



CANADIAN PORTLAND CEMENT.

REFERRING to a notice which appeared in our columns a few weeks ago, of a large deposit of carbonate of lime and clay suitable for the manufacture of Portland cement, which was found in the County of Grey, a few miles from Owen Sound, we are informed that Mr. Wm. Robinson, C. E., of Owen Sound, has visited Europe with a view of more thoroughly testing the quality of cement produced from this deposit, and comparing it with that of English manufacture. After two months' absence he has returned highly pleased with the results of the several tests made with this cement in Europe. The tensile strength of the cement produced in the test kiln by Mr. R. J. Doyle, Owen Sound, the owner of the deposit, and tested in the laboratory of Mr. Frederick Ransome, C. E., London, Eng., was very high, registering 675 lbs. per square inch at 7 days setting, the average of all the tests being 540 lbs. per square inch. The English Government standard is 515 lbs.

Mr. Robinson in examining the records of the Society of Civil Engineers and Architects in England, found the average strength of cement of English manufacture to be 391 lbs. at seven days setting.

The general tests made by Mr. Robinson in England with English and French Engineers, show our native material to be capable of making cement of even higher grade than the average European Portland cement, there being only three tests in Europe which have exceeded in strength that borne by Mr. Doyle's kiln.

The Company have already commenced excavations for the erection of buildings capable of manufacturing about 400 bbls. per day, and expect to be in full operation by Mar., 1889. This we understand will be the first Portland cement factory on the American continent.

WIRE LATHING.

A TEST was recently made at Hamilton, Ont., of a new kind of wire lathing, the invention of Messrs. B. Greening & Co., manufacturers of wire work. The inventors simply propose to substitute for lathing a sort of wire screen. This is fastened to strips of crimped iron. The strips are an inch wide, and when fastened to the joists edgewise they keep the cement and plaster an inch from the wood, and render the walls fire-proof. The new material and method was subjected to intense heat over a furnace without cracking the plaster or scorching a joist placed an inch above the plaster. The new material will be manufactured by the Greening Co.

Messrs. Greening & Co. had a sample of their invention at the Toronto Exhibition, where it attracted much attention.

WHAT PIPES ARE USED FOR.

THE increasing requirements of modern civilization, says the *Scientific American*, are well illustrated by the extent and variety of underground pipe systems now employed in large cities. Thus there are in actual operation: Pipes for conveying and delivering illuminating gas. Pipes for conveying and delivering fuel gas. Pipes for conveying and delivering drinking-water, and for fire purposes. Pipes for conveying salt water for street sprinkling and for fire purposes. Pipes for draining and carrying off sewage and surface water. Pipes for delivering hot water under high pressure, for heating purposes and power. Pipes for delivering cold water under high pressure for power. Pipes for delivering live steam under pressure, for heating purposes and power. Pipes for delivering compressed air, for purposes of power and ventilation. Pipes for producing power where required, by vacuum or suction, and for ventilation. Pipes for conveying letters and packages, by compressed air and by vacuum. Pipes for regulating clocks, by compressed air. Pipes for conveying mineral oils. Pipes for electrical wires for electric lighting, electric railways, telephones and telegraph. And pipes for power ropes for driving machinery and moving street-railway cars.

Messrs. Chase, Falconer & Close, of Woodstock, Ont., are making square flat dies for sidewalks.

The plant of the Barnum Wire and Iron Works is being removed from Windsor to their new factory at Walkerville, Ont.

While at the office of Messrs. Chase, Falconer & Close, brick-makers, a few days ago, says the *Woodstock, Ont. Times*, we were shown several samples of bricks made in various parts of the world. Among the lot was a most interesting relic of olden times, a brick made in Holland in 1699, nearly two hundred years ago. It was used in the construction of a building near New York, at one time the headquarters of General George Washington. It is much smaller than the bricks now made, but it is far superior; the bright red clay of which it is composed is almost as hard as stone,

BRICKLAYING IN FROSTY WEATHER.

CANADIAN builders will be interested in some statements recently made on the above interesting subject by Messrs. Agnew and Hennessy to a reporter of the *St. Paul Pioneer Press*. Both Mr. Agnew and Mr. Hennessy are veteran builders with considerable experience in the conduct of brickwork after the commencement of freezing weather. They completed the upper part of the St. Paul Globe Building during December while the mercury ranged from -15° to $+15^{\circ}$, and consider that part of the wall as sound as any in the city. Mr. Agnew stated that they used salamanders, staked the lime with hot water, and heated the bricks and laid them in hot mortar and good adhesion was secured. He said that a man could lay only about half as many bricks per diem in cold as in warm weather, and that a thaw during its erection would be injurious to a wall built in winter weather, but that continuous freezing was not at all injurious for bricklaying or plastering. Alternate freezing and thawing he considered likely to burst and crumble the mortar, and objected to building stone foundations during freezing weather.

CANAL LOCKS.

THE depth of a lock must be such that a barge navigating the lower section can float freely into it when the sluice-gates are closed and the flood-gates open, and the height of the flood-gates must be such that when closed, and the water admitted into the lock from the upper level, it shall not overflow them. The position of a lock is just at the termination of a level where the ground begins to fall. It is for every reason desirable to construct a lock of masonry so that the wash of the water caused by opening the sluices, shall not augment its capacity. Sometimes when the traffic is heavy, as upon the Regent's Canal, in London, the locks are made double—that is, side by side, separated by a strong pier of masonry—and a flood-gate or valve is placed in this pier, by which communication can be made between the two locks. By this arrangement a saving of water is frequently effected, as instead of allowing an entire lockful of water to pass into the lower section, half of it can be passed into the adjoining lock, should that happen to be empty at the time. Great care is needed in constructing the retaining walls and piers of locks. As a rule, the thickness of a wall intended to support the lateral pressure of water should not be less than half the height of the water which presses against it. The surface of the masonry should be set in cement, and the bonding should be arranged so as best to withstand the thrust of the closed gates.—From *Cassell's Technical Educator* for September.

It has been found that four inches of contact with, or overlapping on, supports, give to beams their greatest strength and firmness.

We observe that Messrs. Isaac Usher & Son, of Toronto, secured the silver medal offered by the Toronto Industrial Exhibition Association for best sample of cement.

The strength of beams is in direct proportion to their thickness, inversely as their length, and as the squares of their depth, thus: A joist four inches thick is twice as strong as a two-inch joist; if twelve feet in length it has double the strength of one of twenty-four feet, while doubling the depth, as from six to twelve inches, increases the strength fourfold. It is assumed of course that all other elements of strength are equal in each instance of comparison.

A new hot water heater, the invention of Mr. Edward Gurney, has just been placed on the market by the E. & C. Gurney Company, of Toronto. In our advertising pages the manufacturers show illustrations of the new device, for which they claim many points of superiority as compared with heaters heretofore in use. The limited space at our command prevents a full description of this new heater in this number, but full information will be cheerfully supplied by the manufacturers.

Messrs. F. P. Carrie, W. McNally, A. Brenner and Wm. Currie, of Ottawa, and others, are applying for incorporation for the "Beaver Drain Pipe Company of Montreal," with a capital of \$100,000, for the manufacture and sale of drain pipes and all fire clay goods, and building bricks, etc. A site has been selected in the vicinity of the city, and the business is to be conducted on a large scale, one of the interested parties being at present in Scotland purchasing the most modern machinery for the conduct of the business.

A Tonawanda, N. Y., inventor, Frank Batt, has just received a patent for a trimming machine, designed to make dimension and fancy butt shingles at such a rate that they will not cost much more than the ordinary sort, which have to be taken with rough, square ends and smoothed at the market. It happens to turn out that the inventive genius has been laboring with this problem since dimension shingles came into general use, and it has several times been said that the great desideratum in this line has been found. One Pacific coast inventor was mentioned in the papers a while ago as having devised a machine that would take in ordinary shingles at one end and turn them out at the other dressed and shodded and pointed in any way desired. With all this success it would seem that a fancy shingle roof ought soon to be within reach of every farmer in the country.—*Lumber*.



Architects, Engineers, Builders, Owners and others are invited to send particulars of all kinds of construction work in contemplation, for publication in this department. Please state location, character and cost, and names of person or persons controlling the work.

FERGUS, ONT.—A system of waterworks is being considered here.

PICTON, ONT.—A by-law has been carried voting \$30,000 for waterworks.

PRINCETON, ONT.—A new Roman Catholic church to cost \$6,000 is to be built here.

VICTORIA, B. C.—The Presbyterians will erect a new church at a cost of \$40,000.

PORT ELGIN, ONT.—Tenders are asked for the erection of a new public school building.

STRATHROY, ONT.—Messrs. Dixell & Son ask tenders for the erection of a lager beer brewery.

ST. LAMBERT, QUE.—Plans have been made by J. M. Walbank for a sewerage system.

TESWATER, ONT.—A by-law to mine \$9,000 for a system of waterworks will be submitted.

DISERONTO, ONT.—Changes are to be made in the method of lighting the Presbyterian church.

REGINA, N. W. T.—Tenders will be asked for the construction of a new drill shed to cost \$30,000.

SHELBURNE, ONT.—A majority of twenty-four carried the by-law for \$12,000 for waterworks recently.

W. MERRITT, ONT.—A by-law granting \$10,000 to extend the waterworks system has been carried.

INGERSOLL, ONT.—The town has decided to have a system of water works, and an electric light plant.

TORONTO, ONT.—The Council has decided to purchase additional plant for the high level pumping station.

BELLEVILLE, ONT.—Funds are being raised by subscription towards the erection of a new armory and drill shed.

HALIFAX, N. S.—An inspection of the water works is to be made with a view to their enlargement and improvement.

KINGSTON, ONT.—The Government has made an appropriation and selected a site for a dry-dock to cost about \$500,000.

ST. THOMAS, ONT.—The trustees and congregation of the Central Methodist church will erect a new edifice to seat 1200.

MONTREAL, QUE.—Four new warehouses are to be constructed at Hochelaga, to accommodate the increased lumber and coal trade.

ST. HENRI, QUE.—The city council has adopted the by-law providing for the construction of sewers, as well as that authorizing the issue of \$100,000 debentures.

STAFFORD, ONT.—It has been decided to build a new fire hall the cost not to exceed \$3,500. The City Council have decided that the City Hall shall be heated by steam.

OTTAWA, ONT.—Mr. Hamed, C. E., will report to the Public Works Department on the feasibility of constructing a bridge across the Ottawa, below the Deschênes rapids.

OWEN SOUND, ONT.—Preliminary sketches are under way for a three story hotel, 105 feet frontage, brick, with stone trimmings, complete with all modern improvements. Also for a few brick dwellings costing from \$1,500 to \$1,800.

GOOSEBUSH, ONT.—Tenders are called for the erection of the new post office, customs house and inland revenue office here, the plans and specifications for which are on view at the clerk's office.—This town will adopt the electric light.

A coating of ships' feet, coal tar, pitch and batten is said to constitute a most successful preventative against the ravages of the teredo on piles.

The Board of Works of London, Ont., has inaugurated an era of doubtful economy by recommending that the river bank be lined with tin shavings as a substitute for a breakwater.

Geo. M. Pullman, of palace car fame, is erecting himself a granite palace home on one of the Thousand Islands in the St. Lawrence. The money has generously been contributed by citizens of the United States in small sums, collected by posters.—*Lowell Journal*.

A German trade journal advocates the following method for testing the quality of roof slates: The samples of the slate to be tested should be carefully weighed, and then put into boiling water for a quarter of an hour. The water must, however, be fairly free from lime, saltpetre and ammonia. The slates are then re-weighed and those that show the greatest increase in weight are those most capable of resisting deterioration.



St. Lawrence Canals.

NOTICE TO CONTRACTORS.

SEALED TENDERS, addressed to the undersigned and endorsed "Tenders for the St. Lawrence Canals," will be received at this office until the arrival of the eastern and western mails

on TUESDAY, the 25th day of September next, for the construction of two locks and the deepening and enlargement of the upper entrance of the Galop's Canal. And for the deepening and enlargement of the summit level of the Cornwall Canal. The construction of a new lock at each of the three interior locks on the Cornwall Canal between the town of Cornwall and Maple Grove; the deepening and widening the channel way of the canal; construction of bridges, etc. A map of each of the locks together with plans and specifications of the respective works, can be seen on and after Tuesday, the 11th day of September next, at this office for all the works, and for the respective works at the following mentioned places:—

For the works at Galop's, at the Lock-keepers

House, Galop's. For deepening the summit level of the Cornwall Canal, at Dickinson's Landing; and for the new locks, etc., at Lock-stations Nos. 18, 19 and 20, at the Town of Cornwall. Printed forms of tender can be obtained for the respective works at the places mentioned. In the case of firms there must be attached the actual signatures of the full name, the nature of the occupation and residence of each member of the same and, further, a bank deposit receipt for the sum of \$6,000 must accompany the tender for the Galop's Canal Works, and a bank deposit receipt for the sum of \$2,000 for each section of the works on the summit level of the Cornwall Canal; and for each of the lock sections on the Cornwall Canal a bank deposit receipt for the sum of \$4,000.

The respective deposit receipt—cheques will not be accepted—must be endorsed over to the Minister of Railways and Canals, and will be forfeited if the party tendering declines entering into contract for the works at the rates and on the terms stated in the offer submitted. The deposit receipts thus sent in will be returned to the respective parties whose tenders are not accepted.

This Department does not, however, bind itself to accept the lowest or any tender.

By order,

A. P. BRADLEY, Secretary.

Department of Railways and Canals, Ottawa, 8th August, 1888.