

following building permits have been granted: Mrs. Bourbonniere, three storey stone front tenement building on Brock street, cost \$4,300; G. Cote, two three storey stone front tenement building on St. Denis st., cost \$7,000; E. Dubois, three storey stone front tenement building on St. Hubert st., cost \$6,000; J. Pouliot, two storey brick tenement building on St. Charles street, cost \$2,000; Mr. Boxer, repairs and alterations to St. James Club building, St. James st.; Jos. St. Ouge, three storey brick tenement building, St. Maurice st., cost \$2,000.

TORONTO, ONT.—Tenders are invited by the Grand Trunk Railway Company until noon of the 1st of October for supplying and laying about 220 squares of second quality large sized slate with galvanized nails upon roof of engine shed now being erected in this city. Particulars may be obtained at the office of the Assistant Mechanical Superintendent, 4 Spadina ave.—A deputation representing the Ontario College of Physicians and Surgeons last week waited upon the Attorney-General and the Ontario Cabinet urging the establishment by the Government of two asylums, one for epileptic patients and one for inebriates. The matter was viewed rather unfavorably by the Government authorities.—The City Engineer will report at an early date on contemplated improvements at Island Park. The report will suggest the construction of a waterway from Blockhouse Bay to Long Pond, and the erection of a bridge over Long Pond. W. T. Stewart, Chairman Fire and Light Committee, will receive tenders until the 4th of October for the furnishing of 2,000 feet of 2½ inch fire hose.—Building permits have been granted as follows: Fensom Elevator Co., mansard roof to factory, Duke st., cost \$1,500; Jas. Harrington, 220 Parliament st., three att. 2 story and attic bk. dwellings, 101 St. Vincent st., cost \$12,000; G. C. Watson, 66 Close ave., pr. s. d., 2 story and attic bk. dwellings, 36 and 38 Clarendon ave., cost \$4,000; Chas. J. Gibson, architect, 2 story and attic bk. dwelling, 69½ Spencer ave., cost \$3,000.

#### FIRES

The store and dwelling of Mrs. A. Gibson, at Kilmaurs, Ont., was destroyed by fire last week. Loss, \$4,000; insurance, \$3,500.—Solomon Overholt's residence at Jordan Station, Ont., has been burned. Loss, \$2,000; insurance, \$1,000.—The livery stable of S. Mahoney, and a dwelling owned by Mrs. Curry, at Cardinal, Ont., were consumed by fire a few days ago. The residence of Thomas Duval at Aylmer, Que., was burned recently. The loss is covered by insurance.—The woodenware factory of J. F. Wesley & Co. on Perth ave., Toronto, was completely destroyed by fire on Tuesday last. The loss will reach \$25,000, but is covered by insurance. A building at Monkirk, Ont., owned by M. J. Allen, was burned a few days ago. Loss, \$1,800.—A stove and hoop mill at Stewart, Ont., owned by Smith Bros., was destroyed by fire last week. Loss, \$4,000; insurance, \$3,000.—The Petroleum Oil Company's buildings at Peterboro, Ont., have been consumed by fire.—The dwelling house and all out-buildings of Robert Stewart, at Ottawa, Ont., were burned on Monday last. The loss is estimated at \$6,000.—Fire at Moncton, N. B., on the 24th inst., destroyed J. H. Mark's carriage factory, J. Duffy's livery stable, and No. 1 engine house. Mr. Mark estimates his loss at \$12,000.

#### CONTRACTS AWARDED.

MAGOG, QUE.—The franchise for electric lighting has been given to Mr. Lemay.  
PETROLEA, ONT.—J. & J. Kerr have been awarded the contract for the erection of a new building for D. McMillan & Co.  
PRESCOTT, ONT.—H. Horwood & Son, of this place, have secured the contract for putting in stained glass windows in the new Court House at Canton, N. Y.  
GANANOQUE, ONT.—Mitchell & Wilson, of this town, have been given the con-

tract for the erection of a cottage for Mr. Taylor, of Ottawa, on Club Island, opposite Rockport. The cost will be about \$5,000.

TORONTO, ONT.—The Don Valley Pressed Brick Works, of this city, have been awarded the contract to supply 70,000 light shade Trojan brick, for the Merchants' Bank of Halifax, now being built in Montreal. Also terra cotta and Carthaginan brick to the value of \$4,742.

WINNIPEG, MAN.—The contract for the new hotel to be erected on Market street by W. H. Barry, has been awarded to W. A. Charlesworth. The estimated cost of the building is \$14,000. The contract for constructing sewers on Broadway, Garry and Scott streets has been awarded to J. G. Hargrave & Co., at the price of \$1,542.35, and that for the construction of fifty-five catch basins to W. F. Lee, at the tender of \$2,433.75.

MONTREAL, QUE.—The Road Committee last week awarded the following contracts for sewers: A. Bellhumeur, Bonaparte street, from Montcalm to Visitation street, \$5,23; M. Gosselin, Jacques Cartier, from Craig to Lagachetiere, \$5.49; Sherbrooke street, from Delormier avenue eastwards, \$5.29, and Chaussee street, from Sherbrooke street, northwards, \$5.19; Seminary street, from Ottawa street, M. Foisy to be given at \$5.02½, if responsible, and if not to M. Benoit at \$6.77. Asphalt contracts were also awarded as follows: James Cochrane, St. Peter street, \$3.82; Bastien & Valiquette, Ernest street, \$3.59. Mr. W. McLea Walbank, architect, has awarded contracts for a residence at Cote St. Antoine for W. S. Lighthall as follows: masonry, Hughes & Brisson; carpenter's and joiner's work, R. Neville; painting and glazing, L. L. Mathieu. Also for a residence on Guy st. for the Misses Major as follows: masonry, J. B. St. Louis; carpenter's and joiner's work, Robert Neville; other trades not let.

#### NEW COMPANIES.

HAMILTON, ONT.—Hamilton Boat Propeller Co., incorporated; capital stock \$40,000; incorporators, G. Morris, J. W. Cerry, A. Morris and others, of Hamilton.

BRANDON, MAN.—Assiniboine Lumber Co., seeking incorporation; capital, \$100,000; directors, J. A. Christie, W. M. Alexander, G. Aske and R. M. Matheson, all of this place.

KINGSTON, ONT.—Lake Opinicon Phosphate Co., incorporated; capital stock, \$40,000. With the exception of James Swift, of this place, the stockholders are all residents of the United States.

#### MUNICIPAL DEPARTMENT.

##### VENTILATING AND FLUSHING OF SEWERS.

Dr. Clark, the medical officer of health to the Lowestoft Urban Sanitary Authority, has just submitted to that authority an able and lengthy report on the ventilation and flushing of sewers in relation to health. The following are extracts taken from the first part of the report.

After saying he has obtained such information from the medical officers of health of other towns as will be trusts enable the sanitary authority to decide upon

some definite policy in regard to the ventilation of the sewers of this borough, he proceeds: I am informed by your surveyor that there are approximately some twenty one miles of public sewers within the borough, and these sewers are ventilated by means of a few shafts (9 inches by 6 inches and 6 inches by 4 inches respectively), while there are also 256 manholes and lampholes, of which 81 are closed and 175 open.

It has been laid down as an axiom by Sir Douglas Galton, Sir Robert Rawlinson and others, that public sewers should be ventilated at intervals of not less than 100 yards, so that there should be at least eighteen ventilators to the mile, while the average in this borough is only about ten to the mile. In some towns however, reference to which is made at the end of this report, the sewers are, I understand, practically unventilated, and I cannot say that the mortality returns of these towns indicate that any serious result has accrued hitherto from this apparent neglect of a duty which the Public Health Act, 1875, imposes upon all sanitary authorities. For some months past I have devoted much care and thought to the consideration of this subject, and I am fain to confess that the stern reality of facts and figures has convinced me that the open manhole, as it exists in this borough, is a standing menace to the health of the inhabitants, and may even be in some cases the actual cause of a disease which was unhappily too prevalent here during the past winter—I mean diphtheria.

A most interesting report has just been issued by Mr. James Mansergh, C. E., a well known sanitary engineer, upon the ventilation of the sewers at Beckenham, and although it would be unwise to compare such a residential district as Beckenham, where practically the whole of the sewers are of modern construction and well laid, and which has an average of only five persons per acre, with a borough such as our own, where there is an average of considerably over ten persons per acre, yet Mr. Mansergh's report brings out very clearly several most interesting points in connection with sewer ventilation. In the first place the report proves that the multiplication of ventilators does not abolish the nuisance arising from surface gratings, for although there is a ventilator at every 82 yards throughout the whole of the Beckenham district, and this, it will be observed, is considerably in excess of the requirements laid down by engineers, yet great annoyance is experienced from the surface ventilators, in spite of the fact that the sewers were proved to be in good condition, self-cleansing and adequately flushed. To quote Mr. Mansergh's own words: "It cannot therefore be said that the annoyance experienced from the surface gratings arises from a deficient number of ventilators, and again, 'I have no doubt that the flushing and ventilation are sufficient, using the latter term without regard to the offence caused by it.' I take it that this is a most important conclusion, since it considerably discounts the argument that if a surface grating is offensive, it is necessarily so as the result of some temporary defect in the flow of the sewage, which should be dealt with by flushing. To again quote this report, Mr. Mansergh says, "The broad result of this part of the investigation is that I have not been able to discover any defects in the sewers which account for the com-

plaints of foul smells." It would appear therefore that sewage, even in modern sewers, will generate evil-smelling gases, and these should therefore be given vent at a considerable elevation in preference to on a level with the roadway.

Another point brought out by this report is that all ventilators, whether at the road surface or as shafts, act both as inlets and as outlets, according to the varying climatic conditions. This fact, which I have frequently asserted, was proved by means of anemometers, and it may therefore be considered as scientifically proved that surface gratings, even in conjunction with tall shafts, act at times as outlets for the sewer gases. The case, therefore, for or against surface ventilators depends upon the strictly medical question as to whether the emanations from moist sewage are or are not dangerous or injurious to health. Personally I have no hesitation whatever in saying that, in my opinion, exposure to the emanations from sewage has a most depressing and injurious effect upon the vitality of the human organism, and apart entirely from the question of the causation of such diseases as enteric fever or diphtheria, which are due to specific germs, that these emanations produce a deterioration of vital activity which seriously predisposes to actual disease. The advocates of surface-ventilators state that their object is to approximate the condition of the sewers as far as possible to that of open sewers; but if it be proved that the emanations from an open sewer, or what is similar, from any deposit of night-soil, moistened with liquid sewage, is injurious to health, then surely such an attraction is the least desirable one that any town can offer, whether to visitors or to its more permanent residents.

If the interior of one of those highly glazed earthenware pipes used to form the first syphon on the modern wash-down water-closet be examined after the closet has been in use for some few months, it will be found to be lined with a thin layer of brownish sewage matter which has become adherent to the pipe as the soil was washed through it by the flush of water from the cistern, and it is only necessary to compare the interior of these pipes with the comparatively rough lining of the ordinary glazed sewer pipe to realize how much more of the soil must be retained by these latter. It must also be remembered that for almost two-thirds of every twenty-four hours little or no water passes through the sewers, except in times of heavy rain, and it is easy to imagine how such smells arise as those which emanate from surface gratings, for as this film becomes uncovered by water, it rapidly decomposes, thus presenting much the same condition as the periodically exposed foul foreshore of a sewage-laden river. In times of storm sard and grit are washed into the sewers with the rain and scour the interior of the pipes, removing this decomposing crust for a brief time, and hence it is that after heavy rains these surface ventilators cease for a few days to be offensive. The smells whether from defective house-drains or from surface gratings are to be looked upon simply as warnings, and if such warnings are persistently disregarded, sooner or later ill will come of it.

(To be Continued.)

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