

PAGES

MISSING

The Canadian Engineer

WEEKLY

ESTABLISHED 1893

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The Canadian Engineer

ESTABLISHED 1893

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

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A reader is anxious to secure copies of the Canadian Engineer for May 3rd, 1907, and is willing to pay 25 cents a piece for these. Perhaps some of our subscribers can accommodate him.

TRANSPORTATION.

A few years ago in Canada the great question of national concern was population. Now it is transportation. Large areas, that a few years ago were but sparingly settled, have become prosperous communities. New railroads are required before they can be constructed. Even with early and late sailing our steamboat lines cannot care for the lake traffic.

Inter-provincial trade has greatly increased. The products of the farm, forest and mines required a road to the

markets of the world. A producing people are a spending people. The homes all over the land required the luxuries from our large centers. The transportation companies were taxed to their utmost, the rolling stock was crowded to its fullest capacity. Accidents increased, until 1907 rolled up a total three times as great as 1906. Largely because our channels of transportation were crowded.

Nor can any speedy remedy be applied, ships require much time to build, the double-tracking of railways is, if anything, a slower task. The transportation problem of to-day is not being solved, indeed cannot be. We are now working at the problem of the future. To originate and give form to a sound transportation policy for Canada's future requires broad-minded imaginative men. We must not think of to-day alone but plan for the to-morrow. And plan, not sparingly, but generously, for are we not adding to our numbers at the rate of a quarter a million a year?

If Canada is to become the great nation we wish it to be there must be conceived a comprehensive transportation policy.

IRRIGATION.

In Canada irrigation is in its infancy. In the United States even yet it is much of an experiment. Many sections of Canada, however, are now supplied with or are carrying on irrigation work. Many more such schemes will follow and at the present time the Governments of Canada and the Provinces interested should watch carefully projected legislation and should themselves prepare a programme leading to a more careful regulation of irrigation companies, if, indeed, they should not at once enter upon a policy of public ownership and operation of all irrigation schemes that are larger than the works required by an individual for and on his own property.

Some day sections of Canada will have a sad awakening to the fact that irrigation ditches do not always irrigate. For years in some localities ditches have been opened, distribution drains built, but a kind Providence supplied moisture and they were not required. The settlement grew year by year the ditches were extended. This has been repeated: and yearly too irrigation companies have collected their water rates. Should a really dry season come the ditches could not water a tithe of the land and where shall the blame for such a condition be placed.

The Government regulates the business of our fire insurance companies; it superintends the investments and inspects the securities of our life insurance companies; hail insurance companies must operate under limitation laid down for them, but the irrigation companies, the insurance companies of the waste land, have escaped so far those regulations and restrictions which should limit the operations of such public corporations. This is not as it should be. It should be the duty of some responsible person or board to specify the delivery of a ditch for a certain section. Some general specification should be framed and enforced governing the sale of water rights by the irrigation companies. This is just as important as the chartering of the company and restricting its powers of diverting water.

? ? ?

Mr. Graham told Mr. Borden that the report of the Quebec Bridge Commission would be brought down as early as possible. He was urging its preparation.

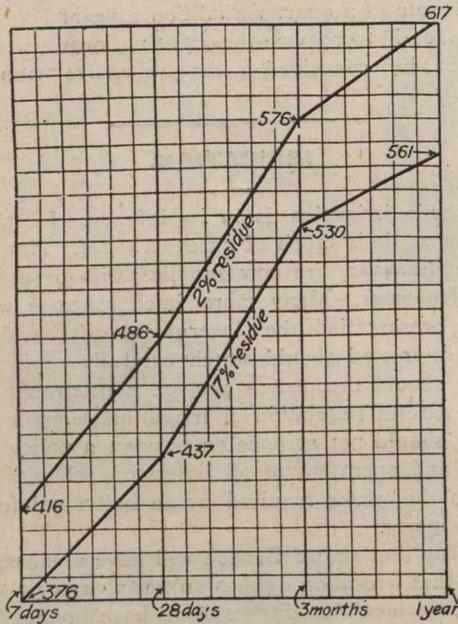
ANNUAL MEETING OF THE CANADIAN SOCIETY OF CIVIL ENGINEERS.

As we go to press the annual meeting of the Canadian Society of Civil Engineers is in session at Montreal. The president's report, presented on Tuesday, showed the Society to be in a most satisfactory state, both as regards the number of members, influence and finances. During the year some four hundred members had joined, giving a present total membership of all classes of nearly two thousand. Next week's issue of the Canadian Engineer will contain a complete report of the proceedings.

INFLUENCE OF FINENESS ON THE STRENGTH OF CEMENT.

In a recent report to the Association of German Cement Manufacturers, Emil Riisagar gave the results of a number of experiments he has made relative to the influence of varying proportions of fine material in Portland cement.

The most striking results are those in which the effects of a normal cement, with 17 per cent. and 2 per cent. residue on a No. 175 sieve respectively, were compared. The results below are the average of five tests of each material,



the test pieces being composed of 1 part of cement, 3 parts of normal sand, 2 per cent. of plaster of Paris, and 8 per cent. of water.

Strength in lbs. per Square Inch.

Residue on	After	After	After	After
175 sieve	7 days	28 days.	3 months.	1 year.
17 per cent.	375.9	437.4	529.7	560.9
2 per cent.	416.0	485.6	576.5	617.7

The accompanying chart shows still more clearly the benefit to be obtained by grinding the cement so as to leave as small as possible a residue on a No. 175 sieve. This is a matter which has not received as much attention in this country as it deserves, but one well-known cement manufacturing firm in America is making capital out of its advertisements by insisting, with much "reason why" argument, that its product is superior to all others on account of the greater proportion of finest particles.

The use of air-separators instead of fine lawns or sieves makes the production of a cement of extreme fineness much easier than when ordinary sieves are employed, as the clogging and short life of the latter are avoided, and by the careful regulation of the speed at which the air-separator is driven particularly finely ground product is obtainable with comparative ease.

CONCRETE HAS AN ARCHITECTURE OF ITS OWN.

A concrete residence, built by Mr. Albert Moyer at South Orange, N.J., is described in Municipal Engineering, where the writer emphasizes the necessity of designing for concrete, eliminating all thought of stone, brick, plaster, etc. Concrete has an architecture of its own, and it is too often the case that builders try to imitate other materials, with unsatisfactory results. In speaking of concrete for residences, Mr. Moyer has the following to say:—

If you employ concrete, let it look like concrete, design for concrete, eliminate all thought of stone, brick, wood or plaster. Let the house stand up and be able to say to the casual observer: "I am solid, strong, substantial, durable, beautiful, and am of concrete." That which looks right to the practised and trained eye is right. For country residences, particularly where there are winding roads, trees, a hillside, and, possibly, rocks, concrete treated as concrete looks right. Convenience and adaptability seem to point to concrete as a material best suited to assist in developing what I am pleased to call American architecture.

In using concrete for country residences, I wish the reader to eliminate from his mind all thought of concrete, such as he sees about him in retaining walls, bridge abutments and other work where concrete has been employed, but to try to picture a concrete made of selected material, the moulds or forms taken off as soon as possible while the concrete is yet green, the surface scrubbed with a scrubbing brush, or, if the concrete is too stiff, a wire brush, water being sprayed on with a hose, thus removing all the mortar which has come to the surface and exposing the larger pieces of aggregates; in fact, throwing them slightly in relief, giving a rough surface of accidentally distributed colored stones. The structure of the walls is described as follows:—

The concrete was very carefully mixed by hand. As each shovelful was turned it was raked with an ordinary garden rake. This was repeated until an intimate mixture resulted. Mixing was first done dry, and then wet, sufficient water being added to produce a medium wet concrete, which was thoroughly tamped in the forms in six-inch layers, each course being carried to the height of about three feet at a time and allowed to set hard before the next course was put on top.

The selected aggregates used composed all of the concrete. They were not put against the outside forms by hand, but were mixed all through the concrete, thus giving an accidental distribution of white and dark particles, far more beautiful than if the arrangement of the particles was deliberate.

In describing the effect of this surface to the eye, it is almost impossible to present the color effect produced, even by means of a photograph. Before viewing the house some architects criticized this method, stating that it would give too rough an appearance; others did not think it practicable from an economical standpoint, and others expected efflorescence and all kinds of trouble, but after viewing the house their opinions were changed, and it is now believed by some of the best architects and engineers in New York to be the correct method of treating concrete economically and artistically.

The difference between stucco finish and mortar face concrete and exposed selected larger aggregates is that the stucco finish, even though scrubbed or treated with acid, would present to the eye too fine a grain for the large space of wall, and would thus become monotonous.

TENDERS OPEN.

HALLVILLE, ONT.—On February 1st tenders will close for 206 cubic feet concrete in piers, 675 cubic feet stone filling, and 2,055 square feet rip rap for the Armstrong Bridge over Nation River. H. Martin is clerk.

PORT ROYAL, N.S.—Tenders will be received by the Department of Public Works, Ottawa, up to February 14th, 1908, for the construction of a wharf at Port Royal, Richmond County, N.S. Plans and specification can be seen at the offices of C. E. W. Dodwell, resident engineer, Halifax.

CORRESPONDENCE

[This department is a meeting-place for ideas. If you have any suggestions as to new methods or successful methods, let us hear from you. You may not be accustomed to write for publication, but do not hesitate. It is ideas we want. Your suggestion will help another.—Ed.]

RAILWAY CROSS-OVER.

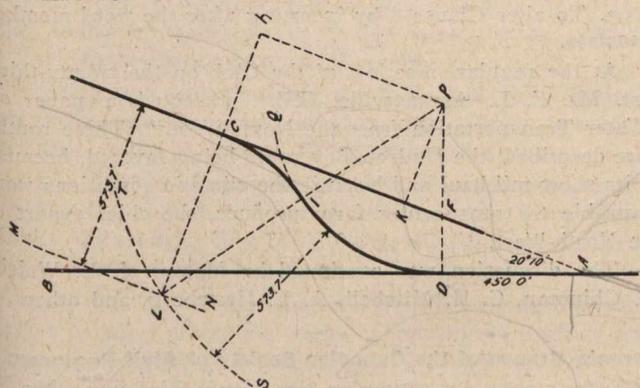
Sir,—In yours of 17th instant, "Rodman" asks for solution of joining two railroad lines by a 10° S curve.

Our first task is to solve the problem geometrically and then find the trigonometrical formulae.

The centre of the first curve, DIQ, is easily obtained by laying off the radius DP=573.ft. (radius of 10° curve). The locus of the other centre lies along the paths of two lines:

(1) An arc ST concentric to the first curve and with radius=2×573.7 ft., and (2) a line parallel to the tangent CA and 573.7 ft. from it.

These two loci intersect at L, join LP, and where it intersects curve DQ at I is the point of reverse curve. Draw the curve IC.



Now draw PH parallel to FC intersecting LC produced at H, also draw PK ⊥ CF.

$$KPF = 90^\circ - KFP$$

$$= 90^\circ - DFA = DAF$$

Also ∴ PK & HL are ⊥ to CF and consequently parallel ∴ KPI = CLI

$$\therefore DPI = CLI + DAF$$

$$FD = AD \tan DAF = 450 \tan D 20^\circ 10' = 165.3'$$

$$FP = \text{radius } r - FD = 573.7 - 165.3 = 408.4'$$

$$LH = LC + CH = r + PK = 573.7 + 408.4 \cos 20^\circ 10' = 383.4'$$

$$\cos CLI \text{ or } HLP = \frac{HL}{LP} = \frac{383.4}{2 \times 573.7} = \cos 33^\circ 28'$$

$$\therefore FPI = 33^\circ 28' + 20^\circ 10' = 53^\circ 38'$$

Note.—If the two curves are not of the same radius, but say r and r', then $\cos HLP = \frac{HL}{r+r'}$

Quebec, 19th January, 1908. A. R. Sprenger.

CONCRETE SURFACES.

Sir,—The appearance of concrete surfaces may be varied greatly, depending upon the skill and intelligence of the workmen and upon the forms used.

For ordinary vertical surfaces use planed, tongued and grooved boards in which there are no holes for the mortar to escape. As the concrete is deposited, an ordinary garden fork or spade with holes is thrust down the inside facing of forms so as to work back the stone, leaving the sand and cement against the boards.

By this method a smooth, hard and uniform surface is obtained at a nominal cost.

Yours sincerely,

Montreal, Jan. 22, 1908.

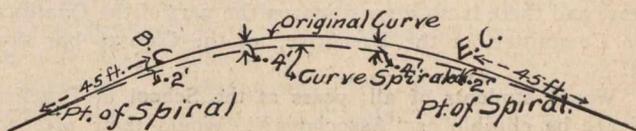
E. E. Gagnon.

Toronto, March 23rd, 1907.

The Editor, Canadian Engineer:

Sir,—Would you kindly have some of your readers answer the following questions:

What is the effect on the rolling stock of a railway of a "curve" as shown? The master mechanic of the road complains that his engines were wearing too quickly.



The original curve is 3 degrees. Instead of using an ordinary spiral, the procedure on a certain Ontario railway is as follows: The points of B.C. and E.C. offset towards centre 2 feet. At the other points on curve offset 4 feet. Measure back along the tangents from B.C. and E.C. 45 feet and use that point as the "so-called point of spiral."

In a 4 degree curve the procedure is the same except that the curve is offset 6 feet and the B.C. and E.C. 3 feet.

Yours, Subscriber.

ENGINEERS' CLUB, TORONTO.

Sir,—Your communication of even date received, asking me for my views upon Mr. F. L. Sommerville's proposed extension of the clauses of the Constitution of the Engineers' Club of Toronto, and governing the necessary qualification for membership.

Mr. Sommerville, is, I believe, to bring up his motion on the 13th February. Between that date and this, Sir, I consider that it behooves every member to do some deep thinking anent the lifted lid.

The formation of an "Associate" grade of member would be a move, perhaps, pregnant of results not presently so easy to realize. I do not care to come out flat-footed against the amendment; but Mr. Sommerville himself, I think, would be the first to declare that the potentiality for good or evil in the suggested departure from the Club's scheme of things should be fully recognized, and the whole question carefully weighed.

One needs small effort to discern many advantages in extending a welcoming hand to a score or so of contractors, et al.—neither "graduates in applied science or in civil engineering," nor professional workers of three years' standing—who would have no vote, but who would pay their yearly dues.

Although founded in 1899, the Club still has the growing pains incident to youth, and the financial aid forthcoming through the lifted lid would afford a short-cut answer to the query, "Where will the money come from?" should the sub-committee now considering the matter report in favor of larger, more adaptable and, of course, incidentally, more expensive quarters. Many gentlemen who would be eligible for "Associate" membership, it goes without saying, would possess knowledge and data for the reading of papers before

the Club of the utmost interest, and our meetings would gain in popularity.

On the other hand, Sir, ere the Club commits itself, due consideration should be shown for the wishes of the strictly professional members. Their efforts have brought the Club to its present position—a fairly comfortable position, indeed, from a very modest beginning. It is not so difficult to put one's self in the shoes of some of these. Quite a few of them, before the days of the Engineers' Club, already belonged and still belong to one of the large social clubs where they meet many who would join our Club under the "Associate" head. But to them the advantage in the Engineers' Club membership lay and lies in the opportunity for absolute freedom of discussion upon any subject to the fore, and entirely from the engineering side. Would the formation of an "Associate" class result in the resignation of any of these? There are times when an engineer does not feel free to discuss his present undertaking with his contractor. Perhaps there are evenings when he has a disinclination to talk shop at all, and feels moved to journey down town to enjoy a paper on some attractive topic or other far removed from his everyday employment.

Again, Sir, it is for the members to adjudge whether the present Constitution is not broad enough. For, many of our members, although wholly eligible under one or other of the present clauses, belong to manufacturing or contracting firms, and there is no disposition on the part of the Qualification Committee, or the Executive, or the Club to bar such out.

Would students of all years at the School of Practical Science be eligible as "Associates?" Would their presence en masse at our meetings be desirable? Would it be wiser to stall the motion for a year, or until it were decided that we incur the expense of larger club rooms?

Besides these, there are many other questions that should be asked by members about this lifted lid amendment. In considering the matter, it is a time for width-awake. The pill which Mr. Sommerville asks the Club to swallow is sugar-coated. Is the "business end" of it a sure, real, good tonic? Does our "Constitution" require, at present, ever so good a pick-me-up? It would never do for the at-present-eligible engineer to be "hoist with his own petard."

Let there be a bumper meeting to intelligently and fully sift out Mr. Sommerville's amendment.

Yours truly,

Toronto, Jan. 22, 1908.

C. M. Canniff.

ENGINEERING SOCIETIES.

CANADIAN RAILWAY CLUB.—President, W. D. Robb, G.T.R.; secretary, James Powell, P.O. Box 7, St. Lambert, near Montreal, P.Q.

CANADIAN STREET RAILWAY ASSOCIATION.—President, E. A. Evans, Quebec; secretary, Acton Burrows, 157 Bay Street, Toronto.

CANADIAN ELECTRICAL ASSOCIATION.—President, R. S. Kelsch, Montreal; secretary, T. S. Young, Canadian Electrical News, Toronto.

CANADIAN INDEPENDENT TELEPHONE ASSOCIATION.—President, J. F. Demers, M.D., Levis, Que.; secretary, F. Page Wilson, Toronto.

CANADIAN MINING INSTITUTE.—413 Dorchester Street West, Montreal. President, Frederick Keffer, Greenwood, B.C.; secretary, H. Mortimer-Lamb.

TORONTO BRANCH OF THE CANADIAN SOCIETY OF CIVIL ENGINEERS.—96 King Street West, Toronto. President, C. H. Mitchell, C.E.; Secretary, T. C. Irving, Jr., Traders Bank Building.

ENGINEERS' CLUB OF TORONTO.—96 King Street West. President, J. G. Sing; secretary, R. B. Wolsey. Meeting every Thursday evening during the fall and winter months. February 6th, 1908, annual dinner.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—413 Dorchester Street West, Montreal. President, W. McLea Walbank; secretary, Prof. C. H. McLeod. Meetings will be held at Society Rooms each Thursday until May 1st, 1908. January 28th, 1908, annual meeting of the Society.

SOCIETY NOTES.

Toronto Engineers' Club.

At the regular business meeting of the Club on February 6th, 1908, a motion to change the constitution of the Club will likely be discussed, and since the matter interests not only the Engineers' Club, Toronto, but will likely, indirectly, lead to discussion in other engineers' clubs we give in full Clause 3 as it stands, and following it the suggested amendment.

Clause 3. The Club shall consist of members and honorary members.

The following persons shall be eligible for membership:

(a) Those who have been engaged in any branch of engineering work or applied science for at least three years.

(b) Graduates in applied science or in civil engineering from any Canadian, British or Foreign University, or of the Royal Military College of Canada, Kingston.

(c) Members of the Association of Ontario Land Surveyors.

The amendment is as follows:

1. To add to second line of Clause 3 the words **and associates.**

2. To add to Clause 3 the following: An associate shall be one who is not an engineer by profession, but whose pursuits, scientific requirements or practical experience qualify him to co-operate with engineers in the advancement of professional knowledge and he shall possess all the rights and privileges of members except the right to vote or hold office.

3. To alter Clause 8 by inserting after the word member **associate.**

At the regular meeting of the Club on the twenty-third inst. Mr. F. L. Sommerville, C.E., presented a paper on "Water Transportation from the North-West." Three routes were described, the Hudson Bay route being favored, because of its short rail haul and because the climatic conditions were favorable to transporting farm produce, the chief export of the North-West.

The discussion was continued by Messrs. J. E. Walsh, W. Chipman, C. H. Mitchell, A. L. Hertzberg, and others.

Toronto Branch of the Canadian Society of Civil Engineers

Held their annual meeting on the twenty-third inst., Mr. E. H. Keating, president, in the chair.



Mr. E. H. Keating,

The Retiring President of the Toronto Branch of the Canadian Society of Civil Engineers.

The reports were received and adopted and officers elected for 1908-9 as follows: President, C. H. Mitchell, C.E.; Secretary-Treasurer; T. C. Irving, Jr., Executive Committee; Messrs. M. J. Haney, N. McLeod and F. Simpson. Auditors, Messrs. Parke and Clark.

ORDER OF THE RAILWAY COMMISSIONERS OF CANADA.

4210—Jan. 7—Authorizing the C.P.R. Company to construct bridge No. 73.4 on the Swift Current Section of its railway, Province of Saskatchewan.

4211—Jan. 8—Authorizing that an electric bell with flash-light be installed and maintained at the crossing of the C.P.R. south of Cowasville Railway station at Fuller Crossing, Tp. Dunham, Que.

4212—Jan. 8—Authorizing the St. John Railway Company to construct its track across the New Brunswick Southern Railway Company on Union Street, St. John, N.B.

4213 to 4217—Jan. 14—Appointing the Chief Commissioner to examine on oath any witness who may be produced before him to give evidence in the application of the Mt. McKay & Kakabeka Falls Railway Company to cross the C.N.R. Company at Francis Street; the C.P.R. at McTavish Street; the C.P.R. at Yonge Street; the C.N.R. at Yonge Street; the G.T.P. Railway at Montreal Street, Fort William, Ont.

4218—Jan. 10—Authorizing the Dereham Telephone Company to place and maintain its wires across the tracks of the M.C.R. at Brownsville, Ont.

4219—Jan. 10—Authorizing the C.P.R. Company to construct its railway across the road allowance between Lots 20 and 21, Con. 5, Tp. of York, County of York, Ont., at mile 7.79, between Toronto Junction and Bolton.

4220—Jan. 10—Authorizing the C.P.R. Company to construct additional tracks across Hadley Street, in the Town of St. Paul, Que., for the purpose of a yard.

4221—Jan. 14—Authorizing the W.E. & L.S.R. Railway Company to operate its trains on its lines or track where the same crosses the M.C.R. at Talbot Street, Essex, Ont.

4222—Jan. 10—Approving plan, profile, and book of reference showing change in location of the Kettle River Valley Railway Company's line of railway at Niagara, between Station 404 ÷ 50 and 442 ÷ 53.3.

4223—Jan. 14—Authorizing the Bell Telephone Company to place its wires across the tracks of the Alberta Railway and Irrigation Company at 1¾ miles east of Lethbridge, Alta.

4224—Jan. 14—Approving plan and profile showing deviations of Sections 1 and 2 of the Kettle River Valley Railway Company's line of railway to the North Fork of the Kettle River.

4225—Jan. 14—Authorizing the Tilsonburg, Lake Erie & Pacific Railway Company to construct its railway across the highways between Lot 8, Con. 4, and Lot 8, Con. 5, Tp. of Zorra, County of Oxford, Ont.

4226—Jan. 14—Authorizing the T.L.E. & Pacific Railway Company to construct its railway across the highways between Lots 5 and 6, Con. 3, and between Lot 6, Con. 3, and Lot 6, Con. 4, Tp. of Zorra, County of Oxford, Ont.

4227—Jan. 9—Authorizing the Department of Public Works of Saskatchewan to construct a highway across the track of the Manitoba & North-Western Branch of the C.P.R. in the N.W. Quar. Sec. 10, Tp. 21, R. 30, W.P.M., at Marchwell Station, Saskatchewan.

4228—Jan. 10—Authorizing the C.P.R. Company to construct a branch line in the City of Montreal to the premises of the Canadian Rubber Company.

4229—Jan. 14—Approving by-law of the Pacific Express Company, authorizing the Chief Clerk of the Tariff Department to prepare and issue tariffs of tolls to be charged for traffic carried in Canada.

4230—Jan. 14—Authorizing the G.T.R. Company to construct a branch line or spur in the City of Toronto to the property of the Smart Bag Company, on the south side of Dickens Street.

4231—Jan. 9—Approving Local Standard Passenger Tariff C.R.C. No. 371 of the Wabash Railroad Company, providing a maximum rate of 3 cents per mile between all stations in Canada.

4232—Jan. 10—Authorizing the G.T.R. Company to construct a branch line or spur from a point on the west side of

King Street, in the Town of Chesley, Ont., to the premises of the Chesley Rake & Novelty Company.

4233—Jan. 15—Extending to the 31st January, 1908, the time specified in Order No. 4124, dated December 10th, authorizing the C.P.R. and G.T.R. Companies to submit to the board schedules for the running of said trains, under which reasonable time will be allowed for the transfer of passengers and mails at Brockville, Ont.

4234—Jan. 16—Authorizing the Norfolk County Telephone Company to place and maintain its wires across the tracks of the G.T.R. at Hawtry Station; also at Delhi.

4235—Jan. 16—Authorizing the Ingersoll Telephone Company to place and maintain its wires across the tracks of the G.T.R. at Beachville, Ont.

4236—Jan. 16—Authorizing the Ingersoll Telephone Company to place and maintain its wires across the tracks of the C.P.R. at Beachville, Ont.

4237—Jan. 15—Authorizing the Norfolk County Telephone Company to place and maintain its wires across the tracks of the M.C.R.R. at Townsend Centre; also on the town line between the Tps. of Norwich and the Gore of Norwich, at Hawtrey, Ont.

4238—Jan. 15—Authorizing A. E. Lewarton, of Churchbridge, Sask., to place and maintain a telephone wire across the track of the C.P.R. at Churchbridge, Sask.

4239—Jan. 15—Authorizing the C.P.R. Company to reconstruct Bridge No. 53.7 on the Woodstock section of its line, over the St. John River.

4240—Jan. 15—Authorizing the C.P.R. Company to reconstruct Bridge No. 44.8 on the Montreal Terminals of its line.

4241—Jan. 15—Authorizing the C.P.R. Company to reconstruct Bridge No. 96.2 on the Sherbrooke section of its line of railway.

4242—Jan. 15—Authorizing the C.P.R. Company to reconstruct Bridge No. 9.6 on the Swift Current section of its line.

4243—Jan. 15—Authorizing the Jewell Lumber Company, Limited, to place and maintain a telephone wire under the tracks and roadbed of the C.P.R. near Jaffray, B.C.

4244—Jan. 15—Authorizing the C.P.R. Company to construct and operate a branch line or spur at Maxwell, N.B., to and into the premises of the Town of St. Stephen.

4245—Jan. 15—Authorizing the Bell Telephone Company to place and maintain its wires across the tracks of the G.T.R. at public crossing, Ahren and Breithaupt Streets, Berlin, Ont.

4246—Jan. 7—Authorizing the G.T.R. Company to construct and operate a branch line in the Village of Elmira, Ont., to the premises of the Elmira Interior Woodwork Company.

4247—Jan. 16—Authorizing the Toronto & Niagara Power Company to erect and maintain wires for the transmission of electric power, namely, 12,000 volts, across the track of the Grand Trunk Railway near Wright's Crossing, between Niagara Falls and Thorold.

4248—Jan. 16—Authorizing the Toronto & Niagara Power Company to erect and maintain its wires for the transmission of electric power, namely, 12,000 volts, across the track of the Grand Trunk Railway at a point north of Lundy's Lane.

4249 to 4252, inclusive—Jan. 16—Authorizing the Bell Telephone Company of Canada to erect and maintain its wires across the tracks of the Canadian Pacific Railway at various points in the Province of Quebec.

4253—Jan. 16—Authorizing the Midland Railway Company of Manitoba to operate its trains across the track of the Canadian Pacific Railway Company at Morden, Manitoba.

4254—Jan. 17—Authorizing the St. Mary's & Western Railway Company to cross the track of the G.T.R. by means of a subway at a point about thirty-five hundred (3,500) feet south of the Grand Trunk station at St. Mary's, Ontario.

4255—Dec. 9—Authorizing the G.T.R. Company to take certain lands in the parish of St. Antoine de Longueuil, St. Lambert, Quebec.

4257 and 4258—Jan. 21—Authorizing the Bell Telephone Company to maintain crossings over G.T.R. and C.P.R.

4259—Jan. 21—Authorizing the Canadian Pacific Railway to reconstruct Bridge No. 78.0 on the Woodstock section over Little Shikitihaik River.

4260—Jan. 21—Authorizing the C.P.R. Company to construct Bridge No. 26.4 over Lemon Creek, on the Slocan Lake branch of its line.

4261—Jan. 21—Authorizing the City of Toronto to lay sewer pipes under the track of the G.T.R. Company, Sunnyside Avenue.

4262—Dec. 19—Ordering the Canada Atlantic Railway Company to construct and operate a branch line about three hundred and forty (340) feet in length, to the premises of Alexander Pilon in the Village of Casselman, Ontario.

4263—May 9—Dismissing application of A. J. Eckhardt for an Order to vary Clause Seven of the Order of the Board, dated November 23rd, 1905.

4264—Jan. 22—Authorizing the East Middlesex Telephone Co-operative Association to erect, place and maintain its telephone line across the track of the Canadian Pacific Company between the 2nd and 3rd Concessions of the Township of West Nissouri, in the Province of Ontario.

4265—Jan. 22—Authorizing the Canadian Pacific Railway to construct its railway across the public highway on its Haley's Ballast Pit spur, from its main line east of Renfrew, in the Province of Ontario.

4266—Jan. 23—Authorizing the Welland County Telephone Company to erect, place and maintain its aerial wires across the lands and track of the Grand Trunk Railway at the sixth road crossing west of the Village of Bridgeburg, Ont., on the Twentieth District of the Grand Trunk Railway.

4267—Jan. 23—Authorizing the Welland County Telephone Company to erect, place and maintain its aerial wires across the lands and track of the Grand Trunk Railway at Windmill Point, Ont., on the Twentieth District of the G.T.R.

4268—Jan. 22—Authorizing the Grand Trunk Railway Company to cross with its additional track, on Ferguson Avenue, the two tracks of the Hamilton Street Railway on Barton Street, in the City of Hamilton.

NEW INCORPORATIONS.

Canada.

The Mineral Development Company, Montreal, \$25,000. H. Barsalow, E. Barsalow, H. Quevillon, J. E. Gravel, J. L. Cowan.

The Hosmer Mines, Limited, Montreal, \$500,000. David McNicoll, Walter R. Baker, A. D. MacTier, E. Alexander, E. W. Beatty.

The Jenking Brass Manufacturing Company, Montreal, \$50,000. A. L. Bonin, A. Mason, W. Young, H. L. Jenkins, J. A. Lampard.

The Brazean-McLeod Bituminous Coal Company, Quebec, \$250,000. J. Scott, E. Cole, A. R. Oughtred, M. Caragol, L. R. Caragol.

Ontario.

Lakes Lumbering Company, Toronto, \$40,000. G. Ruel, G. F. Macdonnell, R. H. Temple.

The Falls City Lumber Company, Limited, Niagara Falls, \$40,000. Alex. Mennie, Wm. Wilson, John Wilson.

The Northern Foundry and Machine Company, Sault Sainte Marie, Ont., \$50,000. J. N. Kendall, J. N. Neil, P. Young, A. U. Smeader.

The Lincoln Silver Mining Company, Limited, Cobalt, \$300,000. W. P. Gardner, P. O'Brien, J. Kennedy, D. McMillan, Elizabeth White.

Canada Southern Oil and Gas Company, Limited, Tilbury, \$100,000. J. A. Tremblay, B. Ballard, J. D. Wesner, E. Giroux, H. Callwood.

The Ivanhoe Cobalt Silver Mining Company, Limited, Ottawa, \$1,000,000. J. C. Campbell, A. Chaput, G. W. Armstrong, H. S. Clements, A. McKay Sutherland.

Manitoba.

The Security Trust Company, of Winnipeg, capital stock, \$500,000. J. T. Haig, F. W. Louthood, G. N. Broatch, R. T. Wilson, P. J. Montague.

Dominion Equipment and Supply Company, Winnipeg, capital, \$100,000. D. F. Coyle, R. W. Hyland, Jeannette B. Coyle, E. R. Dowdall, J. A. Coyle.

TRADE INQUIRIES.

The following were among the inquiries relating to Canadian trade received at the office of the High Commissioner for Canada, 17, Victoria Street, London, S.W., during the week ending January 10th, 1908:

Inquiry has been made respecting a suitable site, with requisite railway facilities and adjacent to iron foundries and forges, for the manufacture of a well-known type of machinery in Canada. Fuel and water, and electricity for power and light purposes, must also be available.

A London firm manufacturing electric and hydraulic lifts, revolving shutters, collapsible gates, staircases, petrol and electric motors, and general machinery, desires to be placed in touch with Canadian importers of the same.

A firm of hardware importers in New Zealand is desirous of getting into touch with Canadian exporters in this line.

A firm in Bombay, India, asks to be placed in correspondence with Canadian importers of manganese ore.

A company in British Columbia seeks a few additional agencies in goods handled by the hardware and also by the builders and contractors trades.

A Canadian company manufacturing wood mantels asks to be placed in communication with United Kingdom dealers in builders' supplies who import this class of material.

PERSONAL.

MESSRS. COOKE, Fortune, Little, Hodder and Mayor Carrick will be for 1908 the Electric Railway and Light Commissioners for Port Arthur.

JAMES ARTHUR HALL has just been appointed by the Canadian Fire Underwriters' Association assistant electrical inspector for the city of Toronto.

MR. H. J. BOWMAN, of Berlin, Ont., and Mr. A. W. Conner, B.A., Toronto, have entered into a partnership as consulting municipal and structural engineers with offices in Toronto and Berlin.

MR. W. K. McNEILL, B.Sc., as manager of the Canadian Laboratories, has opened an office at 37 Melinda Street, Toronto. Besides cement testing they are prepared to carry on all kinds of chemical analysis.

OBITUARY.

S. F. KILGORE, president of the Huron Ontario Railway Company, died in London, England, January 24th, where he had been ill for some time. Deceased was forty-six years of age.

MR. GRIEVE MACRONE, assistant engineer of the Grand Trunk Pacific at Kitamaat, B.C., shot and killed himself the other day. Mr. MacRone had been with the company for some years.

FREDERICK W. BARRETT, secretary of the Luxfer Prism Company, and the Expanded Metal and Fireproofing Company, died January 26th, while on a business trip to Montreal. Deceased was born in Port Hope, Ont., and after practicing law in London became connected with the Polson Iron Company, when that company started shipbuilding at Owen Sound. He was in his 51st year.

During the recent stringency in the money market, the Pittsburgh Automatic Vise and Tool Company, general office, Pittsburgh, Pa., formed an agreement with several of the leading manufacturers in the country to co-operate with one another to aid all possible, the condition of affairs. The agreement consisted of paying all bills promptly, discounting same where possible. As a result several small concerns were prevented from going to the wall, as these larger institutions were always ready to aid where possible. This, however, has been the regular policy of the Pittsburgh Company.

CONSTRUCTION NEWS SECTION

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

LIGHT, HEAT, AND POWER.

Ontario.

PORT ARTHUR.—At the meeting of the Electric Railway, Light and Telephone Commission last night Superintendent McCauley was authorized to enter into an arrangement with the Canadian Northern Coal and Ore Dock Company for temporary power at the rate of \$40 per year. Two hundred horse-power to be used in the operation of the street railway, will be taken at once for a three year term.

WINDSOR.—Windsor is to be supplied with natural gas from the Tilbury fields. The Symes syndicate will pipe the gas at 35 cents for cooking and lighting, and 25 cents for other purposes, with the privilege of increasing the rates five cents at the end of seven years. As a guarantee of good faith the company promises to spend \$50,000 or the \$600,000 that will be required to bring the gas to the city, in laying mains outside the city limits before beginning to tear up any streets or pipes. The company agrees not to export any gas.

Nova Scotia.

HALIFAX.—It is not generally known that at the last session of the Legislature the Government of Nova Scotia assumed control of the rates chargeable for furnishing electric energy throughout the province. The law now requires that all schedules of rates shall be filed in the office of the Provincial Secretary, and that no changes can be made to the same without the authority of the Governor-in-Council. The right of hearing is given to any city, town, individual or firm affected, and thus the public are protected in a large degree from any excessive or improper charge.

SEWERAGE AND WATERWORKS.

Ontario.

HAMILTON.—The Fire and Water Committee have considered the tenders for the electric pumps and motors for the Beach pumping plant. The bids were submitted to Engineer Sothman of the Hydro-Electric Power Commission, and he placed them in order of merit.

For the 25 cycle proposition:

1. The Swedish General Electric Company for motors at \$12,800, and Buffalo Steam Pump Company for pumps at \$7,600.

2. Canadian Westinghouse Company for motors at \$15,945, and Buffalo Steam Pump Company for pumps at \$7,600.

For the 66 cycle proposition for induction motors:

1. Swedish General Electric Company for motors at \$9,800 and the Buffalo Steam Pump Company for pumps at \$8,500.

2. General Electric Company for motors, \$8,800.

The accepting of tenders for motors was postponed.

The representatives of the Worthington Pump Company explained they were not given an opportunity to tender on the amended specifications, so new tenders will be called for pump.

PALMERSTON.—The town expects to spend \$35,000 on waterworks extension during 1908. Galt and Smith are the engineers in charge of the work.

TORONTO.—If it is legal for the city to spread the payments over a period of four years, the Board of Control will approve the construction of a storm overflow sewer across the city to the Don, at a cost of \$200,000.

RAILWAYS—STEAM AND ELECTRIC.

Ontario.

PORT ARTHUR.—The C.P.R., C.N.R., and G.T.P., are unanimous in asking that the McKay and Kakabeka Railway Company construct overhead bridges or subways at the West Fort crossing. The steam railways prefer subways as bridges might interfere with the signals.

ST. CATHARINES.—The City Council passed a resolution favoring the Hamilton Radial bill now before Parliament, providing it is made obligatory on the company reaching this city within two years.

MISCELLANEOUS.

BRANDON, MAN.—The City Council has passed a final recommendation to construct a reinforced concrete bridge across the Assiniboine River here. Estimated cost \$60,000. The bridge will consist of 3 90-ft. spans with necessary approaches. W. H. Shillinglaw, city engineer.

LONDON, ONT.—The Canada Chemical Company of East London have decided that in the future their entire product will be manufactured in "Sulphide Ontario," Hastings, Ont., where a mine has been discovered in which iron and sulphur are in such proportions that the company can produce sulphuric acid cheaper than any other in the world.

BUILDINGS.

British Columbia.

VANCOUVER.—Plans have been prepared by Messrs. Dalton and Everleigh for a \$50,000 sanitorium to be erected near Kamloops.

Alberta.

EDMONTON.—The Alberta Government intend carrying on extensive building operations this year. The list of public buildings include the court houses in Edmonton and Wetaskiwin, the Land Titles Office in Calgary, the Normal School at Calgary, the jail or court house at Lethbridge, and the asylum at Ponoka.

The contract for the new Toronto observatory has been awarded to Brown & Love, Toronto. It will be situated at the corner of Devonshire Place and Bloor Street.

Snow-load on roofs is the subject of some recent investigations by Mr. S. de Perrot, of Neuenburg, Switzerland. Where a heavy fall of snow is followed by thawing and freezing successively and then more snow, and thus in repeated cycles, a coherent laminar mass of snow and ice is formed on roofs, which is of remarkable density. Several such "snow" accumulations proved to have a weight of 36 to 38 pounds per cubic foot. In these cases the thickness of the accumulated snow on the roof was 24 ins. to 32 ins., thus producing a load of 70 pounds to 100 pounds per square foot. This is three or four times as much as is commonly assumed in calculations.—The Engineer (London).

MR. HENRY M. LANE, editor of Castings, Cleveland, Ohio, was in Toronto last week in the interest of the Foundrymen's Association, which purposes holding a convention in Toronto in June.

MARKET CONDITIONS.

Montreal, January 30th, 1908.

In the local market, collections are considered fairly satisfactory, more particularly from smaller concerns which have not tied up their capital in extensions or improvements to their plant. Some of the larger establishments are finding it difficult to make prompt payment for the considerable supplies which they must of necessity get in, owing to the action of the banks in declining to give them the same line of credit as heretofore. Inquiries are coming in for a considerable tonnage, and small orders are being placed for delivery during the next two or three months. It is expected that quite a buying movement will take place very shortly, covering the needs of Canadian manufacturers for the spring and early summer months. As a matter of fact, several of the large concerns have already asked prices on quantities running into several thousand tons in the aggregate. Market conditions are practically unchanged, and are largely governed by prices prevailing on English and other imported irons.

Antimony.—The tone of the market is weaker but prices hold steady at 12½ to 13c. per pound.

Bar Iron and Steel.—Mills are prepared to accept very much lower prices than formerly, owing to the absence of demand and the fact that import prices are lower. There has been a decline of fully 10 per cent. all round, the following prices being now quoted: Bar iron, \$2 per 100 pounds; best refined horseshoe iron, \$2.25, and forged iron, \$2.15; mild steel, \$2.10; sleigh shoe steel, \$2.10 for 1 x ¾-base; tire steel, \$2.10 for 1 x ¾-base; toe calk steel, \$2.60; machine steel, iron finish, \$2.15.

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

Cement—Canadian and American.—Canadian cement is generally quoted at \$1.80 to \$1.90 per barrel, in cotton bags, and \$2.10 to \$2.20 in wood, weights in both cases 350 pounds. There are four bags of 87½ pounds each, net, to a barrel, and 10 cents must be added to the above prices for each bag. Bags in good condition are purchased at 10 cents each. Where paper bags are wanted instead of cotton, the charge is 2½ cents for each, or 10 cents per barrel weight. American cement is steady at \$1.15 per 350 pounds, basis Glens Falls, cotton or paper bags. When the cotton bags are returned in good condition, only 7½ cents is allowed for them. American cement sold at \$2 on track.

Cement—English and European.—English cement is unchanged at \$1.90 to \$2.20 per barrel in jute sacks of 82½ pounds each (including price of sacks) and \$2.10 to \$2.20 in wood, per 350 pounds, gross. Belgian cement is quoted at \$1.90 to \$2.10 per barrel, in wood. German is \$2.52 to \$2.55 per barrel of 400 pounds for Dyckerhoff.

Copper.—The market for copper shows very little change this week, being perhaps slightly firmer in tone. Prices hold at 15 to 15½c. per pound.

Iron.—Dealers make the claim that they will not accept less than the following for carload lots: Londonderry is only offering for future shipments, and is quoted at \$24 f.o.b. Montreal for No. 1. Toronto prices are about \$1.25 more. Summerlee iron is arriving, and is quoted at \$24 f.o.b. on cars, Montreal, for No. 2 selected, and \$25 for No. 1. No. 1 Cleveland is unobtainable at the present time, and Clarence at \$20 to \$21. Carron special, \$24; soft, \$23.75, to arrive.

Lead.—Prices show a slight advance, this week, at \$4 to \$4.10 per 100 pounds. Demand is fair.

Nails.—Demand is still dull and although cut nails are still quoted steady at \$2.50 per keg, it has been found necessary to reduce prices on wire, to \$2.40, base price.

Pipe—Cast Iron.—The market is next thing to dead, as nothing is used during the winter. Prices are steady at \$36 for 8-inch pipe and larger; \$37 for 6-inch pipe, \$38 for 5-inch, and \$39 for 4-inch at the foundry. Gas pipe is quoted at about \$1 more than the above.

Pipe, Wrought.—Trade continues on the dull side. Quotations and discounts for small lots, screwed and coupled, are as follows: ¼-inch to ¾-inch, \$5.50, with 53 per cent. off for black and 38 per cent. off for galvanized. The discount on the following is 66 per cent. off for black and 56 per cent. off for galvanized: ½-inch, \$8.50; 1-inch, \$16.50; 1¼-inch, \$22.50; 1½-inch, \$27; 2-inch, \$36; and 3-inch, \$75.50.

Spikes.—Railway spikes are not in very good demand, \$2.60 per 100 pounds, base of 5½ x 9-16. Ship spikes are steady at \$3.15 per 100 pounds, base of 5½ x 10 inch and 5½ x 12 inch.

Steel Shafting.—At the present time prices are steady at the list, less 25 per cent. Demand is very dull and lower figures would hardly be refused.

Steel Plates.—Demand is quite dull and a firm bid at lower figures than quotations would be considered. Quotations are: \$2.75 for 3-16, and \$2.50 for ¼ and thicker, in small lots.

Tin.—The market for tin shows a slight advance, this week, at 31½ to 32c. per pound.

Tool Steel.—Demand is light but the market is firm. Base prices are as follows: Jessop's best unannealed, 14½c. per pound, annealed being 15½c.; second grade, 8½c., and high-speed, "Ark," 60c., and "Novo," 65c.; "Conqueror," 55 to 60c.; Sanderson Bros. and Newbould's "Sabon," high-speed, 60c.; extra cast tool steel, 14c., and "Colorado" cast tool steel, 8c., base prices. Sanderson's "Rex A" is quoted at 75c. and upward; Self-Hardening, 45c.; Extra, 15c.; Superior, 12c.; and Crucible, 8c.; "Edgar Allan's Air-Hardening," 55 to 65c. per pound.

Zinc.—Demand is on the dull side and prices show a slight decline as compared with a week ago, being \$5.20 to \$5.45 per 100 pounds.

* * * *

Toronto, January 30th, 1908.

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

American Bessemer.—Fourteen-gauge, \$2.65; 17, 18, and 20-gauge, \$2.75; 22 and 24-gauge, \$2.85; 26-gauge, \$2.95; 28-gauge, \$3.20.

Antimony.—Quiet, but inquiries are coming in more freely; we quote 11½ to 13c.

Bar Iron.—\$2.20 base, from stock to the wholesale dealer. A moderate supply on hand.

Beams and channels, \$2.75 to \$3, according to size and quantity; angles, 1¼ by 3-16 and larger, \$2.65; tees, \$2.90 to \$3 per 100 pounds. Extras for smaller sizes.

Boiler Heads.—25c. per 100 pounds advance on boiler plate.

Boiler Plates.—¼-inch and heavier, \$2.50. Supply probably adequate and quotations still firm.

Boiler Tubes.—Lap-welded steel, 1¼-in., 10c.; 1½-in., 9c. per foot; 2-in., \$9.10; 2¼-in., \$10.85; 2½-in., \$12; 3-in., \$13.50; 3½-in., \$16.75; 4-in., \$21 per 100 ft. There is no reduction in price.

SECOND HAND DRYER.

FOR SALE—A second hand, Ruggles-Coles Dryer, return flues.

Capacity 2000 lbs. water evaporation per hour.

Electric Reduction Co., Ltd.
BUCKINGHAM - - QUEBEC.

SECOND HAND EQUIPMENT

FOR

CONTRACTORS, MINES, STONE-
WORKERS.

If you wish to buy or sell write us.

THE HARTLAND COMPANY

32B Board of Trade Building, MONTREAL.

Building Paper.—Plain, 32c. per roll; tarred, 40c. per roll, and the market decidedly strong at these prices.

Bricks.—Common structural \$10 per thousand, wholesale; small lots \$12 to \$13, and the demand fairly brisk. Red and buff pressed are worth \$18 at Don Valley Works.

Cement.—Star brand, Toronto, 1,000 barrel lots, \$2.25 per barrel, 350 pounds net, including bags, or \$1.85 ex-package, small lots cost \$2.10 warehouse, \$2.15 delivered. National and Lakefield prices are identical; English, Anchor, \$3 per barrel in wood. Demand is steady.

Felt Paper—Roofing Tarred.—Market steady at \$2 per 100 lbs.

Fire Bricks.—In steady request; English, \$32 to \$35; Scotch, \$30 to \$35; American, \$25 to \$35 per 1,000.

Galvanized Sheets—Apollo Gauge.—Sheets 6 or 8 feet long, 30 or 36 inches wide; 10-gauge, \$3.25; 12-14-gauge, \$3.35; 16, 18, 20, \$3.50; 22-24, \$3.70; 26, \$3.95; 28, \$4.37½; 29 or 30, \$4.70 per 100 pounds. Stocks very low.

Ingot Copper.—Market more active, but very irregular. Our quotation is 15 to 16½c.

Lead.—The market is active and strong; our quotation 4½c.

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

Pitch.—Quiet at 75c. per 100 lbs.

Pig Iron.—Summerlee No. 1, always in demand, generally for small lots, quotes now, nominally, \$27; Gleggarnock, \$26.50; No. 2, \$26; Cleveland, No. 1, \$23.50, \$24; Clarence, No. 3, procurable in Montreal, price here \$23 to \$24.00. But a small business doing; buyers cautious.

Steel Rails.—80-lb., \$35 to \$38 per ton.

Sheet Steel.—In moderate supply; 10-gauge, \$2.65; 12-gauge, \$2.75.

Tar.—Market unsettled, \$3.50 per barrel the ruling price.

Tank Plate.—3-16-in., \$2.65.

Tin.—Irregular, but active, fluctuating in Singapore and London. We still quote 31 to 32c. here.

Tool Steel.—Jowitt's special pink label, 10½c. per pound; Capital, 12c.; Conqueror, highspeed, 70c. base.

Wrought Steam and Water Pipe.—Trade prices per 100 feet are: Black, ¼ and ¾-in., \$2.59; ½-in., \$2.89; ¾-in., \$3.90; 1-in., \$5.60; 1¼-in., \$7.65; 1½-in., \$9.18; 2-in., \$12.24; 2½-in., \$22.15; 3-in., \$30.00. Galvanized, ¼ and ¾-in., \$3.41; ½-in., \$3.74; ¾-in., \$5.06; 1-in., \$7.26; 1¼-in., \$9.90; 1½-in., \$11.88; 2-in., \$15.84; 3½-in., black, \$39.00; 4-in., \$42.85. Prices firm but unchanged, stock light.

Zinc.—The market is steady and fairly active; quotation, Toronto, slab, \$5.50; sheet, \$7.50.

MACHINERY FOR SALE

LATHES.

Two new 18"x8' Rahn Carpenter
 One new 19"x8' Greaves Klusman.
 One new 28" x 16' New Haven.
 One new 24" x 16' New Haven.
 One new 32" x 16' New Haven (triple geared).
 One new 36" x 16' Improved London.
 One new 32 x 16' Improved London.
 One new 16" x 6' Rahn Carpenter.
 Two new 16" x 8' Lodge & Shipley (patent head).
 One nearly new 25"x14' Sarnia.
 One new 17" x 8' Greaves Klusman.
 One new 19" x 10' Greaves Klusman.
 One 18" x 8' London.
 One 16" x 6' Gardner.
 One nearly new 9" x 55' Barnes.
 One new 14" x 6' Sebastian.
 One new 15" x 6' Sebastian.
 One new 15" x 8' Sebastian.
 One nearly new 13" x 6' Star.
 One refitted 12" x 6' Dundas.
 One new 22" x 12' Lodge & Shipley.
 One new 16" x 10' Rahn Carpenter.
 One rebuilt 23" x 10' complete.
 One 20" x 15' 6" in good order.
 One 30" x 14' heavy bed.
 One 9" x 52" Sebastian foot power.
 One nearly new 24" x 40" x 12' London gap.
 One nearly new 24" x 40" x 18' London gap.
 One 12" x 24" x 5' Dundas gap.
 One new 18" x 25" x 12' Rahn Carpenter gap.
 One 11" x 48" Pilman speed lathe.

DRILLS.

One new 36" Bickford Radial.
 One refitted 4'6" Niles Radial.
 Two new 26" B. G. sliding hd.
 Three new 20" Mechanics, power feed.
 One nearly new 24" B. G. London.
 One new 24" Cincinnati.
 Two new 14" Mechanics.
 Four new 20" B. G. Mechanics.
 Two new 28" Kern sliding hd.
 One new 36" Cincinnati.
 One new 13" Reed belt-driven.
 One new 21" B. G. Robertson.
 One 15" Two-spindle sensitive.
 Two new 32" B.G. Mechanics.
 Three new 20" Mechanics friction.
 Two new Knight's drill and miller.
 Two 22" upright drills, hand-feed.
 One 18" upright-drill, lever-feed.
 One 36" B. G. drill, hand-feed.
 One 30" B. G. London.
 One rebuilt 26" B. G. Barnes.
 One 6 spindle multiple drill.
 Two new No. 13 hand drills.

IRON PLANERS.

One 30" x 30" x 8' Dundas.
 One 24" x 24" x 6½' London.
 One 24" x 24" x 36" American.
 One 23" x 18" x 5' in good order.
 One 12" x 12" x 27" complete.
 One 18" x 18" x 6' in good order.
 One 28" x 28" x 7' Gibson.
 One 13" x 15" x 30" hand planer.
 One 12" x 9" x 30" hand planer.

IRON SHAPERS.

One new 15" x 48" Open-side, Cincinnati.
 One new 15" x 30" Open-side, Cincinnati.
 One new 32" B. G. Cincinnati.
 One new 25" B. G. Steptoe.
 Three new 24" B. G. Rockford.
 Two new 20" B. G. Rockford.
 One new 16" Steptoe.
 One new 16" B. G. Rockford.
 One new 16" B. G. Cincinnati.
 One nearly new 24" Sarnia.
 One rebuilt 12" Fitchburg.
 One 9" gear drive.
 One new 7" Rhodes (hand or power).

MILLING MACHINES.

One new No. 2 Plain Cincinnati.
 Two new No. 3½ Fox hand and power feed.
 Two new No. 3 Fox hand and power feed.
 Two new No. 2 Fox hand feed.
 One 27" x 6" x 13" Branard Lincoln.
 One Garvin Hand Miller.

BOLT & PIPE MACHINES.

One new 1½" National Bolt Cutter.
 One new 2" National Bolt Cutter.
 One 1" Acme Bolt Cutter.
 One 2" American Bolt Cutter.
 One nearly new No. 1 Williams.

PIPE MACHINES.

One 2" hand pipe machine.
 One new 1" to 4" McDougall pipe machine.
 One 2½" to 5" Curtis pipe machine.
 One 2" hand or power pipe machine.

POWER PRESSES.

One new No. 21 power press.
 Four new No. 20 power presses.
 Six new No. 19 power presses.
 Five new No. 18 power presses.
 One stamping press, 5" stroke.
 One No. 2 Stiles & Parker Press.
 One No. 2 Fowler's Patent Power Press.
 One new No. 1 foot-power press.

GRINDERS.

One new Cutter and Reamer, Grinder.
 One New Universal Tool Grinder.
 One new 26" Knife Grinder.
 Five new Pedestal Grinders.
 Twenty-six new Bench Grinders.
 One new Diamond Tool Grinder.
 One new Prescott Tool Grinder.

MISCELLANEOUS.

One new No. 1 American Oil Separator.
 One 36" Gear Cutter.
 One new 30" Gisholt Boring Mill.
 Thirty-six new Power Hack Saws.
 Five rebuilt Power Hack Saws.
 One new 350-lb. Steam Hammer.
 One No. 25 Bradley Hammer.
 One 400-lb. Drop Rammer.
 One set 6' Bending Rolls.
 One set 4' Bending Rolls.
 One new 15" Punch and Shear, London.
 One new No. 5 Brewer Punch.
 One new No. 7 Armor-plate Shear.
 Four new Hercules Hand Shears.
 One new 2" Centreing Machine.
 One new Buffalo Tire Upsetter.

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TORONTO, MONTREAL, VANCOUVER.

PROFESSIONAL PAGE

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TRANSPORTATION NOTES.

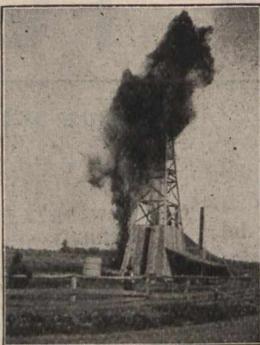
The Allan Steamship Company is ar-
ranging to establish a weekly steamship
service between Canada and France. The
company now runs a direct steamer every
three weeks. The Canadian Pacific is
also considering the establishment of a
first-class steamship service to Antwerp,
calling at a French port. This would
give two direct lines from Canada to
France.

The Grand Trunk Company will apply
to Parliament this session for an Act re-
pealing that section of the statute which
provides that the fare for each third-class
passenger by any train on the company's
line between Montreal and Toronto shall
not exceed two cents per mile, and that

at least one train containing third-class
carriages shall run every day throughout
the length of the line.

The Montreal Board of Trade has de-
finitely decided to establish a transporta-
tion bureau at an estimated cost of \$5,000
per annum. An expert in transportation
matters will be employed to advise sub-
scribers. It is claimed that since the
creation of the railway commission other
cities, principally in the West, have se-
cured advantages in rates over Montreal,
by bringing their claims before the com-
mission.

The interstate commerce commission,
Washington, has made a decision that is
of much interest to Canadian railroads.
It states that a Canadian road having



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