

be paved with cedar and granite on concrete, at a cost of \$5,000.—Building permits have been granted as follows: W. H. Essery, det. 2 storey and attic brick dwelling, 150 Cowan ave., cost \$4,000; Copp, Clark & Co., additions to factory, 67 Colborne street, cost \$5,000.

FIRES.

The residence of S. MacMiers, barrister, of Winnipeg, Man., was destroyed by fire last week. Loss, \$10,000.—J. J. Wood, sash and door factory, Maxville, Ont., has been burned out; no insurance.—J. S. Roddy & Bros. large dry goods store at Bradford, Ont., was consumed by fire on the 27th ultimo. The building was owned by Mrs. Edmonson, and was valued at \$3,500; insurance \$1,500. The Royal hotel at Nanaimo, B. C., has been destroyed by fire.—The grist mill of McIntyre & Cameron, at Clarence, Ont., was burned a few days ago. Loss, \$5,000; partially covered by insurance.

CONTRACTS AWARDED.

PARRY SOUND, ONT.—Logan & Croxford, of this town, have been given the contract to erect a new hotel at Edgington for John Orr.

BRANDON, MAN.—Alexander Kelly & Co., have let contracts for their new mill as follows: stonework, Chas. Hill; brickwork, Lidster & Bell.

WINNIPEG, MAN.—Charles Wheeler, architect, has let the contract for the new waterworks buildings to Rourke & Ciss. The cost will be about \$8,000.

ST ANDREWS, N. B.—Stephenson & McKenzie, of St. Stephen, have been awarded the contract for a large addition to the Algonquin hotel. The plans were prepared by Henry W. Nourse, architect, of Boston.

QUEBEC, QUE.—Contracts for the new building of the Montmorency Electric Power Company were last week awarded as follows: stonework, Mr. Sharpe; wood and iron work, S. Peters; painting and glazing, Gautier & Frete.

PETERBORO, ONT.—The joint committee of Peterborough and Northumberland counties have awarded the contract for the building of the Wallace Point bridge to the Central Bridge Company, of this place, at \$6,350.—The Town Council has awarded the contract for the construction of an outfall sewer to Robert Grant, of Toronto, at the tender of \$11,270.

MONTREAL, QUE.—The Water Committee has awarded the contract to Garth & Co. for one inch Crown meters, \$22.39, and for six inch at \$785.48. It was also decided to try the Nash meters, at the following prices: one inch, \$27.94; six inch \$588.55.—Messrs. Petrucci, Mesnard & Venne, architects, have awarded the contract for a wrought iron grille for the entrance to the Banque du Peuple building to J. E. Bonies & Co., Detroit, Mich.—Mr. Eric Mann, architect, has awarded contracts for the erection of stores and dwellings on Common street for Judge Bury as follows: masonry, brickwork and plastering, Dubé & Son; carpenter and joiners work, Robt. Neville; roofing, Montreal Roofing Co.; painting and glazing, Poirier & Arcand.

OTTAWA, ONT.—The following are the accepted tenders for the erection of the new Maternity Hospital masonry and brickwork, Mr. Garvoek; carpentry, Wm. Ashe; plumbing, McKinley & Northwood; painting, George Howe; electric lighting, Chaudiere Electric Light Co. Torney and Georgeson were the lowest tender for heating, but this matter was left over until a later date. The contracts awarded aggregate about \$7,000, and work will be commenced immediately.—The Weddell Dredging Company, of Trenton, are said to be the lowest tenderers for the Lake St. Louis dredging work, and the contract will in all probability be given to that firm.—D. Porter, of Warton, has received the contract for improvements in Owen Sound harbor, for which the sum of \$10,000 was voted last session.—The contract for putting in the hot water heating apparatus at

Rideau Hall has been secured by D. Onimet, of Montreal.

BUSINESS NOTES.

Edmond Roy, plumber, Montreal, has assigned, with liabilities of \$8,145.

Webb & Newman, builders, Niagara Falls, Ont., have dissolved partnership.

The stock of J. C. Campbell & Co., painters, of Hamilton, has been sold at 32 cents on the dollar.

The stock of E. A. Maung & Co., founders, Beauharnois and Montreal, is advertised for sale by tender.

John Braden has retired from the firm of John Braden & Sons, plumbers, Victoria, B. C. The business will be continued under the style of Braden Bros.

The Stevens & Burns foundry at London, Ont., is again in operation. Mr. Burns has retired, and the firm will be known in future as the Stevens Manufacturing Company.

COLOURING DRAWINGS.

A correspondent writes as follows: "There still seems to exist among the correspondents of your valuable paper some misunderstanding as to the best and neatest way of colouring architectural drawings; and having a little experience in the matter, a few remarks on the manner in which I have been accustomed to colour my drawings may not be amiss, as I think that we should all help each other to the best of our ability. Use as large a brush as possible, as you will then be more likely to succeed in getting a pure wash; whilst with a small brush the colour will be likely to be in streaks. Before mixing any colours, see that the slab is not dusty. Drop some water on the slab from a large brush. Do not rub the paint too heavily or the colour will not be smooth. The colour should be mixed rather thin, as by so doing it will flow easily and evenly. When you have laid on one coat of colour, let it dry before putting on another, as you will be likely to make it worse by stirring about in the wet colour. In colouring over a large surface, let your brush be full of thin colour, and wash over the work as rapidly as possible, so as to prevent one part drying before the whole work has been coloured. Colours should not be put in the colour box or case directly after mixing colour, as they will stick to the box if put in when wet. Neither should any of the colours be left on the ledge of the box whilst the box is opened, as the cover might fall, by accident, and would then be likely to crush the colours to pieces. The colours most used are cumson lake, light red, Indian red, raw sienna, burnt sienna, indigo, and burnt umber.

MUNICIPAL DEPARTMENT.

VENTILATING AND FLUSHING OF SEWERS.

(Continued)

The result aimed at by the use of the sewer ventilators, which are placed purposely at the different elevations, is to freely dilute any noxious vapors that may be generated in them "by causing unceasing motion and interchange between the outer and the inner sewer," and had we only to deal with the evil-smelling and

poisonous gases generated by the purification of the sewer contents, there can be no question that the creation of constant currents of fresh air through the sewers would, in conjunction with copious flushing, be the correct and only remedy. The less movement of the air of sewers we create the less likelihood will there be of any disease-germs being carried into the outer atmosphere; and one of the greatest faults of the modern system of sewer ventilation is the persistent creation of draughts throughout the length of our sewers. We must aim at comparative stillness of the sewer air and be content to provide small outlets here and there, at high elevations, which shall act solely as safety valves, giving exit to the sewer gas when the internal pressure is greater than that of the atmosphere, and *vice versa*, admitting air to the sewers when the internal pressure becomes negative. The result of this will probably be that the sewer gas will be more concentrated and therefore more poisonous, resembling, in fact, the gas at the bottom of a deep well, but as it is contained in the sewer and has no tendency to leave the sewer, so long as the internal and the external pressures are equalized by these "safety valves" no harm will accrue, provided that when sewer-men wish to enter the sewer they do first flush that portion which they wish to enter, opening at least two adjacent manholes while they flush. Surely it were better to give the sewer-men a little more trouble before entering a sewer, less trouble, in fact, than they would have to take before descending a well, than to persistently mingle with the air we breathe, sewer gases which may and often do carry with them the germs of disease. I know it will be argued that under such circumstances the concentrated sewer gases will be sucked into houses from faulty drains by the aspiration of fires, &c., but if the by-laws relative to the use of the interceptors and all the other restrictions imposed upon builders, wherever drains pass under the houses, are obeyed no such danger could arise; and I can moreover point with confidence to the mortality statistics of those towns which do not ventilate their sewers, as a powerful argument against this theory.

I may add also that the experience of the recent outbreak of diphtheria in this borough, which is practically dependent entirely upon the storm water for the flushing of the sewers, has demonstrated to me the fact that fresh cases occur almost invariably after two or three days of fine dry weather, the germs presumably drying on the sides of the sewer and being carried by the draughts through the sewers into the atmosphere, and that the occurrence of rainy weather is marked by a temporary cessation of the cases, in spite of the fact that the entrance of the storm water into the sewers forces out some of the gases into the streets and possibly even into some of the houses.

Dr. Sidney Davies, medical officer of health for Plumstead, has pointed out a striking comparison between the incidence of diphtheria upon the two sanitary districts of Woolwich and Plumstead. It appears that these two districts are contiguous, Plumstead being in reality merely an extension of Woolwich; the former has a population of 55,000 and the latter 41,000. They are on the same soil, have the same water supply and practically the same milk supply, while the sewage of both

districts is discharged into the Southern London Outfall Sewer. Woolwich has, however, a large proportion of old brick sewers with insufficient fall, while Plumstead has pipe sewers, and is built on the side of a steep hill. The bulk of the houses in each are four or five-roomed, with water-closets outside. Woolwich has a good many slums, and its sanitary arrangements are more in keeping with modern requirements. These two districts are under different sanitary authorities, and consequently while Woolwich has no grid ventilators, and very little sewer ventilation of any kind, Plumstead has grid ventilators in every street, and the sewers are also ventilated by shafts. Such being the condition of the two districts, Dr. Davies proceeds to point out that during the past four years, Plumstead with its better sanitary arrangements (bar the grid ventilators) has had three times as many deaths and four times as many cases of diphtheria as Woolwich. Scarlet fever and typhoid fever appear to be equally prevalent in the two parishes, while diarrhoea, which is due not so much to sewer gases and their constituents as to sewage contaminated soil, is, as would be expected, more prevalent in the Woolwich district where the old brick sewers still exist. Dr. Davies shows that increase of diphtheria in Plumstead is contemporaneous with the introduction of the grid ventilators, while in that part of the district in which exist shafts as well as the grid ventilators, the number of cases is less than where no shafts exist.

The remedy suggested by many for the purification of sewers and the abolition of the nuisance arising from surface gratings is more copious and more systematic flushing with water, and there can be no questions that in addition to the cleaning effects of a sudden rush of water in a closed conduit, that water has immense capabilities of absorption of the sewer gases, and where practicable this is undoubtedly an integral part of the duty of every sanitary authority, although to judge from the report of Mr. Mansergh, it cannot be relied upon to abolish the nuisance of surface ventilators. I cannot, however, disregard the fact that this flushing is most essential in hot dry weather, and it is just at such times that many towns are put to great straits to secure a sufficiency for drinking and domestic purposes, and when we see great cities compelled to cut off their water supply for more than half of every twenty-four hours, as several did during the drought of last year, it seems hopeless to rely solely upon flushing for the harmlessness of our sewers, since it is obvious that when most needed the system almost invariably breaks down.

There is less excuse in this respect for such towns as are contiguous to the sea, and I have very little doubt that in years to come these towns will value their potable water far too highly to pour it into their closets and sewers, and that a separate service of sea water, which can be had for the pumping, will be utilized for all such purposes.

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