

age Co., to construct and operate cold storage plants.—The water committee have decided to ask the city council for an appropriation of \$153,377 for the year 1901, to include the following items: Aqueduct, \$3,000; wheel house, \$2,494; engine house, \$11,475; pipe track, \$900; reservoirs \$2,075; engine house, \$5,800; distribution pipes, \$29,100; meters, \$3,824; public fountains, \$1,200; hydrants, \$8,085; shop, Lagouchetiere street, \$5,725; shop, St. Gabriel Ward, \$2,060; St. Jean Baptiste Ward shop, \$1,950; office, Hochelaga Ward, \$908.—Building permits have been issued as follows: C. Ladouceur, two storey building, St. Andre street, cost \$1500; Lake of the Woods Milling Co., one storey warehouse, St. Denis street, cost \$25,000, architect, Hutchison & Wood; C. Gravel, three two storey houses, 61 Dorchester street, cost \$2500.

FIRES.

Hill's bakery and McFadden & McQuade's stove store, at Collingwood, Ont.—Warehouse of Watt, Scott & Goodacre, 22 St. Francis Xavier street, Montreal, damaged to extent of \$6,000.—Building at Roland, Man., owned by Frederick Smith, totally destroyed.—Four storey brick building at 33-37 Pearl street, Toronto, occupied by the Adamson Moulding Co., and owned by the Toronto Mortgage Co.; loss on building \$1,000, on stock \$10,000.—Residence of Douglas Maine, at Regina, N.W.T.—Fire at West Lorne, Ont., on December 30th, destroyed \$100,000 worth of property. Burned buildings include McColl Bros., grocery store, H. J. Hale's, butcher shop, J. Keifer's bakery, Mrs. Alton's millinery, the post-office, the telephone office, P. J. Lindenman's general store, Shippey Bros.' tailor shop, Harvey & Jamieson's drug store, Duncan McKillop's residence, E. Cahill's carriage shop and Hugh McCallum's residence.

CONTRACTS AWARDED.

WINGHAM, ONT.—A contract has been let for erection of new Methodist church to cost \$14,000.

VICTORIA, B. C.—The contract for improvements to the Rock Bay school house has been let to H. R. Sellick.

NEW WESTMINSTER, B. C.—Excavation and laying of foundation for new block for Dr. A. J. Holmes: Wm. Cooper, contractor.

WINNIPEG, MAN.—The tender of W. F. Lee, at \$1,555, has been accepted for the construction of sewer on Flora river and Schultz streets.

SHAWINIGAN FALLS, QUE.—It is reported that W. J. Hill, M.P.P., of Toronto, has secured the contract to build a pulp mill at this place for a Belgian syndicate.

TORONTO, ONT.—The city engineer's department have reported to the council that the totals of the tenders submitted for sewer pipe, figured upon the basis of the pipe used last year, are as follows: Ontario Sewer Pipe Co., \$6,251.25; Toronto Pottery Co., \$6,810.96; J. New & Co., \$7,039.85. The tender was awarded to the lowest tenderer.

OTTAWA, ONT.—The Ottawa Produce Co. have let contracts for their cold storage building as follows: Brick and stone work, Mr. McEvela; painting and glazing, Wm. Howe; carpenter work to be done by day labor.—The Ottawa Improvement Commission last week let the following contracts: 4,300 cubic yards of earth filling to Louis Carisse, of 299 Clarence street, at 50 cents per cubic yard; 4,000 toise of rubble stone, to same contractor, at \$4 per toise.

VANCOUVER, B. C.—A. Wallace, of his city, has secured the contract from the Dominion Government for building a

rge cruiser to be used on the Pacific coast; price, between \$60,000 and \$70,000. The contract for a small cruiser to cost about \$8,000 has been secured by the Albion Iron Works, of Victoria.—Mr. Choate, formerly bridge inspector for the C.P.R., has secured the contract for building the Vancouver and Lulu Island railway bridge over False Creek, which will be 1,900 feet in length, with steel draw in the centre.

BIDS.

BRACEBRIDGE, ONT.—Only one tender was received by the council for power extension work, that of C. W. Dill, whose tender was \$12,215 with pine timber dam, \$11,850 with hemlock, or \$21,930 for concrete dam, he agreeing to take over supplies and plant on hand. The council have decided to do the work by day labor.

DURABLE WOODS.

In some tests made with small squares of various woods buried 1 in. in the ground, the following results were obtained: Birch and aspen decayed at three years; willow and horse chestnut in four years; maple and red beech in five years; elm, ash, hornbeam, and Lombardy poplar in seven years; oak, Scotch fir, Weymouth pine, and silver fir decayed to the depth of 1/2 inch in seven years; larch, juniper and arbor vitæ were uninjured at the expiration of seven years. In situations so free from moisture that they may be called practically dry the durability of timber is almost unlimited. The roof of Westminster Hall is more than 450 years old. Scotch fir has been found in good condition after a known use of 300 years, and the trusses of the roof of the basilica of St. Paul, Rome, were sound and good after 1,000 years of service.

THE WORK OF A REFUSE DESTRUCTOR.

Some interesting results as to the work of refuse destructors are given by Engineering. The plant in question is a 12-cell Horsfall destructor, and the duration of the test was 278 hours; the fuel was midden, market, and dry refuse, and 12 furnacemen and six chargers were engaged. The total quantity of refuse burnt was 1,293 tons, or 9.3 tons per cell per 24 hours. This was equal to 34 lbs. per square foot of grate per hour, the cost for labor per ton destroyed being 9d. There was evaporated by the boilers 743 lb. of water per pound of refuse; but the boilers themselves are so constructive as to be of high evaporative efficiency. The steam pressure maintained was 60 lbs., the equivalent evaporation from and at 212 degs. being .882 lb. of water per

pound of refuse. The power per ton of refuse burned was 83.2 indicated horse-power hours.

The clinker produced by the destructors is used in making mortar, there being eight mills, which turn out 12,000 tons per annum; and during the year screened clinker has been sold to the value of £500. To cart this away would have cost £1,060, without the cost of tipping. Artificial stone (for making which there is a competent hydraulic plant), bricks and ornamental tiles are also made from the clinker. Tins and scrap iron are readily disposed of.

In this destructor the usual pit was abolished, the refuse being tipped direct into the furnaces, the mouth being closed by a heavy cast-iron door perfectly air tight. The clinker is removed by an overhead railway, and, after being cooled, is taken to the crushing machine, which has a capacity of 20 tons per hour. The destructor, adds our contemporary, is capable of destroying ashpit refuse at a cost of 5 1/2 d. per ton for labor only, owing to the abolition of tipmen and chargers and to the increased efficiency of the furnace.

TESTS OF CONCRETE.

In some recent tests made by United States engineers, a plan was adopted for determining the real tensile strength of cement when used in concrete.

During the construction of the concrete footing blocks samples of the concrete were taken from the mixing platform as mixed, from which briquettes were made. These briquettes were treated as nearly as possible to conform to the treatment of the concrete in the footing blocks. The results obtained were satisfactory. In making these briquettes it was necessary to remove pebbles more than 3/4 inch in their greatest diameter to permit the concrete to be compacted into the briquette moulds. It was found on breaking those briquettes that at twenty-eight days and thereafter pebbles imbedded in the mortar at the breaking section were almost invariably broken. It will be seen from the table that the mean tensile strength of five briquettes, one year old, was 643 pounds. Assuming a coefficient of 7 for strength in compression would give 4501 pounds per square inch, or 324 tons per square foot, as the ultimate resistance to destructive stress in compression. The following table shows the tensile strength of briquettes at different ages:

Age	Pounds per square inch.
7 days	222.4
28 days	388.4
6 months	414.6
1 year	643.0