

to Hill street, and on Hill street, from James street to Pearl street, cost \$1,300; Abbott street, from Maple street to Elm street, cost \$902; Bartholomew street, from King street to Pearl street, cost \$2,790; St. Andrew street, from Jane street to Flint street, cost \$2,230.

OTTAWA, ONT.—Mr. G. F. Stalker, architect, has been instructed by the Board of Health to prepare specifications and call for tenders for the proposed contagious disease hospital, in accordance with plans approved by the Board.—The Governor-General has requested the Dominion Government to enlarge Rideau Hall, it being too small for His Excellency's household. The Government may possibly consider the question of erecting a new residence.—A number of implement manufacturers have requested the managers of the Central Canada Fair to provide a larger building for their purpose, the present one being inadequate.

WINNIPEG, MAN.—Plans are now being prepared for a new power house for the electric street railway, to be built in connection with the Winnipeg Gas and Electric Light Company.—Mr. J. H. Mills has purchased a site on the south-west corner of Edmonton street and Broadway and will erect a residence thereon shortly.—A new bridge is to be constructed over the Assiniboine river at Colony street.—It is the intention of the Minnesota-Moline Plow Company, of Minneapolis, to erect a large warehouse in this city next year. Mr. Fish, general agent of the company, was in the city recently in that connection.

MONTREAL, QUE.—A property has been secured in Belmont Park on which to erect a new High School for English speaking Catholics. Rev. Father Quinlivan is interested in the project.—Mr. R. A. A. Jones, of England, has placed at the disposal of the Lord Bishop of Montreal the sum of \$20,000 for the erection of a children's convalescent hospital in connection with the Church of England in this city. The building will be erected in one of the city suburbs, and a provisional committee has been appointed to look after an act of incorporation and other preliminary business.—Excavating has been commenced on the foundation of a new Catholic hospital to be erected at the corner of Sanguinet and Rachael streets, the result of efforts of Rev. Abbe Anclair. It will cost about \$60,000, and will be equipped with all modern improvements.

TORONTO, ONT.—It is the intention of Mr. Robt. C. LeVesconte, barrister, 37 Wood street, to erect a residence in the locality of Rosedale.—An American gentleman has purchased a lot of ground adjoining Major Carlaw's residence on Spencer avenue and intends erecting a residence thereon.—Two new houses are to be erected on a lot on the east side of Walmer road, at a cost of \$15,000 each.—The Board of Works will be asked to sanction the widening of Queen street eastward from Parliament street, to accommodate the double street railway track.—Regarding the rumor that a new opera house would shortly be established in the city, Mr. H. R. Jacobs, of Jacobs & Sparrows opera house, states that no new theatre will be built in Toronto this season, but that there is, however, a genuine movement to form a syndicate and build one to be managed by him.—The City Engineer has been engaged for sometime preparing a report on the water supply. It is said that the report will recommend the construction of a tunnel under the Bay and Island out to the intake point. The cost is estimated at about \$500,000.—The City Engineer is preparing an estimate of the cost of an asphalt pavement on Queen street, from Yonge street to the Don river.—Mr. Sanké, City Surveyor, is preparing plans for the proposed enlargement of the Yonge street wharf, in connection with the Esplanade improvements. It will be extended 250 feet to the Windmill line, and 135 feet added to its width, at a cost of over \$25,000. The plans will be pre-

sented at the next meeting of the Board of Works.

FIRES.

The saw mill of Messrs. Mondor & Arel, of Yamaska, Que., was burned recently. Loss \$5,000.—A brick building at 30 St. George street, Montreal, occupied by the Star Box & Collar Company, was damaged by fire on the 5th inst. to the extent of \$25,000.—J. B. Henderson's frame block at Carberry, Man., was destroyed by fire last week. Loss, \$7,000; insurance \$680.—The residence of S. Phillips, at Elkhorn, Man., was destroyed by fire on Monday last.

CONTRACTS AWARDED.

PETERBORO, ONT.—The Central Bridge and Engineering Company are at present filling an order from Rochester, N. Y., for fifteen large flexible joints for water pipes, to be about 5½ feet inside diameter.

TORONTO, ONT.—Mr. George F. Bostwick has been given the contract for fitting up the new Oak Hall building now being erected on King street east in this city. Mr. Bostwick has just completed the fittings and furnishings for the new office of the Canadian Bank of Commerce at St. Catharines.

QUEBEC, QUE.—David Ouellet, architect, has awarded a contract to Mr. Jos. St. Hilaire, contractor, of the parish of St. Ronald, for the inside decoration of the church of St. Flavien, Co. Lotbiniere, the work to be in basswood, with carved ornaments, white painted and gilt. The furniture to be in basswood and black walnut. Value \$10,500.

WINNIPEG, MAN.—A contract has just been awarded to Messrs. Gray Bros. by the Hudson's Bay Company for the construction of a solid brick addition, with stone foundation, to the company's warehouse in this city.—Mr. A. Goodfellow has secured the contract for building the new industrial school in the vicinity of Duck Lake. It will be an extensive building.—The contract for the construction of the foundation for the new St. George's church, corner of Bannatyne and Isabel streets was let last week to Mr. Jas. Helly. This work will be finished this fall, but the remainder will not be proceeded with until the spring. Mr. Geo. Brown will have charge of the work.

MACHINE-MADE MORTAR.

The mortar box and mixer, which are always associated unpleasantly with buildings in course of construction, will probably soon be things of the past. Builders are talking of investing in mortar factories, from which they will be able to order the exact amount of the materials they need. One such factory was recently started in Philadelphia, and was so successful that similar "plants" are springing up in all the large cities of the country. The process is thus described: "The sand used is dumped into a hopper at the edge of a canal, and falls through this hopper into a sand-conveyer, which carries it into the factory through a subterranean trough, by which it is dumped into an elevator. This elevator carries it to the roof of the factory, where it is thrown into a revolving screen eight feet long by two feet in diameter. The sifted sand falls on the belt that conveys it into the mixing room on the second floor. The lime is kept in a huge bin in the rear of the first-story building. From this bin two chutes lead down to the patent revolving cylinders or retorts in which the slaking is done. These retorts hold about fifty bushels of lime, and will turn that amount out thoroughly slaked every forty-five minutes. The liquid lime is pumped up to the mixing tubes by means of specially patented pumps, and then the most delicate part of the process is reached—the mixing. A great deal of judgment is necessary to decide just how much lime is needed in a given quantity of sand, for the reason that very coarse sand holds much more lime than very fine sand before it will hold well, and the quantity of lime has always been

gauged to suit the particular quality of sand on hand. The mixer itself is a wonderful piece of machinery, consisting of a gigantic screw and several large paddles which hurl, twist and contort the lime and sand until there is no grain which is not as thoroughly mixed as the average discussion on the financial situation. After mixing, it is dumped into carts and put into immediate use in the walls of the buildings or on ceilings. There is no need to wait a second for any re-tempering or anything of that sort. Machine-made mortar, it has been found, is always more thoroughly mixed, is easier to work and does not "blister."

BUSINESS NOTES.

Placide Raby, plumber, of Montreal, has assigned.

Papineau & Archambault, plumbers, Montreal, have dissolved partnership.

W. J. Taylor, painter, Toronto, has assigned with assets in excess of liabilities.

E. Benoit & Co., contractors, Montreal, have assigned, paying 15 cents on the dollar.

William T. Horton, builder and contractor, of Halifax, N. S., has assigned to James Dempster.

Chas. S. Gagnier, painter, of Montreal, has assigned at the demand of J. C. Lascotte, with liabilities of \$3,800.

MUNICIPAL DEPARTMENT.

THE FILTRATION OF WATER.

A second point that is often disputed is contained in clause 4. According to the present state of science and experience it is generally accepted that the thin film of dirt on the surface of the sand is really the filtering medium, and that the filters, filled up with new sand or cleaned, do not properly work before a new film of dirt has been gained. Mr. Bertschinger's experiments show that the Zurich filters do not do their full duty until four to seven days after the cleaning. Mr. Piefke's experiments at Berlin show the filter fully restored after four or five days' working. The unfiltered water in Zurich is of first rate purity compared with the water of the Spree in Berlin and of the Elbe near Altona. The raw Zurich water contains generally less than 300, in very rare cases, 400 germs; the water of the Spree generally some thousands, very seldom more than 10,000 germs; while the water of the Elbe at the Altona waterworks contains exceedingly seldom less than 10,000, generally more than 20,000, and very often more than 40,000 germs per cu. cm. On the other hand, in the Elbe water the amount of mineral substances is very high, the amount of vegetable matter very low, compared with the Spree water. The mineral matter subsides very fast as soon as the water is brought to rest. The writer, therefore, fills up the cleaned or newly filled filter (at the Altona works) in the usual way from below with filtered water to the top of the sand, and afterward with unfiltered, subsided water from above, and then gives a sufficient time for the mineral impurities to subside on the surface of the sand. Generally six to eight hours, sometimes ten or twelve hours, after the time the filter is filled with water the filtration begins and is quite satisfactory, the number of microbes being not, or very little, increased, as compared with the water filtered before the cleaning.

Quite a different case is that after the filling up with new sand. If we proceed just in the same way with the inlet water and give the raw water a time of twenty hours of quiet rest, the number of microbes becomes very high. It is certain that the working of the filter, when filled up with new sand, is for a certain time not satisfactory; therefore, we must waste the water during the first three or four days.

* Abstract of a paper prepared for the International Engineering Congress of the Columbian Exposition, 1893, by Mr. W. Ruemmel, C. E., of Altona.

A third point to be discussed is contained in clause 5. It is not sufficient to examine the water as it is delivered to customers; the water running from each filter must be tested bacteriologically every day. We have made arrangements to take the samples from each filter, as near as we could get. At first there were attached to the outlet pipes short lead pipes with bib cocks, about two feet from the mains. That was a mistake; some days after the first trial the lead pipes were grown full with microbes, and the samples of water taken from the bibs, though full care was taken to have water from the mains, did not show the latter, because the running water washed away many of the colonies in the lead pipes. Now the arrangement is altered; we take the water directly from the main with a sterilized short pipe, introducing in the main through a properly constructed stop-cock.

We find it a very good thing to examine every day each of the filters, and we are sure that we save ourselves a great many mistakes and much mischief by this very simple and very safe expedient. Without this bacteriological examination we are working like a mechanical engineer who does not indicate his steam-engine, thinking that he is able to estimate its quality from the revolution of the fly-wheel. The thing we must not overlook is that the number of germs found in a cubic centimetre is not very important in itself, but only a way to judge the working of a filter. As soon as we find that the number increases suddenly we may be sure that something in our filter is out of order.

A point of much greater importance is the determination of the species of the microbes; in each sample of a good filtered water the number of species will not vary much, though different species predominate at different seasons. As soon as we find that the water contains some well known species of microbes of the liquefying type, we have to examine the colonies in the discs and the filters with the utmost care. If we do so, we may be sure that we will be able to deliver a good, safely usable filtered water, even from a river not at all protected against pollution through human excretions.

LEGAL DECISIONS AFFECTING MUNICIPALITIES.

ERDMAN V. TOWN OF WALKERTON.—Judgment on appeal by the defendants from the judgment of the Queen's Bench Divisional Court, reported 22 O.R. 693, directing a new trial of the action, which was brought under R.S.O., ch. 135, by the widow of one J. B. Erdman, as his executrix, to recover damages for his death, alleged to have been caused by the defendants' neglect to keep a highway in repair. The action was tried before Street J., who gave judgment of non-suit, the plaintiff admitting that she could not prove her case without the aid of depositions of the deceased, taken in an action begun by him before his death, which evidence the learned judge held inadmissible in the present action. The Divisional Court reversed this decision, and also reinstated an order allowing the evidence to be used, made by the master in chambers and set aside by Street J. on appeal. The court agreed (with some doubt by the majority of the court, owing to the conflicting decisions) with the court below in holding the evidence admissible, and dismissed the appeal with costs. The court, however, held that the master in chambers had no power to make an order for the reception of the evidence, and that the appeal as to that branch should be allowed and the order of Street J. restored, but without costs.

Mr. W. M. Davis, town engineer, of Woodstock, Ont., had a narrow escape from drowning in Sturgeon Lake a few days ago, owing to the capsizing of a canoe. A friend succeeded in rescuing Mr. Davis when life was almost extinct.