

year erect a large saw mill there, at a cost of \$150,000.—The by-law to raise \$50,000 for the installation of a municipal electric light plant will be voted on by the rate-payers on February 20th.—The Mayor reports that he has arranged with the Bank of Montreal whereby the city can secure what money is required to proceed with the construction of a waterworks system, should it be decided to await a more favorable time for disposing of the bonds. The tests of the artesian wells sunk in the western limits of the city have proven most satisfactory.—It is understood that the Northern Pacific Railway Company will further extend their system in Manitoba next year.—A committee of the University Senate, appointed to consider the question of erecting a new University building, has recommended that the necessary arrangements be proceeded with at once, and that a building committee be appointed to procure plans and specifications.

OTTAWA, ONT.—James Proctor is building three new houses, corner Lewis and Charles streets.—Speaking of the new central depot, Mr. J. R. Booth states that the plans have been prepared, and that work will be commenced as soon as the government finds accommodation for the militia stores.—Mr. L. Z. Gauthier, architect, of Montreal, has been secured by the University authorities to prepare plans for a new building to be erected on Wilbrod street.—A brick addition will be made to the Canadian Bank of Commerce in this city.—Captain Noonan has made arrangements for the building this winter of a new steamer, 110 feet in length and having 28 foot beam, to be fitted with electric light and 12 x 12 compound engine, and to cost \$20,000.—E. F. Roy, secretary Department of Public Works, desires tenders for Friday, 23rd inst., for the construction of a public building at Liverpool, N. S. Plans at above department and at the office of the Collector of Customs, Liverpool.—Five thousand steel drawers are to be fitted up in the Department of the Interior for the keeping of the records and archives. It is understood that the contract has not yet been awarded.—The preliminary work in connection with the proposed main drainage system is being proceeded with rapidly, and tenders will be invited before many weeks. It is probable that contractors will be asked to submit bulk tenders for whole sections of the work.—The Pacific-Yukon Railway & Navigation Company gives notice of an application for a charter to build a railway from Pyramid Harbor to the Five Finger Rapids.—The Lindsay, Bobcaygeon & Potypool Railway Company is applying for a revival of its charter.—Tenders are asked by the City Clerk, up to 12th inst., for the supply of 2,500 brass or aluminum dog tags.—The Christian Bros. have purchased the La Salle separate school on Sussex street, and as a result the French Committee of the Separate School Board will build a new school, to cost probably \$10,000.—Dr. Chamberlain, of Toronto, Inspector of Prisons and Charitable Institutions, has recommended the erection of a new building in this city as a Home for Friendless Women.—The Canada Atlantic Railway Company are tearing down a number of small buildings in the Elgin street yards, and will erect on the site a large workshop for the building of freight cars. About five hundred cars will be constructed this winter.

TORONTO, ONT.—The government of Japan invite manufacturers of modern building materials and appliances to forward information concerning their goods to "Educational Department of the Imperial Japanese government." This information is desired for use in connection with the erection of an important government building.—Reinhardt & Company, Mark street, have taken tenders on plumbing for new addition.—The steam

launch Wanda, owned by the T. Eaton Company, will be lengthened 15 feet this winter.—The city is asking for tenders up to the 19th inst., for the supply and erection of corrugated iron sidewalk shelter under the bridges at the Queen street subway.—The Confederation Life Association will take tenders immediately on the proposed alterations to the old Mc Willie store in their building, corner of Yonge and Richmond streets. The improvements will be quite extensive, including new iron pillars, the dividing of the store into smaller offices and stores, and the necessary fittings in connection therewith.—The city engineer has reported against the proposal to bridge the Don river at King street with two stone or brick culverts instead of an iron or steel bridge, as the former would involve greater cost.—At a joint meeting of the Board of Control and the council of the Board of Trade, held on Friday last, it was resolved that the diverting of the Don, the deepening of the harbor, and the improvement of the means of access, to meet the demands of the trade that is expected to follow the opening up of the waterways to 14-foot vessels, should be carried out at the earliest possible moment. The city engineer estimates the cost of these works as follows: Diversion of the Don, \$10,000; improvements to eastern entrance, \$250,000; new western entrance, \$403,500.—The city engineer has asked for an appropriation of \$5,000 to construct cribwork in front of the Exhibition grounds.—Building permits have been granted as follows: S. F. McKinnon, five-storey brick warehouse, 90 Wellington street, cost \$12,000; Carling Brewing & Malting Company, two-storey warehouse, east side Simcoe street, cost \$12,000.—G. M. Miller & Co., architects, 51 Victoria Arcade, are taking tenders for seating the new town hall at Orono.—The Mayor has decided to submit only two by-laws to the ratepayers at the municipal elections in January. One of these will be to provide funds for the new bridge over the Don, and the other for the necessary cribbing in connection with the establishment of a new wharf along the water front.—The Metropolitan Railway Company has decided to proceed at once with the erection of a steel bridge over the Grand Trunk Railway tracks at Amora.—It is the intention of St. Mary's Catholic Literary and Athletic Association to build a hall in the near future. Mr. P. J. Lowe is recording secretary.

FIRES.

The fires of the past week included the following: Factory of A. Pion & Company, glove manufacturers, Prince Edward street, Quebec; damage \$20,000, covered by insurance.—G. W. Hyde's slaughter house at Billings Bridge, Ont., loss \$1,000.

CONTRACTS AWARDED.

DAUPHIN, MAN.—The Bank of Ottawa was the successful tenderer for school debentures; price, 98 cents on the dollar.

GOLDEN, B. C.—The Golden Fire Engine Company have ordered a steam fire engine from J. D. Ronald, of Brussels, Ont.

TILBURY, ONT.—Contracts for two iron bridges at Tilbury North have been let to the Stratford Bridge and Iron Company.

OTTAWA, ONT.—The contract for widening the outlet of Lake Manitoba has been let by the Dominion Government to L. Lemoine, of Montreal.

PERTH, ONT.—The tender of Thomas Bradford, of Almonte, has been accepted for building an addition to the public school here; price \$5,050.

MONTREAL, QUE.—The tender of John McDougall, of the Caledonia Iron Works, for repairs to wheel of pumping station, has been accepted, price \$2,850.

FORT AUGUSTUS, P. E. I.—The contract for finishing the interior of the R. C. church has been awarded to McEachren & Steele, of Souris, at a figure about \$4,000.

NEW WESTMINSTER, B. C.—The contract for the new Bank of Montreal building has been let to John Coughlin & Son. The architects are Messrs. Rutenbury & Tiarks.

KINGSTON, ONT.—The Department of Public Works, Ottawa, has awarded contracts as follows in connection with the new drill shed in this city. Carpenter work, M. Sullivan; masonry, W. Langdon.

BARRIE, ONT.—Messrs. G. A. Stimson & Co., the Toronto bond brokers, have just taken delivery of the \$100,000 town of Barrie debentures which they purchased from the town a few days ago. The bonds were issued to take over the waterworks, which had previously been run by a private company. The Barrie council were shrewd enough to get the county of Simcoe to guarantee the bonds, which enabled them to get a handsome premium, although the bonds were issued at 3½ per cent.

TORONTO, ONT.—Mr. Henry Simpson, architect, has accepted the tender of T. Downie for the carpenter work of a laundry building on McCaul street, and that of Smallwood Bros. for the brickwork.—The following contracts were awarded by the Board of Control on Monday last. Sand—Joseph Gaby, 75 cents per yard west of Simcoe street, Ashton & Son, 87 cents per yard east of Simcoe street. Rubber valves, etc.—Gutta Percha & Rubber Manufacturing Co. Cast iron pipe—Rice Lewis & Son, four-inch, \$3 25; six-inch, \$4.80; twelve-inch, \$13 70 per length. Stop valves—Perkins & Co., six inch, \$13; 12 inch, \$27 95. Lead pipe—James Robertson & Co., \$4 40 per 100 pounds. Lake gravel—Britnell & Co., 95 cents per yard. Unbroken stone—John Maloney, \$9 75, for 40 toise; John Adair, \$9 25, for 20 toise, Daniel Ryan, \$9, for 15 toise. General supplies, Aikenhead & Co. Iron valves and stopcock boxes—St. Lawrence Foundry Co., \$1 80 and \$1 55 for valve boxes, and \$1 22 and 77 cents for double and single stopcock boxes. Hydrants—Four-way, St. Lawrence Foundry, \$59; three and two-way, Somerville & Co., at \$29 and \$27. Special castings—Galloway, Taylor & Son, \$1 50 per 100 pounds. Lumber—Reid & Co., plank, \$11 94; scantling, \$11 94; boards, \$11 64 per M feet. Cedar paving posts—Grant & Co., \$4 47 per cord. Lumber for waterworks—Reid & Co., pine, \$12 74; hemlock, \$9 14 per thousand feet. Sewer pipe—J. H. McKnight, six-inch pipe, 6 9/10 cents per foot; nine-inch, 12½ cents per foot. Wire nails—Aikenhead & Co., \$1 57½ per 100 pounds for five-inch nails. Brass and bronze castings, Dean Bros., bronze and gun metal, 5, 3, 3½ and 3 cents per pound on the several grades; aluminum bronze, 7 cents; phosphor bronze, 17 cents; Tobin bronze, 5 cents; brass castings, 9 cents; babbitt metal, 16 cents.

ARCHES AND BUTTRESSES.

In the construction of these and similar parts of buildings, two desiderata are especially to be kept in view, viz., good bonding with the adjoining parts of the structure, and such a disposition of the joints that each stone will take its fair share of the pressure to be borne, while it receives all possible support both from its own form and from its fair bearing upon the subjacent mass. Common arches are of three forms, viz., semicircular, segmental and elliptical. Besides these there are the Gothic arches, Tudor arches, three-centered arches, and others,