

# CANADIAN Contract Record

*A Weekly Journal of Public Works, Tenders,  
Advance Information and Municipal Progress*

This Paper Reaches Every Week the Town and City Clerks, Town and City Engineers, County Clerks and County Engineers, Purchasers of Municipal Debentures and Leading Contractors in All Lines Throughout Canada

VOL. 15.

TORONTO, MONTREAL AND WINNIPEG, DECEMBER 28, 1904

No. 46

## THE CANADIAN CONTRACT RECORD

PUBLISHED EVERY WEDNESDAY

As an Intermediate Edition of the Canadian Architect and Builder.

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## THE C. H. MORTIMER PUBLISHING COMPANY

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## DEBENTURES FOR SALE

Tenders are invited by the undersigned until DECEMBER 31ST NEXT, for the purchase of fifteen thousand dollars worth of water works debentures of the Town of Red Deer, N.W.T.

L. C. FULMER,  
Secretary-Treasurer.

## TENDERS WANTED

Tenders will be received up till 5 o'clock, 14th OF JANUARY, 1905, for all Trades required in the erection of Brick Town Hall in the Village of Ailsa Craig.

Plans and specifications may be seen on and after MONDAY, THE 17th, at the office of E. B. Smith, Ailsa Craig, or J. A. Humphris, St. Mary's.  
The lowest or any tender not necessarily accepted.

E. B. SMITH,  
Village Clerk, Ailsa Craig.

## TENDERS

will be received by the undersigned up to SATURDAY, JANUARY 7th, 1905, for the repair of the Waddell Creek drain in the Township of Sarnia, a distance of about 1,496 rods.

Plans and specifications can be seen at the Clerk's office.  
The lowest or any tender not necessarily accepted.

MAGGIE LOWRIE, Township Clerk,  
Box 245, Sarnia.

## PLANS WANTED

The Board of Trustees of the Moose Jaw Public School District No. 1 are prepared to receive up to 15th JANUARY, 1905, plans, specifications, and itemized estimate of cost, for an eight-roomed School Building with an Assembly Room above the second floor; the building to be steam heated and to have all modern sanitary conveniences. The sum of \$100 will be paid to the architect whose plans are adopted.

Address, H. JAGGER,  
Secretary-Treasurer,  
Moose Jaw Public School District No. 1,  
Moose Jaw, N.W.T.

## CONTRACTS OPEN.

NEWCASTLE, N.B.—R. T. D. Aitken is offering for sale \$20,000 town debentures.

TAVISTOCK, ONT.—Henry Schlemmer proposes building a residence next summer.

BARRIE, ONT.—N. Balfe proposes to build a small saw mill here, to cost about \$3,000.

PRINCE ALBERT, N. W. T.—A permanent fire hall will be built here next summer.

HAGERSVILLE, ONT.—The ratepayers will vote on a by-law to provide funds for a fire protection system.

BEAVERTON, ONT.—It is proposed to form a company here for the establishment of a flax mill.

NIAGARA FALLS, ONT.—The Imperial Bank will erect a building on the corner of Bridge street and Clifton ave.

CHATHAM, N. B.—Joseph Groat has submitted a proposition to the Council to establish a boot and shoe factory here.

BOWMANVILLE, ONT.—The John McKay Co. have applied to the Council for assistance in rebuilding their mill.

FRANK, N.W.T.—G. Fernau has decided to locate his proposed smelter at this place and to commence construction work next spring.

ST. BONIFACE, MAN.—Notice has been given that the Council will construct a sewer on Masson street and Tache ave., at a cost of \$5,437.

VICTORIA, B.C.—The City Council have finally passed a by-law to raise \$12,000 for the purpose of erecting an Old Men's Home.

KINGSTON, ONT.—The City Council have decided to give J. M. Campbell a franchise to bring electric power from Kingston Mills to this city.

ESSEX, ONT.—The County Council may build a new bridge over the south branch of the Canard river, on the town line between Anderdon and Colchester South.

SANDWICH, ONT.—Bids for the purchase of \$4,300 4½ per cent. town debentures will be received by George E. Smeaton, town clerk, up to January 15th, 1905.

PETERBORO, ONT.—Tenders have just been taken for the erection of buildings for the Peterboro Shovel & Tool Co., of which J. R. Stratton is president.

MOUNT PLEASANT, B. C.—The Advent Christian congregation have purchased a site, corner Tenth and Westminster aves., on which to build a church,

WOLSELEY, N.W.T.—Voting on by-laws to provide funds for a drainage system and for fire protection purposes took place here on Friday last.

THREE RIVERS, QUE.—An electric railway is projected to run westerly from this place to Ste Anne de la Perade through St. Maurice, Maskinonge and Champlain.

ESTERHAZY, N.W.T.—Wrightson & Flook intend building a two-storey stone block.—The Catholics of this locality have under consideration the erection of a church.

EAST TORONTO, ONT.—The Globe Manufacturing Co., of Walkerville, have had new plans prepared for a factory here and will call for tenders at an early date.

FORT WILLIAM, ONT.—H. S. Holt and E. L. Pease, directors of the Canada Car Co., Montreal, were in town last week looking for a suitable site on which to erect a car manufactory.

CAMPBELLFORD, ONT.—A by-law will be submitted to the ratepayers to raise \$6,500 for installing a steam heating and ventilating system in the public and high schools.

COLLINGWOOD, ONT.—The Church of Scotland property, corner Ontario and St. Marie streets, will be remodelled and converted into a Sunday school for All Saints church.

GRAVENHURST, ONT.—L. D. Brown, this place, will receive tenders up to December 31st for erection of a Methodist church at Browns' Corners. Plans at office of J. C. Wiederhold, architect, St. Marys.

OMEMEE, ONT.—George Balfour, Village Clerk, will receive bids up to January 5th, 1905, for purchase of \$5,500 4½ per cent. school debentures and \$1,773.63 4½ per cent. municipal debentures.

WABA, ONT.—J. D. McNab, Township Clerk, will receive tenders up to January 16th, 1905, for the building of a wooden or steel bridge across the Madawaska river, on the Arnprior and White Lake roads.

WALKERVILLE, ONT.—The ratepayers last week voted in favor of raising \$50,000 by debentures for the erection of a fine school building. The site has already been purchased and the work will proceed in the spring.

SUSSEX, N.B.—The Sussex Packing Co. and D. W. Hoegg & Co. have amalgamated and are having plans prepared for additions and alterations to the existing packing plant. Modern machinery will be installed.

MAGOG, QUE.—Engineer Laforest

has submitted the following estimate of the cost of a waterworks system: System covering present area, pumping from Magog lake, cost \$68,387; if extended to cover entire town, \$83,581; gravity system from Orford lake, cost \$74,472.

**BROCKVILLE, ONT.**—The D. L. Burrell Co., manufacturers of dairy supplies, Little Falls, N.Y., have submitted a proposition to the City Council to establish a branch here if given a free site and exemption from taxation for ten years.

**OTTAWA, ONT.**—The Order of Sulpicians are said to have about completed arrangements for the purchase for the Alonzo Wright property with the intention of building a monastery thereon.—The Minister of Public Works has decided to build an addition to the Western Block of the Parliament Buildings, at a cost of about \$100,000.

**HALIFAX, N.S.**—A new building is to be erected on the corner of Hoil's and Sackville streets, the lower floor of which will be occupied by H. B. Clarke & Son.—It is understood that the City Council have refused to employ F. A. Barbour, C.E., of Boston, to report on a waterworks system, on the ground that he is a resident of the United States.

**LONDON, ONT.**—W. T. Jennings, C. E., of Toronto, has submitted his report on a water supply, in which he proposes a second service for fire purposes, the whole to be of spring water and capable of being united in one service. A second pump house at Richmond street and a high steel tank of 100,000 gallons capacity are proposed, and the whole cost is estimated at \$358,930.

**STRATFORD, ONT.**—Of the \$50,000 proposed to be raised for waterworks purposes, \$25,000 will be expended for mains and \$15,000 for the improvement of the supply and such other purposes as may be found necessary. A report on the improvements has been submitted by Willis Chipman, C.E., of Toronto.—It is proposed to issue \$11,500 of debentures for the purchase of Victoria lake.

**PORT ARTHUR, ONT.**—Besides the building of large terminals at this place by the Grand Trunk Pacific Railway, the Canadian Northern Railway have plans out for extensive coal docks, sheds, and station, and it is understood that the Canadian Pacific Railway have in contemplation the extension of their elevator plant here and other improvements involving the expenditure of a large sum of money.

**ST. JOHN, N. B.**—The MacAdamite Metal Co. purpose establishing a plant on Queen street.—At a meeting of the New Brunswick Southern Railway Co. held in New York last week, Colonel H. H. McLean, of this city, was authorized to employ an engineer to make a preliminary survey for a line via New River Beach. It is also the intention to put the road in first-class condition and an extension may be built to Calais.

**VANCOUVER, B. C.**—The Union Steamship Co. are preparing to build an addition to their wharf, to be 96 x 220 feet. A large warehouse will be erected on the new portion.—The City Engineer has called the attention of the Council to the necessity of calling for tenders immediately for the large new water main to be provided for by the \$100,000 by-law.—E. E. Blackmore, architect, has prepared plans for a club building for the Vancouver Athletic Association, to cost about \$10,000. The site is at the corner of Dunsmuir and Beatty streets.

**WINNIPEG, MAN.**—Arrangements are said to have been practically completed between the Canadian Northern Railway and Grand Trunk Pacific Rail-

way for a union depot and joint freight yards in this city. The depot will be built at the corner of Main and Broadway streets.—The Central Canada Railroad and Power Co. is seeking incorporation for the purpose of building an electric railway from Winnipeg to the Winnipeg river and developing the power on said river.—The proposed extension of the Canadian Pacific Railway from Reston to Wolsley via Moose Mountain has been located and will be built next summer.

**FREDERICTON, N. B.**—The New Brunswick Telephone Co. contemplate making extensive improvements during the coming year. A brick building with brown stone front will replace the present office in this city and a metallic system will be installed.—C. H. LaBilios, Commissioner of Public Works, is asking for tenders for construction of the McCollum Creek bridge in York County and the William Fitzsimmons bridge over the Shediac river in Moncton parish.—Donald Fraser & Sons, of this city, have decided to build two more shingle mills, one to be located at Cabano and the other at Baker's Brook.

**MONTREAL, QUE.**—The Robert Simpson Co., of Toronto, have acquired the business of the John Murphy Co. in this city and will make additions to the building.—The Finance Committee have voted \$298,334 to the Fire Department as the appropriation for 1905. It is proposed to purchase one new fire engine, one aerial ladder, one hook and ladder truck, three hose wagons, three hose sleighs, twenty hand extinguishers and a quantity of hose.—The Finance Committee have granted \$400,000 to the Road Committee, but left over the following amounts for the supplementary estimates in May: New pavements, \$957,200; new sewers, \$361,000; permanent sidewalks, \$100,000.—The Montreal Terminal Railway is seeking power to build an electric railway in the counties of Hochelaga, Jacques Cartier, Chambly, Laprairie, St. Johns, Iberville, Rouville and St. Hyacinthe.

**TORONTO, ONT.**—It is stated that Mr. Alfred Hawes, who built the Sussex Court Apartments, intends erecting a larger apartment building next spring.—Dr. Sheard, Medical Health Officer, has again recommended the construction of a sewerage disposal system for the district east of the Woodbine.—Mayell & Co. purpose erecting a two-storey factory building, of pressed brick and stone, on the south side of King street, west of Dufferin street.—The Dominion Government have finally decided upon the site for the new post office. It will be erected on the east side of Bay street and extend from Front street to the railway tracks, with a depth of 250 feet.—Building permits have been granted as follows: R. Jessman, two two-storey brick dwellings, north-east corner Markham and Wonsley streets, cost \$4,000; Mrs. H.M. Briggs, two-storey and attic brick dwelling, west side Markham street, near Bloor, cost \$3,600; Jos. H. McGregor, two-storey brick residence, Crescent road, near South Drive, cost \$6,000; T. P. Whitlam, two pair two-storey brick and roughcast dwellings, 110-116 Caroline ave., cost \$5,500; Geo. A. Waddell, two-storey roughcast dwelling, west side Leslie street, near King, cost \$1,000; A. H. Tandy, four two-storey roughcast dwellings, north side Millicent street, near Dufferin, cost \$2,400; McGregor & McIntyre, two-storey brick office, Pearl street, near York, cost \$2,000; J. B. LeRoy & Co., three 2½ storey brick and roughcast dwellings, north-west corner Broadview ave. and Elliott street, cost \$3,600; E. McCormack, alterations to club house, new brick wall, corner Dundas street and Sheridan ave., cost

\$2,000; George Keen, pair two-storey brick stores, Callege street, near Osborne ave., cost \$5,000; Miss M. A. Armstrong, two-storey and attic brick and stone dwelling, south-west corner Euclid ave. and Harbord streets, cost \$5,000; Osler & Hammond, alterations to office building, brick, steel, etc., north-east corner Jordan and Melinda streets, cost \$9,000.

#### FIRES.

Grist and saw mill at Feversham, Ont., owned by the Farmers' Milling Co., totally destroyed.—County registry office at Hnil, Que., loss \$4,000.—Woodworking factory of Wm. Currie Co. at Campbellton, N.B., totally destroyed; loss \$50,000, insurance \$20,000.—Trinity church, Winnipeg, owned by the German Lutheran congregation; loss \$6,000.—Fancy goods store of Lemay & Lemay, corner St. Lawrence and LaGauchetiere streets, Montreal, damaged to extent of \$8,000.

#### CONTRACTS AWARDED.

**BOSANQUET, ONT.**—Residence for Wm. Malley; Wm. Frayn, contractor.

**CHATHAM, ONT.**—Residence for James Fleming; Blonde Lumber Co., contractors, cost about \$3,500.

**HALIFAX, N.S.**—John McInnes has been awarded the contract for erection of immigration building in this city, to cost \$75,000.

**PORTAGE LA PRAIRIE, MAN.**—The Town has sold \$15,000 worth of local improvement debentures at par to the Mutual Life Insurance Co., of Toronto.

**PETERBORO, ONT.**—The contract for erection of a new lift lock on the Trent canal at Kirkfield has been awarded to the Dominion Bridge Co., of Montreal.

**CORNWALL, ONT.**—The Department of Railways and Canals have let the contract for machinery for the Cornwall Canal shops to the Railway Spring & Supply Co., of Montreal.

**FREDERICTON, B.C.**—The Department of Public Works have awarded the contract for erection of the Briggs Mill bridge in Carleton County to W. R. Fawcett, of Temperance Vale.

**MONTREAL, QUE.**—James Rogers, of this city, has been awarded a contract by the Department of Railways and Canals for the construction of a bridge across the Lachine canal at Atwater ave.

**VICTORIA, B.C.**—S. Maclure has awarded the contract for a residence at corner of Head street and Old Esquimalt road for Mr. Edwards to Fred Mosher, contract price about \$3,500.

**AMHERST, N.S.**—Rhodes, Curry & Co., this place, have secured a contract from the Halifax and Southwestern Railway for the building of 100 box cars, 50 flat cars and two conductor's vans, also for 2,000 car axles for the Canadian Pacific Railway.

**TORONTO, ONT.**—Magann & Phinn, of this city, have secured the contract to build the foundations for two new swing bridges for the Welland Canal at Allenburg and Marlatt. The contract will be given out shortly for three new locks.—The contract for a sewer on Dundonald street has been awarded to John Maguire at \$1,740.55. The City Engineer was the only tenderer for a sewer on Morley ave., his figure being \$1,356.

Mr. A. K. Bunnell, C. A., of Bradford, Ont., recently delivered an instructive lecture on "Uniformity in Municipal Accounting" before the Institute of Chartered Accountants at Toronto.

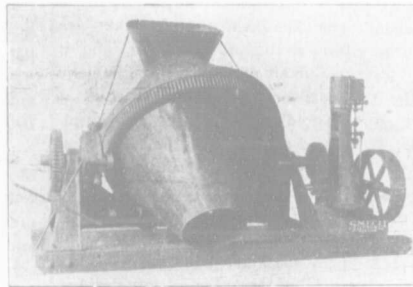
# THE SEASON'S CONCRETE GREETINGS!

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## A SMITH MIXER ?

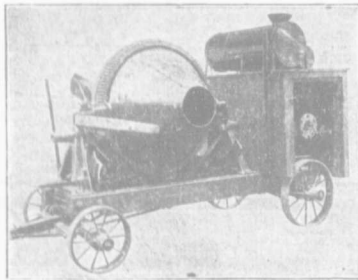
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ON PRACTICALLY  
EVERY  
IMPORTANT CON-  
TRACT  
IN CANADA.



LARGE SIZE ON SKIDS—DUMPING.

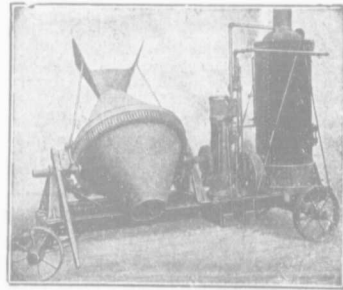
ITS SUCCESS  
DECLARES  
ITS MERITS.



ON TRUCK WITH GASOLINE ENGINE—MIXING

ALL  
SIZES.

ALL  
STYLES.



ON TRUCK WITH ENGINE AND BOILER—DUMPING

AUSTIN CYRATORY CRUSHERS  
CYCLOPEAN CONCRETE BUCKETS  
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## Montreal.

**WHAT IS SAND?**

Few would suppose that there was any great difficulty in determining exactly what is meant by the word "sand," yet the Supreme court of Pennsylvania, in the case of Hendler vs. Lehigh Valley R. R. Co., has handed down a decision in which a legal definition of sand is given. The court rules that sand may or may not be a mineral, according to its composition. If made up entirely of grains of silica, for instance, it is a mineral, but if it is composed of grains of different substances, it must be classed in a technical sense as crushed rock.

The court declared that regarded from a commercial standpoint, the word "sand" has a different meaning. It defined "mineral" as any "inorganic substance found in nature, having sufficient value when separated from its surroundings to be mined, quarried or dug for its own sake or its own specific uses." Sand may come under this head, or it may not. Under this ruling, a deposit of pure quartz sand would be classed as a mineral, while ordinary sand, consisting of a mixture of various substances, would not be so regarded.

This question becomes important in cases, like the one decided in Pennsylvania, where, in granting a right of way to a railroad, all discovered mineral is retained by the grantor. A deposit of sand is of great value to the railroad for filling purposes, but if it be pure white quartz, suitable for making glass, it would revert to the

grantor, as a mineral.—The Record.

**ELASTIC ROOFING NAILS.**

Frank Gold, Richmond, Victoria, Australia, has invented and patented in all of the principal countries of the world an elastic roofing nail, which, when driven through corrugated iron roofing, adapts itself to the corrugations, making a water tight union, with no danger of the washer flattening out or getting loose. Mr. Gold has for many years been interested in the production of roofing nails, and has introduced a number of improvements along this line. When the population began to flow into Western Australia, owing to the discovery of gold, Mr. Gold recognized the need of a light, substantial roofing nail. The nails then on the market ran from 20 to 30 to the pound, and it cost about 25 cents for freight alone to deliver a pound of these nails at the gold fields. Mr. Gold then invented and patented the solid head roofing nail which runs about 90 to the pound, and secured a large number of sales all over Australia. While experimenting with some of them one day, he was impressed with the idea that a thin washer added to the solid head and galvanized on after being made would prove a great advantage. A number of such nails were made and tested practically, with such satisfactory results that the idea was patented, and the nails are now being sold in large quantities throughout the Australasian colonies.

**FINISHING MAPLE DOORS.**

In reply to the inquiry raised by one of their correspondents as to how maple doors should be prepared and why sandpapering is recommended between coats of hard oil a recent issue of the Painters' Magazine offers the following suggestions, which may possibly be of interest to some of our readers:

If you refer to natural finish of hard maple or bird's-eye maple, we would say that there is no filler required and that it should be finished in its own color—that is, kept as light as possible by the use of white shellac varnish for first and second coat and a very pale maple or ivory varnish for the finishing coat or coats. When hard it may be polished with fine effect, but sandpapering is not required unless the shellac varnish has not been applied evenly. Nor is sandpapering required on any kind of work that is treated with hard oil, unless the latter has become sandy from one cause or another.

Graining doors, etc., in imitation of maple needs much care and attention. The ground is a light cream tint, made with white lead and yellow ochre. The graining color is made of equal parts raw sienna and raw umber. Wipe out the lights that make the curl and blend lengthwise of the curl. Varnish with a thin pale varnish.

The death is announced of T. Viau, contractor, Hull, Que.

Bertrand & Chagnon, contractors, Montreal, have dissolved, also Peladeau & David, painters, Montreal.

**MIXES CHEAPER****MIXES BETTER**

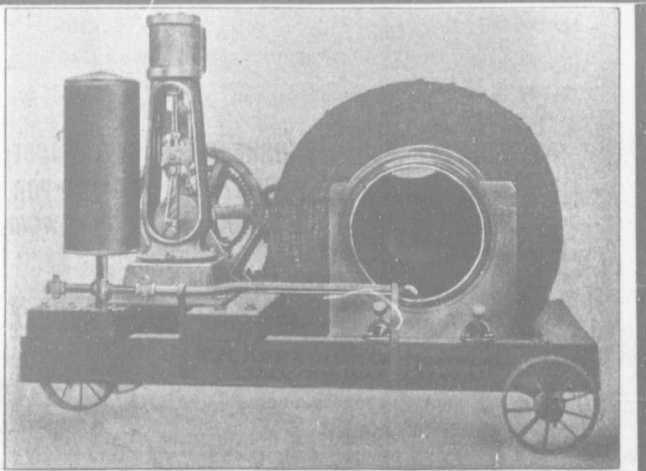
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**DECAY AND ROT IN TIMBER**

The principal cause of the lack of proper durability of timber in buildings is the porosity of the lumber used and the consequent liability to absorb moisture. Coarse-grained woods of quick growth, says James T. Burke, Inspector of Factories, are more liable to this defect than those of tough fibre and slow growth. When timber gets wet and dry it becomes brittle and weakened, or "its nature is gone," as the workmen say. Rot is of two kinds, wet and dry; and moisture is the essential element in both cases; the only difference being that in the first the moisture is quickly evaporated by exposure to the air, and the latter, when there is no exposure, produces a species of fungus and minute worms, which eat in between the fibres, and gradually produce disintegration. Sap wood is more perishable than heart wood, for the former contains more of the saccharine principle, and renders the wood liable to a fermentative action.

The prevalent practice of confining unseasoned timber by building it close into walls, thus preventing the ready evaporation of whatever moisture happens to get to it, is a bad one. The ends of the wood especially should be surrounded by an open air-space, however small, as it is the ends where the dampness is most liable to penetrate into the structure of the wood. It is a well-known fact that a log of green wood when kept immersed will become waterlogged, and sink, and, of course, become unfit for use afterward. The same process, only slower, applies when it is exposed to damp, with no facilities for rapid evaporation. Quicklime, when assisted by moisture, is a powerful aid in hastening decomposition, in consequence of its affinity for carbon. Mild lime has not this effect, but mortar, as used in buildings, requires a considerable length of time to become inert in its action as a corroding agent; therefore, bedding timber in damp mortar is very injurious, and often the cause of unaccountable decay. Wood, in a dry state, does not seem to be injured by contact with dry lime, it being rather a preservative. An example of this is shown in lathing covered with plaster, which often retains its original strength when surrounding timbers are completely rotted away.

Anything that will hinder the absorbing process will extend the life of a wood, such as a coating of tar, paint, or a charring of the surface. The latter method will prove the most effective, if sufficiently deep, as the charred coating is practically indestructible, closes the pores of the

wood, and will prevent the bursting into flame in case of fire. If all joist, girders and inside beams of every kind were treated to a superficial charring process, it would tend, in conjunction with fire-proof paint applied to outside finishing work, to make a building as nearly fire-proof as wood in any condition will allow.

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**GRAVEL**  
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The price of the third edition, mailed free, is \$1.00 to subscribers of the CANADIAN ARCHITECT AND BUILDER, \$1.50 to non-subscribers. Order from the publishers,

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### RAPID RAILWAY TRESTLE BUILDING.

On Oct. 2<sup>nd</sup> and 3 the Chicago, Rock Island & Pacific Railway Co.'s bridge over the South Canadian River, south of Union City, O. T., was washed away and destroyed, except 416 ft. of trestle approach. The bridge before the washout consisted of two combination through truss spans of 155 ft. each, one iron through truss span 130 ft., four deck plate-girders 44 ft. each, and a pile trestle approach at each end, making a total length of 2,222 ft., with an average height of 15 ft. above the bed of the river. The sudden rise in the river was caused by heavy rains over a hundred miles west of the bridge. The first high water, making a wave 6 ft. in height, struck the bridge at 11 a. m. Oct. 2, taking out about twenty pile bents. The crest of the flood reached the bridge about 3 p. m. Oct. 3, reaching a height of 12 ft., and completely washed away the bridge, with the exception of the 416 ft. mentioned above. It also washed away 4,400 ft. of track and embankment south of the bridge.

Mr. A. S. Zinn, principal assistant engineer, thus describes in the Engineering Record the method of rebuilding: Before pile driving could be started at the south end of the river bridge it was necessary to relay the 4,400 ft. of track, and to do this we had to construct a total of 300 lin. ft. of pile trestle across the deep holes washed through the embankment — the shallow places were cribbed up with ties. This 4,400 ft. of preliminary work was started at 3 p. m. Oct. 4, and completed at 6 p. m. of Oct. 6. On the afternoon and night of the latter day, the bridge gangs unloaded material at both ends of the bridge. The following morning, Oct. 7, the pile drivers at each end of the bridge commenced driving piling. The work was continued day and night, and the bridge was connected for traffic at 6 p. m. Wednesday, Oct. 12, making about 129 hours worked by each driver. In this 129 hours one pile driver drove 54 bents of four piles to the bent, and the other 68 bents of three piles to the bent, or a total of 122 bents, with 420 piles. Thirty-five piles were used, with an average penetration of 13 ft. The total length of temporary trestle is 1806 ft. averaging 14.8 ft. to the panel. To accomplish this work in 129 hours each pile driver had to drive at the rate of 1.6 piles per hour, averaging about 7 ft. of bridge per hour.

The organization of forces on each end was two pile driver crews and three trestle bridge gangs, a total of about 36 men on each end, making two working shifts and permitting night work. In addition to this there were two engine and train crews on each end. The pile drivers were 20-ft. extension, with steam turning gear and drop hammers weighing 3,100 lbs.

The method of work was to drive a bent of piles, saw them off, put on the caps and sway braces, lay the stringers, ties and rails, then move ahead and repeat the same work. All material was handled by the drivers, and toward the close it was necessary to run back 1,000 ft. to get material, as beams could not be used. This necessitated running back eight times with the driver for each bent and panel.

Some of the difficult features in connection with the rapid construction of this bridge were the securing of material and assembling of forces. Most of the gangs were small and filled out with new and inexperienced men. Some of the material had to be loaded and hauled a thousand miles in detouring, to reach the bridge, as all the roads crossing the river had more or less trouble. At the local railway material yard at Chickasha, 22 miles south of the river, only enough bridge material was stored to build about 750 ft. of trestle. About one-half of this was used up in building trestle bridges across the holes washed through the embankment south of the river. Only 24 hours' notice of this flood was given, and after the washout the wires were not working for four days, so that work was badly handicapped.

As 150 carloads of material were used in the construction of this bridge, and there was no way of getting the material to the front except to run back with the pile drivers and pick it up, the bridgemen deserve a great deal of credit for completing the work in so short a time.

### THE PAINTING OF FIRE ESCAPES.

Cast and wrought iron behave very differently under atmospheric conditions, and require somewhat different treatment. The decay of iron becomes very marked in certain situations, and weakens the metal in direct proportion to the depth to which it has penetrated, and, although where the metal is in quantity this is not appreciable, it really becomes so when the metal is under three-fourths of an inch in thickness. The natural surface of cast iron is very much harder than the interior, occasioned by its becoming chilled, or by its containing a larger quantity of silica, and affords an excellent natural protection; but, should this surface be broken, rust attacks the metal and soon destroys it. It is very desirable that the casting be protected as soon after it leaves the mould as possible, and a priming coat of paint should be applied for this purpose; the other coats should be given at leisure. In considering the painting of wrought iron, it must be noticed that, when iron is oxidized by contact with the atmosphere,

two or three distinct layers of scale form on the surface, which, unlike the skin upon cast iron, can be readily detached by bending or hammering the metal. It will be seen that the iron has a tendency to rust from the moment it leaves the hammer or rolls, and the scale above described must come away. One of the plans to preserve iron has been to coat it with paint when still hot at the mill, and although this answers for a while, it is a very troublesome method, which iron masters cannot be persuaded to adopt, and the subsequent cutting process to which it is submitted leaves many parts of the iron bare. Besides, a good deal of the scale remains, and, until this has fallen off or been removed, any painting over it will be of little value. The only effectual way of protecting wrought iron is to effect a thorough and chemical-cleansing of the surface of the metal upon which the paint is to be applied; that is,

(Continued on page 10.)

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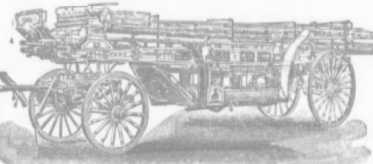
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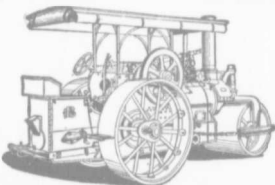


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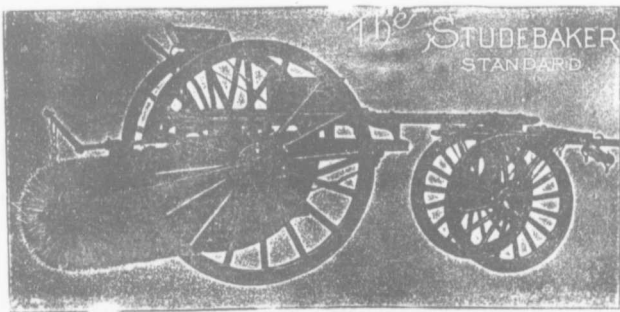
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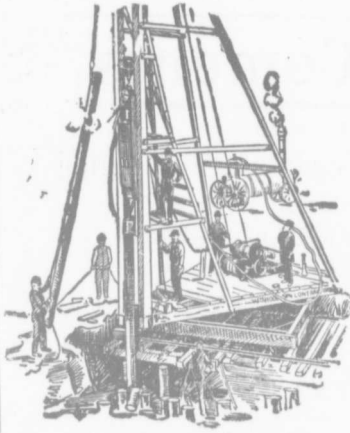
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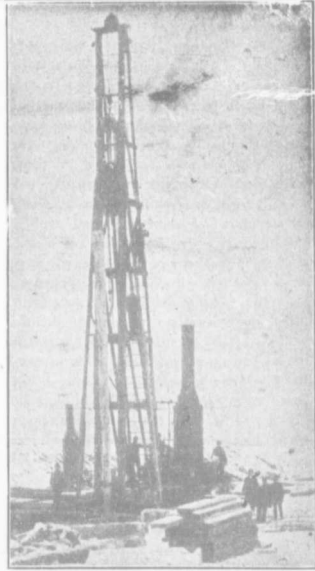
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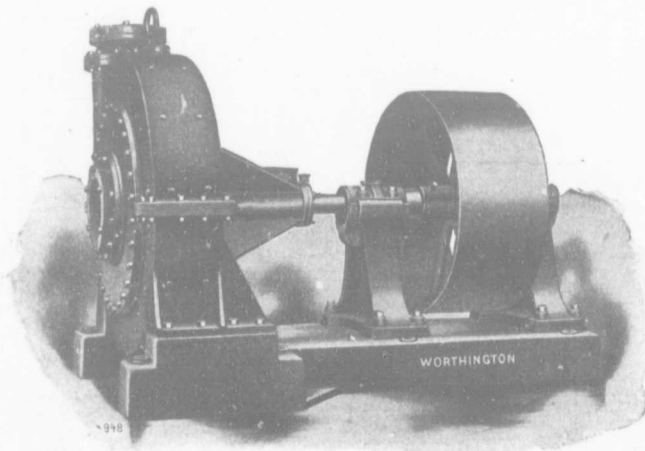
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it must be immersed for three or four hours in water containing from one to two per. cent. of sulphuric acid. The metal is afterwards rinsed in cold water, and, if necessary, scoured with sand, put again into the pickle, and then well rinsed. If it is desired to keep iron already cleansed for a short time before painting, it is necessary to preserve it in a bath rendered alkaline by caustic lime, potash, soda or their carbonates. Treatment with caustic lime water is, however, the cheapest and most easy method, and iron which has remained in it some hours will not rust by a slight exposure to dampness. Having obtained a clean surface, the question arises, what paint should be used upon iron? Bituminous paints, as well as those containing variable quantities of lard, were formerly considered available, but their failure was made apparent when the structure to which they were applied happened to be of magnitude, subjected to great inclemency of weather, or to constant vibration. Recourse has, therefore, been had to iron oxide itself, and with satisfactory results. A pound of iron oxide paint, when mixed ready for use in the proportion of two-thirds oxide to one-third linseed oil, with careful work, should cover twenty-one square yards of sheet iron, which is more than is obtained with lead compound.—From the Annual Report of the Inspectors of Factories for Ontario.

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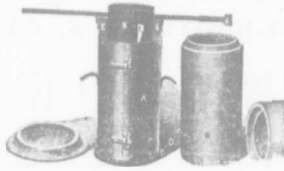
A report from New York, dated December 14th, states that the Association of American Portland Cement Manufacturers have decided to advance the mill price of Portland cement in the spring to one dollar per barrel. It is stated that the cement is now sold at less than the cost of manufacture.

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Clean all the grease, sand and dirt being sure to wash all the greasy spots with benzine. When the iron is clean take any good bronzing liquid and stir enough aluminum bronze into it to make a paint that can be easily spread with camel's hair brush, says Decorators' Gazette. Apply one or more coats, as the case may require. If you prefer to make your own bronzing liquid, take equal parts of gold size japan and light-colored baking varnish and mix them well. To each liquid ounce of this mixture add three liquid ounces of turps. Shake well in a bottle and it is ready for use. If the aluminum paint doesn't give you sufficient luster apply a coat of baking varnish to your radiators, and when it gets tacky dust the dry bronze on with a camel's hair brush or tuft of cotton, spreading a large sheet of paper on the floor under the radiator to catch the surplus bronze, which can be used again.

J. A. M. Bell, of Almonte, Ont., son of Alexander Bell, C. E., has received the appointment of Chief Geologist to the New Zealand Government, a position obtained by competition on the merits of his qualifications. The salary attached is \$3,000.

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Elk River Lumber Company, Sussex, N. B., incorporated, capital \$25,000. J. McArthur and J. A. Campbell, of Sussex, and others.

Farmers' Manufacturing & Supply Company, Limited, Durham, Ont., incorporated, capital \$100,000. Directors, George Binnie, Wm. D. Mills, of Durham, and others.

Steel Radiator Company, Limited, Toronto, incorporated, capital \$200,000, to manufacture radiators, steam fittings, etc. Directors, C. E. Safford, of Buffalo; James G. Smith, Neil Sinclair, Frank Morrison and Stratford Watson, of Toronto.

Thomas Monument Company, Limited, Toronto, incorporated, capital \$40,000, to manufacture and deal in granite, marble, artificial stone, etc. Directors, Peter Thomson, James Hawken and Randolph Macdonald.

Berlin Felt Boot Company, Limited, Berlin, Ont., incorporated, capital \$200,000. Directors, George Rumpel, H. D. McKellar and others.

Unique Umbrella Company of Canada, Limited, Toronto, incorporated, capital \$40,000. Directors, C. A. Slater, W. F. Mulholland and Albert Ogden.

American Coffee & Spice Company, Limited, Toronto, incorporated, capital \$50,000. Directors, Michael L. Clancy, James McKee and L. W. S. Easton.

National Construction Company, Limited, Montreal, incorporated, capital \$250,000, to carry on a general contracting business. Joseph Hobson, Robert S. Logan, Henry W. Walker, Frank Scott and Henry Phillips.

Canada Saw Company, Limited, Ottawa, incorporated, capital \$125,000, to manufacture and deal in saws and saw mill machinery and to acquire the business of the Ottawa Saw Company. Charles McGee, P. M. Feeny and others.

James Richardson Company, Limited, St. Jerome, Que., incorporated, capital \$200,000, to carry on a general lumbering and mercantile business. James Russell and Wm. Russell, of St. Jerome, W. C. McLeish, of Montreal, and others.

Vancouver & Northern British Columbia Railway Company, seeking incorporation, to build a railway from Vancouver, B. C., to the northern boundary of the province. Howard J. Duncan, of Vancouver, is solicitor for the applicants.

Standard Brick & Tile Company, Limited, Winnipeg, Man., incorporated, capital \$40,000, to manufacture brick, tile, artificial stone, cement, etc. The brickyards will be established at Kildonan. George W. Carruthers, Richard W. Gardiner and others are interested.

Backmore & Morgan, plumbers, Vancouver, B. C., have dissolved.

W. Delanger & Cie, masons, Montreal, have dissolved, also Viau, Thades & Cie, masons, same city.

## TO MAKE CONCRETE FOUNDATION.

Among the newer uses of concrete may be mentioned that of the concrete pile for the support of building and bridge foundations. The composition ordinarily used is 1, 2, 4 mixture, that is 1 of cement, 2 of sand and 4 of coarse gravel or crushed stone. These piles are put in by driving a light steel mold which is supported inside during the driving by a collapsible core which is removed as soon as the driving is completed. The concrete is then thrown into the mold and where the drop is as much as 10 or 15 feet tamping is considered unnecessary, but where the drop is small, hand tamping is resorted to to bring about the proper conditions. The mold usually excludes practically all of the water, and for this reason concrete is usually mixed pretty wet. The dimensions of the pile are varied with varying conditions. When going to rock bottom they are made larger than when driving in earth or gravel, usually being about six inches in diameter at the bottom with a taper of 14 inches in a 30-foot pile.

## BUILDING MATERIALS.

At a meeting of the cement section of the Canadian Manufacturers' Association held in Toronto last week, it was decided to fix the price of cement for the year 1905 at \$1.40 per barrel at the mill. A deputation was appointed to wait on the Dominion Government with the object of having the duty on cement increased from 44 cents a barrel to 58 cents.

As the result of a conference of the manufacturers of nails held in Montreal recently, it was decided to increase the price ten cents per hundred pounds, the consensus of opinion being that the present price of raw material justified such advance.

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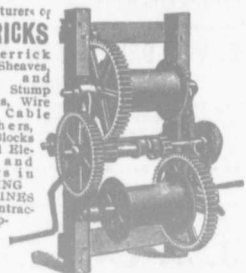
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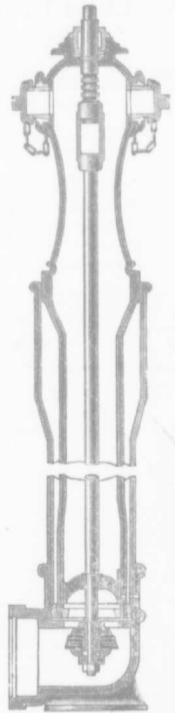






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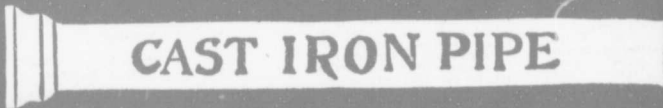
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| " 3.....                                | 17 00               | 21 00           |
| Buff No. 1.....                         | 18 50               | 22 00           |
| " 2.....                                | 19 50               | 23 00           |
| Brown.....                              | 25 50               | 30 00           |
| Roman Red.....                          | 30 50               | 35 00           |
| " Buff.....                             | 33 50               | 38 00           |
| " Brown.....                            | 40 50               | 45 00           |
| Hard Building.....                      | 12 00               | 15 00           |
| " Sewers.....                           | 13 00               | 16 00           |
| " Backing.....                          | 11 50               | 14 00           |

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| " 2.....                                    | 13 50               | 16 00           |
| " 3.....                                    | 8 50                | 14 00           |
| Buff No. 1.....                             | 15 00               | 20 00           |
| " 2.....                                    | 13 00               | 18 50           |
| Brown.....                                  | 21 50               | 26 00           |
| Roman Red.....                              | 30 00               | 35 00           |
| " Buff.....                                 | 30 00               | 35 00           |
| " Brown.....                                | 35 00               | 40 50           |
| Hard Building.....                          | 6 50                | 12 00           |
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| " Backing.....                              | 6 00                | 11 50           |

| BEAMVILLE BRICK AND TERRA COTTA CO. | F.O.B. Beamsville, Montreal. | F.O.B. Montreal. |
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| Red Peerless Facing.....            | \$15 00                      | \$20 50          |
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| " No. 2.....                        | 11 00                        | 16 50            |
| " No. 3.....                        | 8 50                         | 14 00            |
| Brown Peerless Facing.....          | 20 00                        | 25 50            |
| " No. 1.....                        | 18 00                        | 23 50            |
| Buff Peerless.....                  | 30 00                        | 35 50            |
| " No. 1.....                        | 18 00                        | 23 50            |
| " No. 2.....                        | 15 00                        | 20 50            |

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|          | 70        | Magnet.....                                          | 1 55     | 1 65     |
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|          | 50        | Crescent 375 lbs. gross.....                         | 2 30     | 2 40     |
|          | 85        | Diamond 350.....                                     | 2 20     | 2 30     |
|          | 70        | " Glant" Branford.....                               | 1 75     | 2 00     |
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|          | 35        | American (in Bags) :                                 |          |          |
|          | 25        | "Helderberg".....                                    | 1 80     | 1 95     |
|          | 40        | Alsen.....                                           | 2 35     | 2 25     |
|          | 70        | Lehigh, in bbls., 375 lbs. cotton sack, 350 net..... | 2 35     | 2 10     |
|          | 40        | " " " paper bags.....                                | 2 10     | 1 85     |
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|          |           | Brook's Shoobridge Anchor.....                       | 2 35     | 2 40     |
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|          |           | "Jossan".....                                        | 2 60     | 2 70     |
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