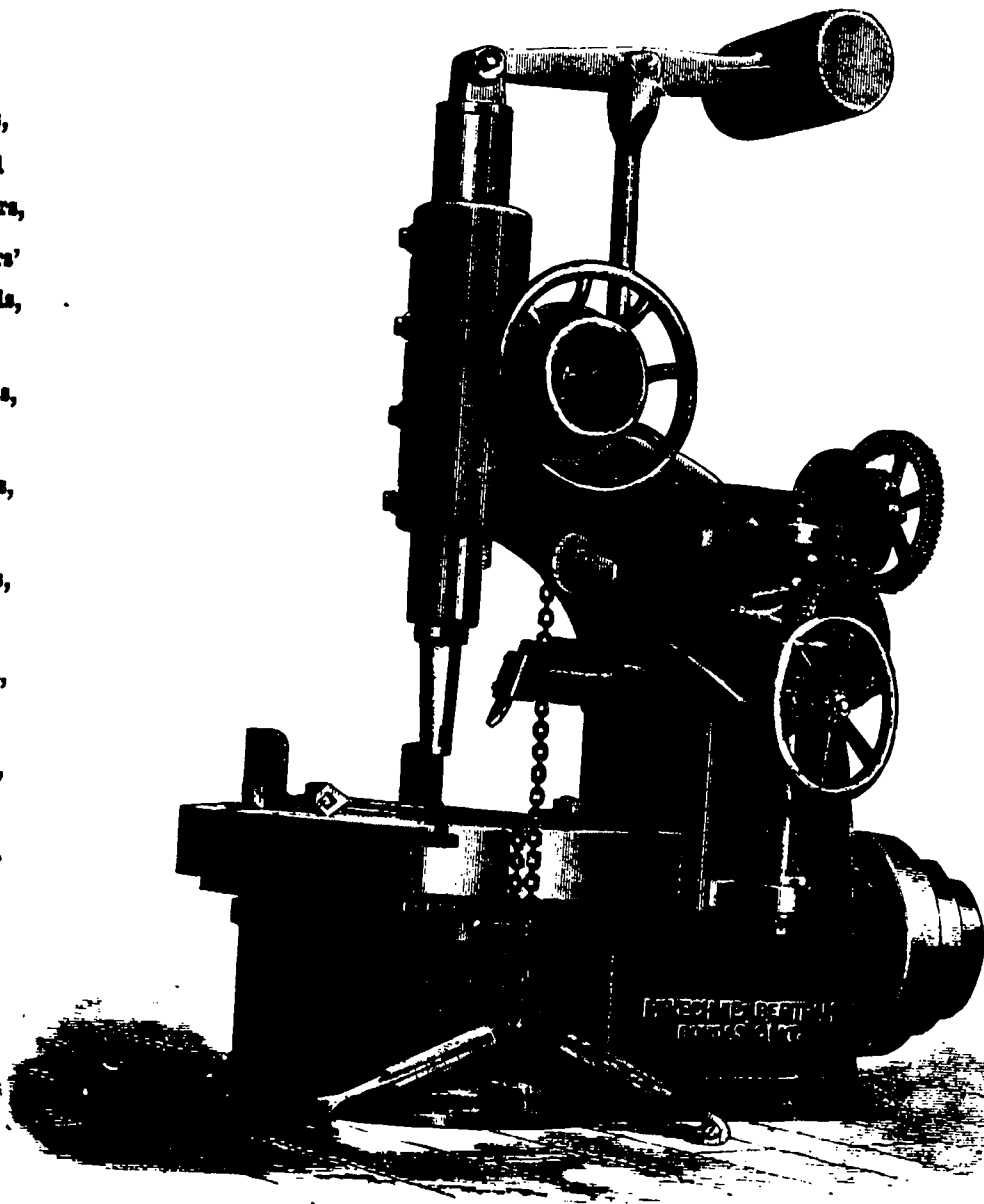
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ing Lathes,
Wood Planing
and Matching
Machines,
Surface
Planers,
Moulding
Machines,
Morticing
Machines,



Tenoning
Machines,
Band Saws,
Scroll Saws,
Wood-Turning
Lathes,
Timber
Dressers,
&c., &c., &c.

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of Machinery
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Works,

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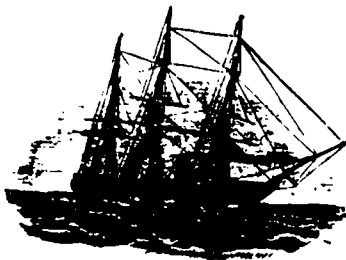
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