building permits have been granted; Mrs. E. Simons, two-story brick dwelling on Main street, between Queen and Ray streets, cost $3,000; trustees of Knox church, brick Sunday school building, northeast corner of Cannon and James street, cost $7,000; A. B. Coleman, two-story brick dwelling on Hughson street, between Young and Maria streets, cost $28,000; Thomas Allan, two story brick dwelling on Herkimer street, cost $2,100; Isaac Davis, two brick cottages on Cannon street, between East avenue and Emerald street, cost $1,300.—It is reported that the officials of the Centenary Church are contemplating the purchase of James H. Mills property at the corner of Jackson and Charles streets for the purpose of building a new church thereon. The report, however, is not confirmed by the Building Committee. — The Board of Works has decided to submit a by-law to the ratepayers authorizing the construction of permanent pavements on King and James streets, to cost $150,000. It has also been decided to recommend to Council that Mr. F. B. Rae, of Detroit, be engaged to prepare plans and make an estimate of the cost of installing an electric light plant.

TORONTO, ONT.—A new school house will be erected at once by the Trustees of School Section No. 25, York township.—A by-law has received its third reading by the York Township Council granting the Toronto and Scarboro Electric Railway Company an extension of one year for the construction of its road to Little York.—It is the intention of Messrs. John Catto & Son to erect a new building on the site of their present warehouse on King street.—The scheme advocated by Col. Sweney, of making an aquatic course three quarters of a mile long at Island Park, is being taken up by city oarsmen, and the Council will be petitioned to commence work this season. The cost of dredging is estimated at $3,000.—The Ontario Government has approved of the expenditure by the University of Toronto, of $20,000 for the equipment of a chemical laboratory, $8,000 for completion of gymnasium building and $12,000 for glass and iron cases for the museum.—Tenders are invited by Mr. John Bailey, Chairman Local Board of Health, until Thursday, May 3rd, for the erection of a disinfecting station adjacent to the Isolation Hospital. Plans may be seen at the City Clerk's office or at the office of the Medical Heath Officer, St. Lawrence Hall. Building permits have been granted as follows. Mrs. C. Ruthven, 2 story front extension, 346 Parliament street, cast, $1,000; W. T. Bero, 1 story mansard, brick additions and alterations to hotel, n. w. cor. Dundas and Queen street, cost, $3,000; J. T. Wilson, 2 story brick addition and alterations, 41 and 43 Murray street, cost, $3,500; J. Gunn, Toronto Railway Co., alterations and additions, 133 Isabella, street, cost, $2,000.

FIRES.

R. Fisher's dwelling at Belleville, Ont., was burned on Thursday of last week. Loss, $1,000; no insurance.—The St. Patrick's Orphan Home at Ottawa, Ont., was badly damaged by fire on the 20th inst.—The Central House at St. Paul's Bay, Que., owned by J. Dechene, and a house belonging to George Cimon, were destroyed by fire a few days ago. Both were partially insured.—The brick summer residence of Mr. L. L. Belcher, of London, situated on the second concession of Westminster township, was destroyed by fire on the 22nd inst. Loss, $25,000; partially insured.— Richardson & Son's lumber mills at Bedford, N. S., were burned last week. Loss, $8,000 to $10,000; insurance $2,000.—The post office building at Stratford, Ont., was damaged by fire recently to the extent of $4,500.—Fire at Ermsville, Ont., on the 23rd inst. destroyed the Phelan house, loss, $3,000, J. E. Murphy's shop and dwelling, loss, $1,200, R. Walsh's shop and dwelling, loss, $800, and A. Steward's residence.—The Allandale flour and oatmeal mills at Lang, Ont., about 10 miles from Peterboro', owned by John Humphrey, were destroyed by fire on Monday last. Loss, $5,000.—The business portion of Fitch Bay, Que., was almost entirely destroyed by fire on the 24th inst. Some of the buildings destroyed were E. B. Doliff's sash and door factory and the shops of George Reticker, John Carr, L. H. Rand, John Gardin and Horace Carr.

CONTRACTS AWARDED.

TORONTO, ONT.—The Canadian General Electric Company have been awarded the contract for the electric light and power generating plant to be installed by the Dominion Government at the Sault Ste Marie Canal locks.

KINGSTON, ONT.—Mr. Arthur Ellis, architect, has awarded contracts as follows for a residence on Young street for Mr. J. A. Craig: masonry, R. Clugston; carpentry, O'Rielly and Hooper; plumbing and tinsmithing, Elliott Bros.

WINNIPEG, MAN.—Mr. Chesterton, architect, has let the contract for additions and improvements to the Medical College to Mr. W. A. Charlesworth, at the price of $6,000.—Contracts for the erection of the Davis block on Market square have been awarded as follows: masonry, Kelly Bros.; carpentry, Bruce & Madden; roofing, J. L. Wells & Co.; painting and glass, R. Leckie; plumbing, Plaxton Bros.

PREPARING OLD WALLS.

Some painters think the best way is to refuse to touch them until they have been repaired by a plasterer, but in that case nine times in ten the work will not be well done. As a rule the man of trowels gets out of such a job if he can, or slights his work. He will plaster up the large holes, and that is all he can be relied upon to do, and it is always well to insist that so much at least shall be done by the mason. To prepare an old wall, first cut out the cracks in this shape, V, and cut the holes on the same level, then paint the edges, or cement them with a strong glue size to the top section—one way is as good as the other. Then fill carefully with fine plaster Paris mixed with weak glue size. If you find places where the clinches are broken and the plaster is loose on the lath, cut holes through the plaster, put a small, broad-headed screw in the lath even with the plaster and cement around it with the plaster Paris. Three or four screws will fasten half-a-yard of loose wall. If it is a smooth wall with rough, sand patches, sandpaper down the patches a little below the general level of the wall, sweep out the loose plaster, give a coat of glue size and knife in a coat of plaster Paris or whiting mixed with glue size, and when dry sandpaper until smooth and level. Now, if you want a nice surface to put rich paper on put on a coat of lining paper, good white blank wallpaper with but little colour will do. But the edges, and be sure that every inch of it is made fast with a good stout flour paste. Select a porous paper, which will not blister. If it is on a sandy wall beat it well into the same with the ends of your brush. Then, when dry, sandpaper out the most prominent grains of sand, and you are ready to put on your paper. If you want to paint treat a wall the same way. If you put on linen paper when you want to paint put a coat of glue size over your lining paper. On the outside walls where there is danger of dampness from frost put a prime coat of paint on the wall before you put on your lining paper. If your wall is an old affair, part smooth and part rough sand patches, you can do a neat, rustic job by sanding the whole of it. First see that the cracks and holes are stopped, the loose places fastened, and the patches leveled down. Then give the wall a prime coat; next a coat of glue size, then a heavy body coat of oil paint, one-fourth turps and a little drier, then sand the whole wall with washed and sifted sand, and be sure that your paint is right to hold a full, uniform coat. When dry, sweep off the loose sand and put on your colour, and you will make a new wall of an old one. It is about the best way to give an old, cracked and patched wall a uniform and new-looking surface when painted. Of course, it is a little hard to paint, but a coat of glue size on the sand before painting helps out wonderfully, and if care is taken to use a fine sieve for the sand it will paint easier than a new, rough, sand-finished wall.

CLASSIFICATION OF LIMES.

Until within a very recent period it was held that ordinary limestones, when burnt in kilns, parted with their water of crystallization and their carbonic acid, and were thus reduced to the state of an amorphous, spongy material, highly caustic, with a great avidity for water and of small specific gravity. No change has yet taken place in this part of the theory of limes; nor have the principles enumerated by M. Vicat with respect to the influence of the various substances in combination with the lime in the natural limestones been materially shaken. The most competent authorities agree with M. Vicat in attributing the differences of the rapidity of setting of various ordinary limes to the presence or the absence, of some of the different forms of silica, alumina, magnesia, or iron; or, in some cases, to a mixture of them all. The chemical combination of silica and alumina with lime in the stone appears to exercise the greatest influence upon the hardening of resulting limes; or, in other words, the presence of the silicate of alumina in the limestone has deen found to have so decided an influence upon the properties of the lime made from it, that the relative qualities of that salt ascertained to be in stone have been universally admitted as forming a convenient scale for judging of its value as a source of lime. Perfectly pure carbonate of limestones, such as the upper and middle chalk, and most of the marbles, yield in fact a pure caustic lime, whose properties are that it swells when mixed with water sometimes to two and a half times its original volume and that when in large masses it never hardens—within appreciable periods, at least. The presence of a small portion of the silicate of lime in the limestone (as in the case of the chalk marl) produces the following effects: Firstly, that the caustic lime in slaking, or taking up water, does not swell to the same extent as pure caustic lime would do, secondly, that the resulting paste of lime, even when in large masses, will set within comparatively speaking short periods, and thirdly, that it resists the solvent action of running water more satisfactorily than pure caustic lime would do; the latter indeed would be entirely removed if exposed to such a test for a sufficiently long period. A greater proportion of silicate of alumina increases the energy of the setting and hardening powers of the lime, as in the case of the blue lias limes; and, finally, when the proportions of the silicate exceed a certain point, the limestones in which they exist yield a class of materials called cements, which set without any marked increase of volume, and rapidly acquire a great degree of hardness, and are insoluble in water. These various qualities serve to classify the limes and cements; for the former are called rich or poor according as they may or may not swell in slaking; and hydraulic or non-hydraulic as they may or may not resist the solvent action of water. The cements are all poor, and most of them are permanently hydraulic. It is found that so long as the limestone does not contain more than ten per cent. of foreign matters, the lime it yields is rich and non-hydraulic. When the foreign matters exceed ten per cent. the lime becomes more and more poor; but if the foreign matters should consist of the silicate of alumina or the silicate of magnesia, the hydraulicity increases in proportion to them.

THE SHOT PROCESS OF DRILLING STONE.—The shot process of drilling recently introduced is the application of a very simple scientific and mechanical principle. In this method of drilling through rock, steel shot are poured inside of the drill pipe, into a ring or channel made in the rock by a few revolutions of the pipe, the latter bearing on this ring of shot, and, when the pipe is revolved, it causes the shot to revolve also and cut the channel in the rock deeper. From the results thus far obtained, it is expected that, as the boring of large holes through hard rock by means of diamonds—the cost of which, as is well known, continues to be very great— is very expensive work, the new process of drilling by means of steel shot will be used in many cases as a substitute for that of the diamond drill.

MUNICIPAL DEPARTMENT.

MEDIUM SIZE FOR SEWERS.

Much has been written of late says an American contemporary, concerning the minimum size to be used in public sewers, and many reasons have been given for one or another. The great majority of engineers appear to favor eight inches, though some strenuously contend for six inches.

There can be no question that entirely satisfactory results have been secured, says an exchange, with six inch pipes. Where an entire system, from interior fixtures to sewer outlet, can be built under close and competent supervision and kept, when in operation, under intelligent care and inspection, six inches should be a minimum size.

Even under the most favorable conditions which might admit the use of six inch pipe, this size should be used only for short distances. A sewerage system is, or should be, the most permanent of public works. It should be designed and constructed for the future as well as for the present.

No sewer should be designed to flow full under any circumstances. No lateral sewer should flow more than one half full under its maximum service, if thorough ventilation and sanitation is sought. Neither should a sewer be designed and laid for less service than that of a district compactly built upon, to at least urban density. If these principles be considered a six inch sewer should not exceed 600 feet in length when laid at such a grade as will give a mean velocity of two feet per second when flowing half full. Greater lengths of six inch pipe have been laid and served well, but these sewers are found in sparsely settled districts.

A minimum size of eight inches will be found to meet all the requirements more satisfactorily than will six inches.