

under consideration the main drainage scheme. It is said that the city of Hull will offer strong opposition to the western outlets.—The Council of Ottawa East has requested Mr. E. J. Rainboth to submit plans and estimates for the construction of a system of waterworks.—The trustees of the Bell street Methodist church have decided to build an addition, 21 feet wide and the full length of the church.—It is understood that the Ottawa Electric Railway Co. will undertake the construction of a bridge over the Ottawa river between Hull and Ottawa, the total length of which will be 1,345 feet.—Building permits have been granted as follows: John Martin, brick house on Third avenue, cost \$2,000; Robert Figon, brick house on John street west, cost \$2,000; four dwellings, 11 and 12 St. Patrick street south, of brick, cost \$2,500.—E. F. E. Roy, secretary Department of Public Works, will receive tenders until Thursday, March 10th, for the construction of a wharf on Honora Bay, Manitoulin Island. Plans at offices of H. A. Gray, Confederation Life Building, Toronto, the Postmaster at Honora, and at the above department.—Plans have been completed by M. C. Edey, architect, for the main exhibition building for the Canada Central Fair Association. The structure will be 136 x 350 feet, with tower dome in centre 140 feet in height. The roof will be covered with corrugated iron and the sides with pressed iron. The tower will also be covered with iron sheeting, the floors to be of concrete and the entrances of galvanized iron. The estimated cost is \$20,000.—T. H. Smallman, and others, of London, are seeking power to build a steam or electric railway from London to Grand Bend, on Lake Huron.—The British American Light & Power Co. want authority to construct and operate by electricity or other power tramways in Dawson city, Fort Selkirk and other points in the Yukon district.—The Ontario and Rainy River Railway Co. are seeking an extension of time for the construction of a railway and a railway bridge across the Rainy river to a point in the state of Minnesota. Mr. Frederic Nichols, of Toronto, is president of the company.—Residents in the vicinity of Rossland and Trail Creek have petitioned for the construction of a railway to open up the boundary country.—The Canadian Gazette contains an application for incorporation of a company to construct a nickel refinery in Ontario. The capital stock is placed at \$20,000,000, and the promoters include N. Dymont, of Barrie, A. T. Wood, M.P., of Hamilton, Geo. A. Cox, of Toronto, and others.

FIRES.

A large frame building at Morden, Man., owned by W. J. Steele, was burned last week.—Heffler & Webber's shingle and saw mill at Sackville, N.B., was burned recently; loss \$2,000, no insurance.—The Methodist church at Skead's Mills, Ont., has been burned. The building was owned by John Falls.—On the 19th inst. fire destroyed Mrs. Sutherland's and Mrs. Bedal's brick block on Prince Edward st., Brighton, Ont.; insured.—The Bismarck cheese factory at Wellandport, Ont., has been burned; loss \$2,500, partially insured.—The saw mill of T. M. Reid at Cascades, Ont., was burned a few days ago, at a loss of \$1,500; no insurance.—A large stone flour and grist mill at Burlington, Ont., owned by Mr. Redpath, of Montreal, was totally consumed by fire on Sunday last.—A barrel

factory at Loquille, Annapolis County, N. S., was recently destroyed by fire. It was owned by the Union Bank of Halifax, and was valued at \$15,000.—The waterworks building at Markham, Ont., in which the electric light plant was situated, was destroyed by fire on Wednesday of last week. The electric light plant was owned by W. J. Fletcher, of Alliston, and was uninsured.—H. Middleditch's machine shop and foundry at Bothwell, Ont., together with several smaller buildings, were burned last week; small insurance.

CONTRACTS AWARDED.

WINNIPEG, MAN.—The tender of T. E. Robertson, for the supply of lumber to the city, has been accepted; price, \$1,478.

ARNPRIOR, ONT.—George Grant, of this place, has contracted to build the Burnstown bridge, at the price of \$2,900.

TORONTO, ONT.—The tender of Taylor Bros. for the supply of paving brick has been accepted by the city; price, No. 1, \$14, No. 2, \$9.

FREDERICTON, N.B.—The Provincial government have accepted the tender of the Bank of British North America for the purchase of \$1,010,000 of debentures.

HAMILTON, ONT.—The Cataract Power Co. have let the contract for the erection of a transfer station at the intersection of the G.T.R. and Victoria avenue. The building will be one story, 50 by 100 feet, cost \$5,000.

OTTAWA, ONT.—The Sisters of the Precious Blood opened tenders last week for the erection of a monastery on Sandy Hill. It is understood that the tender of Jos. Bourque, which was about \$60,000, will be accepted.

QUEBEC, QUE.—J. H. Gignac has secured the contract for the erection of a summer residence at St. Laurent for Hon. C. A. T. Pelletier, to cost \$2,000.—It is understood that the tender of a Brooklyn firm has been accepted for the proposed bridge across the St. Lawrence.—A building permit has been issued for a three story house, 36 x 34 ft., stone front and mansard roof, to be built on Couillard street for Dr. Dionne. Probable cost, \$6,000; contractor, L. S. Boivin.

MONTREAL, QUE.—The Newfoundland government has awarded to Mr. W. J. Reid, contractor, of this city, the contract to operate the entire railway system of the colony of 600 miles for fifty years in return for a land subsidy of 2,500 acres per mile.—Robert Findlay, architect, has prepared plans for seven residences to be built at Westmount. Contracts have been let as follows: Masonry, W. Oman; brickwork, A. Leger; roofing, Campbell & Gilday; plastering, A. Gosselin; painting, John Murphy; iron work, Dominion

Bridge Co.—R. Falbord, architect, has let to T. Guilbault the masonry contract of five houses to be built at the corner of Prince Albert and Western streets, Westmount, for Charles Depocas. Same architect has accepted the tender of E. Leclerc for two villas at Pointe aux Trembles, for D. V. Vue F. Blair.

ALUMINIUM IN STRUCTURAL WORK.

(Concluded.)

Castings of aluminium in comparison can be taken at 16,000 lbs. per square inch for pure aluminium, and from this to 24,000 lb. per square inch for alloys. Using again a safety factor of five, an allowable working strain is given of from 3,200 lb. to 4,600 lb. per square inch. But the pure metal should not be used in castings, except for electrical purposes, as it resembles pure copper in being difficult to cast and is soft, comparatively weak, and has a large shrinkage. In its stead for most casting purposes alloys with from five to twenty per cent. of copper, nickel, or other hardeners should be used.

The alloys of aluminium in rivets and similar shapes in shear have an ultimate shearing strength of from 24,000 lb. to 27,000 lb., which, using here a safety factor of six, gives an allowable working strain of from 4,000 lb. to 4,500 lb. per square inch. The ratio of the ultimate shearing strength to the ultimate tensile strength for double riveted joints is about sixty per cent., and for single riveted joints the ratio is about seventy per cent. The ratio for steel is about seventy-five per cent. In beating, the ultimate value of the alloys of aluminium is from 32,000 lb. to 40,000 lb. per square inch, which, using a safety factor of four, gives an allowable working strain from 8,000 lb. to 10,000 lb.

The attention of those contemplating the use of aluminium for structural purposes is called to the fact that the elastic limit is closer to the ultimate tensile strength than in any other of the commercial metals, and for this reason the safety factor of four or five means a great deal more than it does in steel or iron where the same safety factor is used. Where any great strength in aluminium is desired the metal should be protected in such a way that its temperature will

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