

will be run up the mountain next spring. The promoter is Mr. John N. Lake, of New York.—The City Clerk will receive tenders until-noon to-day (Thursday) for the construction of pipe sewers on Brant and Milton avenues.—Building permits have been granted as follows: B. Witter, two-story brick dwelling on Bay street, between Cannon and Mulbury streets, cost \$1,200; Charles West, brick store and dwelling, northwest corner of Smith avenue and Cannon street, cost \$1,300; Moore & Davis, two-story brick dwelling on Main street, between Victoria and East avenue, cost \$2,800; Eagle Knitting Company, four story brick addition to factory, southeast corner of Main and Macnab streets, cost \$5,000.

MONTREAL, QUE.—Alexander Robertson, Secretary, invites tenders on behalf of the Harbor Commissioners until the 21st of November for the supply of lumber and deals required during the season of 1894.—A body of Catholic young men of this city have affiliated with the Catholic Young Men's Institute, one of the objects of the joint bodies being to erect a new building, to cost from \$40,000 to \$80,000. A local committee is at present looking for a suitable site, which they hope to secure near Bleury street. Mr. G. M. Browne is Secretary of the new organization.—A number of representatives of the City Hospitals waited on the Health Committee of the City Council last week concerning the erection of a hospital for infectious diseases. The necessity of such a building was pointed out, and the Committee promised to hold a special meeting at an early date to consider the matter. The cost of erecting a suitable hospital would be about \$50,000.—A proposition has been made to widen Phillips Place by expropriating the Dow property. The cost is estimated at \$25,000.—A new grain elevator is to be built here next spring. The capital of the company will be \$100,000, and it will have the support of the C. P. R. and G. T. R.—The Young Women's Christian Association have had plans prepared for a new building to be erected on Drummond street, opposite the Victoria rink, to cost \$3,000. The work cannot be proceeded with, however, until the necessary funds are forthcoming.

TORONTO, ONT.—Mr. S. F. McKinnon has decided on the erection of a large building at the south west corner of Jordan and Melinda streets, having a frontage of over 100 feet on each street. We understand that Mr. E. B. Jarvis will be the architect.—At the recent annual meeting of the Consumers' Gas Company regarding the question of supplying gas to island residents, it was practically decided to proceed with the work. It is likely that a separate plant will be built on the island for the purpose.—The plans for the building of St. Michael's hospital on Bond street have been completed, and work will be commenced early next spring. To the south of the present building will be erected the main building which will be three stories high, the lower floor being set apart for offices. The new surgical wing will be immediately south of the main section, the operating room of which will have a glass roof.—Plans have been prepared for a new gymnasium in connection with Trinity College.—A friendly suit is now pending between the City and the G. T. R. regarding the liability of the latter to pay part of the cost of constructing the York street overhead bridge, to be erected in connection with the new Union Station. As soon as a basis of settlement is arrived at, the work will be proceeded with.—Building permits have been granted as follows:—E. Love, 6 Earl street, 2 story and attic bk. dwelling, No. 5 Huntley st., cost \$2,000; J. Fiske & Co., alterations to building, 64 Adelaide st. e. cost \$1,500; P. Fresying & Co., 3 story bk. add. to factory, Queen and Sumach st., cost \$5,500; J. A. Nicholls, shop front and alterations, 302 College st., cost \$1,000; Gurney Foundry Co., add. to moulding shop, King st. w., cost \$1,100; J. S. Lucas, addition to hotel, cor. Louisa and Terauley sts., cost \$7,000.

FIRES.

A large block at Yarmouth, N. S., owned by E. S. Williams was destroyed by fire on the 22nd inst. Loss on stock and building, \$30,000, partly covered by insurance.—The clothing store of Collingwood Pugsley at River Hebert, N. S., was burned on Monday last. Loss \$1,200.—The residences of Mr. McDonald and Mr. Secord, and the office of Dr. Cotton, at Regina, N. W. T., were burned on Saturday last. Loss \$4,000.—The Canada Bank Note Company's premises on Craig street Montreal, were almost completely destroyed by fire on the 16th inst. The building was owned by Mr. Jesse Joseph, and was valued at \$10,000.—J. L. Cook's dwelling at Newdale, Man. was burned last week.—Sickles & Co.'s machine shop at Strathroy, Ont., was destroyed by fire on the 18th inst. Loss \$1,500; insurance, \$1,000.—A saw mill at Novar, Ont., operated by the Dominion Bank, of Toronto, was destroyed by fire on Tuesday last. Loss, \$2,000.

CONTRACTS AWARDED.

MAGOG, QUE.—Mr. Dubuque has been given the contract for extensions to the Roman Catholic church.

SMITH'S FALLS, ONT.—Mr. Robert Cameron, of Almonte, is the successful contractor for the new public building to be erected here.

TORONTO, ONT.—The contract for brick and masonry work on the new Union Station was on Monday last awarded to Mr. Gibson.

ST. TITE, QUE.—The contract for a system of waterworks for this village has been awarded to Messrs E. L. de la Vallee & Co., of Montreal.

OWEN SOUND, ONT.—The Grand Trunk Railway Company has awarded a contract to Mr. McDermid, of Toronto, to construct a connecting line between this town and the village of Hepworth, a distance of 13 miles.

WINNIPEG, MAN.—The School Board has accepted the tender of Messrs. Lunsden & Keele for the completion of the Mulvey school, at the price of \$4,400. Mr. George Browne, architect, will have charge of the work.

TORONTO JUNCTION, ONT.—The High School Board on Monday last awarded the contract for carpenter and joiner work on the new building to Thos. Wright a local contractor, at \$3,390, and the painting and glazing to J. A. Bevidge, of Toronto, at \$645.

HALIFAX, N. S.—Messrs. Rhodes, Curry & Co., of Amherst, have been awarded the contract for the new St. Josephs glebe house on Russell street. The cost will be about \$7,000. This firm have also been given a contract for a boat house at Cape Tormentine, which will cost in the neighborhood of \$2,000.

MONTREAL, QUE.—The Road Committee of the City Council has awarded the contract to C. Belhumeur for the construction of sewers on Bourgeois, Charron and Montcalm streets, at the price of \$4.48 per lineal yard for the first two streets and \$6.88 per lineal yard for the latter.—Albert J. Kneeland, contractor, of Rushbrooke street, has been awarded the contract for the erection of a new branch chapel on Ryds street in connection with the Centenary Methodist church, Point St. Charles. It will be a brick veneer building, 40 x 65 feet, the foundation to be of stone, estimated cost \$3,000.—The Health Committee has accepted the model of Mr. Davis, Superintendent of Waterworks for the proposed incinerator.—The following tenders were received by the water Committee for three boilers for the new Worthington engine: Babcock and Wilcox Co., Deseronto, Set A, \$12,751.35, Set B, \$10,916.95; Machinery Supply Co., \$15,000; Eagle Foundry (Heine boilers), \$13,500; Canada Machinery Agency (Monarch boilers), \$8750. The latter tender was not in accordance with specifications and was not considered. The contract will in all probability be awarded to the Babcock and Wilcox Co.

PORTLAND CEMENT.

At the International Engineering Congress which has been held in Chicago there was a discussion on the manufacture and testing of Portland cement. Mr. Griffith said that of late years there has been a tendency to use a light burnt cement to facilitate grinding, but this is a very unsafe practice. Standard test should be as simple as possible, so that they may be carried out by engineers where laboratory appliances are not available. The sand test is not generally used in England, though used in Germany. Mr. Whittemore did not approve of the hot test, and thought the compression test of cement more important than the tensile test, as the material is rarely subjected in service to tension strains. Mr. Lesley stated that nobody can tell just the moment when the action of setting takes place, and that there is a period during setting when any strain upon the cement will retard or prevent setting. He considered it better to spread the mud on the floor and cut it by hand then to make it into bricks in a brick machine, as the latter makes it too dense for good burning. The sand test shows the quality of the sand used. Dr. Coleman Sellers said he used a sand-blast test for abrasion in connection with cement to be used for the Niagara water-power tunnel, where the water has a considerable fall. Captain Black said that at St. Augustine, Fla., he had used a concrete of 1 part good cement, 2 parts sand, almost in silica, and 4 parts coquina gravel (small shells) in place of stone. Concrete made thus and remaining in air was in perfect condition after two years. That laid in water was soft and worthless, and that made in air and then placed in the water was also soft. He thought this to be probably the case with many concrete foundations, but as the margin of safety is so large, it is improbable that this will ever be found out. On a concrete sea-wall of Rosendale cement in Florida, where puddles of sea-water on the top were exposed to a very hot sun, the concrete under the puddles was so soft that a knife could be pushed into it, but on the face of the wall, where the water had no lodgment, the skin of the cement remained quite hard. Where a concrete face was exposed to the action of the surf it was abraded by the action of the sand in the surf. The interior of a cement test-pat will harden later than the exterior. Sir Benjamin Baker said that in spite of the vast amount of literature on the subject there is still an entire lack of accord between engineers as to the use of cement. On the Manchester Ship Canal the tensile strength of cement for dock walls was specified at 300 lbs. per square inch, but on the works of the Liverpool waterworks it was specified to be 80 per cent higher. Yet the engineers of both works were entirely satisfied with the cements and the results in the work. The tensile strains in concrete masonry are very small, but there may be severe shearing strains.

LEGAL DECISIONS.

W. H. HALL VS. THE QUEEN.—The decision in this case is an important one in relation to Government contracts. The plaintiff claimed damages for breach of contract, arising out of a promise by officers of the Crown to indemnify plaintiff for shutting down his mill at Buckhorn, near Peterborough, Ont., to facilitate work on the Trent Valley canal. Plaintiff first brought his action in the Ontario courts against George Goodwin, contractor, and it was dismissed for want of liability. In the present case the crown relied on a defence under the 23rd section of C. 37, R. S. O., which requires a contract to be in writing and signed by the Minister to be binding on the Department, but Judge Burbridge decided that where the contract was executed, the law implied a promise to pay on the part of the Crown, and that the plaintiff was entitled to recover on such implied promise, notwithstanding the statute in question. He gave judgment for the plaintiff for \$975 and costs.

MUNICIPAL DEPARTMENT.

DRAIN VENTILATION AND INTERCEPTION.

By W. H. BESWICK, C. E.

It has been argued that it is not necessary to intercept or disconnect the drainage of houses from the main sewers, on the plea that as every house adds its quota to the general contamination of the sewers, then they should equally share in ventilating them or in carrying off the foul gases generated in the sewers; while some authorities contend that only those drains which run under the houses should be disconnected or intercepted.

The question of sewer ventilation is too large a one to be treated in a short paper like the present; but I am of opinion that the sewers should be ventilated thoroughly, both by shafts and surface openings, independent of the house drains.

By the Model By-laws for New Streets and Buildings it is made compulsory (where these by-laws have been adopted) to properly intercept the drains from the sewers, and By-law 63 reads as follows: "A person who shall erect a new building shall not construct the several drains for such building in such a manner as to form in such drains any right-angled junction, either vertical or horizontal. He shall cause every branch drain or tributary drain to join another drain obliquely in the direction of the flow of such drain."

The object of such by-law is to exclude from the house drains the foul gases which are generated in the sewers, and this by-law should be read in conjunction with By-law No. 65, which provides for the efficient ventilation of the drains.

No doubt much of the dislike to the intercepting trap has been brought about by the use of defective traps, or traps which become readily choked, and as these were not provided with any means of ready inspection, a considerable expense was required to get at them to clear them. Hence the objection to them.

The form of trap which I should call defective is the ordinary running syphon, and also the syphon manhole trap, and no doubt these traps have much to answer for, having been the cause of a great prejudice against intercepting traps for all descriptions. There are many other forms of intercepting traps. Some are self-cleansing, while others, like those just mentioned, are not so, and are certain to become a nuisance.

The self-cleansing trap, similar to the Bulham or Field's disconnecting traps, are usually made with a smaller area than the pipe discharging into them, and have a drop 2 in. to 4 in. at the inlet, thus causing a cascade action to be formed for the purpose of overcoming the resistance of the trap.

The by-laws do not make it compulsory to place a disconnecting chamber in connection with the intercepting trap, but, say, "a suitable pipe, shaft, or disconnecting chamber may be used."

For my own part, I consider that a disconnecting or inspection chamber should be placed where the drain is more than 2 ft. deep, and it would be better still if used in all cases, as by this means ready access is afforded to the drain as well as the trap, and if a trap with a cleansing eye is used then the portion of drain between the sewer and trap can be readily got at and cleansed if necessary.

It is most important to see that the drain is well laid and jointed, and to be self-cleansing it should not have a less fall than one in fifty. One in forty or thirty would be much better, and when a drain is properly constructed all sewage entering it is passed on rapidly through the trap and into the sewer, so that there is no time for decomposition in the drain, and if any matter should adhere to the interior of the drain then by the ventilation as previously described a current of air is passed through it and discharged into the atmosphere above the house, thus diluting the gases given off and discharging them in an inoffensive state.

* Read at the Western District Sanitary Inspectors' Association meeting at Clevedon.