SYDNEY, C. B.—Tenders are asked until the the 29th of May for the purchase of $15,000 worth of debentures, the money to be used in the extension of the waterworks. Particulars may be obtained from Alexander Campbell, Town Clerk.

SIMCOE, ONT.—At a recent meeting of the Simcoe Town Council a grant of $10,000 was made to the Board of Education for the purpose of building a new high school, the present accommodation for both high and public schools being inadequate.

VANCOUVER, B. C.—The City Engineer is preparing plans for the proposed enlargement and improvement of the market and wharf to cost about $12,000.—Mr. H. A. Massey has given $10,000 towards the new Columbian Methodist College, and the committee will begin the work of putting up a building at once.

BROCKVILLE, ONT.—Architect Johnston, of Ogdensburg, N. Y., is preparing plans for the new gallery to be placed in the First Presbyterian church in this town.—Mr. Geo. Allan, architect, has submitted plans to the School Board for adding another story to the school building in the east end of the town, at a cost of $3,000.

KINGSTON, ONT.—Messrs. T. H. & R. C. Percival, plough manufacturers, of Merrickville, are asking for a bonus to remove their works to this city. They would erect a factory and expend the sum of $100,000 in machinery, stock, etc.—Ald. McLeod proposes to erect a planing mill and sash factory, and is asking for exemption from taxation.—Dr. Isaac Wood has purchased property at the corner of Wellington and Johnston streets, on which to erect a surgery.

LONDON, ONT.—The Summer Homes Branch, Y. W. C. A., of London (Ltd.), has been incorporated, with a capital of $3,000, for the purpose of buying or leasing land and erecting buildings thereon, and under the auspices of the Young Women's Christian Association of London, to let and manage the same as summer residences for females. The members of the company are Sarah E. Allen, widow; Mary Ware, Marion Baxter, Elizabeth Kirkpatrick and Daisy Emma Peel, spinsters.

MONTREAL, QUE.—The city intends to lay down a large amount of asphalt pavement this year, at the same time that the street railway company renews its tracks. Probably a dozen streets will be permanently paved in this way.—Laval University will put up a building this season on St. Denis street to cost $150,000.—Sir Donald Smith has made a further donation of half a million dollars to McGill University, which will be expended in the erection and equipment of new buildings for the woman's department.—The Fire and Financial Committee has asked the City Council for a grant of $5,000 for a new extension ladder and $10,000 for repairs to fire stations.

HAMILTON, ONT.—Engineer Hartmann, of Toronto, has been over the proposed route of the Hamilton, Waterdown and Guelph electric railway. He thinks the scheme is practicable and will make an estimate as to the probable cost.—Mr. Stewart, architect, has been instructed to prepare plans for the rebuilding of the Grant Lottridge brewery which was destroyed by fire last week.—Building permits have been granted as follows: C. G. Carlson, two two-story brick dwellings on Market street, between Caroline and Hess streets, cost $2000; William Griffith, three two-story brick dwellings on Catharine street, between Young and Augusta streets, cost $4,500; Trustees of the Victoria Avenue Baptist Mission, new church building, corner of Victoria and Evans street, cost $8,000.

WINNIPEG, MAN.—Mr. John Gunmon has purchased four lots at the corner of William and Marquette streets, and will build two fine houses thereon.—Mr. H. T. Champion contemplates building a house on Edmonton street. It is expected that work will be commenced shortly.—H. J. Macdonald, M. P. will build a handsome residence on Carlton street this summer.—The subscriptions to the building fund of the Wesley college have reached $80,000.—Rev. C. T. Baylis, of Douglas, was in the city recently making arrangements for the erection of a new church at that place for the Methodist congregation. The cost will be about $3,000.—Mr. Geo. Brown, architect, is preparing plans for an addition to the Hudson Bay Company's store at Keewatin.—Mr. Black, of the Ogilvie Milling company, will this year erect a new residence on Edmonton street, near the Assiniboine river. It will be built of brick and have stone foundation. Mr Chesterton will prepare the plans.—The Lake of the Woods Milling Company contemplate building one of the largest mills in America at this point.

OTTAWA, ONT.—The Marine Department is inviting tenders for a fog horn building to be erected at Nine Mile Point near Kingston, and for three light houses on French river.—Mr. Gildersleeve, president of the Kingston, Smith's Falls & Ottawa Railway company, is credited with the statement that there was a possibility that work on the new road would begin this summer. Nothing definite has been determined, but when construction did begin it would start at Smith's Falls, and proceed both ways, one party working towards Kingston and the other towards Ottawa.—The Court of Revision has passed by-laws confirming the construction of sewers on the following streets: Broad street, from Ottawa to Osgoode; Redpath street, from Sussex to McTaggart; Primrose avenue, from Division to Lorne avenue; Alexander, Thomas, Sussex, McHay, Union, Charles, Creighton and Gloucester, lot 45 to Metcalfe. A number of granolithic and plank sidewalks were also passed.—Ald. Corry will erect six houses this season on Maclaren avenue and Somerset streets, costing from $4,000 to $6,500 each. They will be of solid brick on stone foundations, and will be fitted with every convenience.

TORONTO, ONT.—Notice has being given by the City Council that the following works will be carried out. Sewer on a lane between Queen street and Catherine street, cost $380; asphalt pavement on Linden street, cost $6,040, concrete sidewalk on Sherbourne street, from Gerrard street to Wellesely street, cost $3,727;—A Mr. McDonald is about to erect a $6,000 residence on Kensington avenue, North Toronto.—Messrs T. Eaton & Co. propose enlarging their stables on Orde street.—Mr. Geo. R. Harper, architect, 46 Church street, is preparing plans for a new building to be erected on the site of the Oak Hall clothing store on King street. We understand it will be one of the most complete buildings of the kind in Canada.—It is said to be the intention of the management of the Imperial Bank to proceed shortly with the erection of a new building adapted to the requirements of the institution. It is rumored also that there is a probability of the work being given to a well known American architect.—The City Council has granted exemption from taxation to the Perfection Hoop & Veneer Company, who propose erecting a factory on the angle of land lying between Royce avenue and Campbell avenue. The office of the company is in the new Confederation Life Building, corner Richmond and Yonge streets.—The owners of property on Gerrard street, between Parliament and River streets, are preparing a petition asking for an asphalt pavement instead of block, as originally intended.—Building permits have been granted as follows. Standard Fuel Co., one story bk. office, n. e. cor. Cherry and Mill streets, cost $1,500, H. Needham, 37 Louisa st., 2 story det. bk. dwelling, 335 Crawford st. cost, $2,000; Dr. Hastings, additions to dwelling, n. w. cor. Wellesley and Rose ave., cost $1,000; John Heaslip, alterations, 108 Grange ave., cost $1,000; Standard Woolen Mill, Front st. e., 3 story bk. add. to factory, cost $5,000; T. M. Scott, 308 Dovercourt Rd., five att., 2 story and attic bk. dwellings, n. w. cor. Melbourne and Gwynne aves., cost $15,000, David Rands, 7 Lindsay ave., three att. bk. dwellings w. side Alice st., cost $105,000; Rogers Bros., 150 Beaconsfield ave., pr. s. d. 2 story and attic bk. dwellings, e. side Madison ave., n. of Bernard ave., cost $7,000.—Alterations and additions are to be made to Messrs. Whaley, Royce & Co's, premises at the s. w. corner of Richmond and Yonge streets.

FIRES.

Fenwick's grain elevator at Alexander, Man., was destroyed by fire last week. The total loss will be about $25,000, half of which is covered by insurance.—The Grant-Lottridge brewery at Hamilton, Ont., situated on Mulberry street was almost completely destroyed by fire on Wednesday of last week. The total loss will be about $75,000. The company carried an insurance on the building and plant of $60,000.—The hotel at Crystal Beech, a favorite summer resort on Lake Erie, has been destroyed by fire. Mr. J. E. Rebstock, president of the Crystal Beech company, places the loss at $8,000 and the insurance $2,000.—Curran Bros'. steam saw mills situated on Salem road, two miles from Amherst, N. S., were totally destroyed by fire a few days ago. The loss is heavy, and is only partly covered by insurance.—Messrs. McCausland & Son's stained glass works on King street west, Toronto, were badly damaged by fire on Monday night last. The factory, the rear portion of which was completely gutted, is a four story building. The loss is estimated at $15,000, which is mostly covered by insurance.—The Bedford hotel at Halifax, N. S., has been destroyed by fire. The loss is heavy, insurance $5,000.

CONTRACTS AWARDED.

GLENCOE, ONT.—The contract for building the new English church has been awarded to Messrs. Anderson & Stevenson.

EGANVILLE, ONT.—Mr. John McIntyre has been awarded the contract for the building of the Episcopal church at Lake Dore.

TORONTO JUNCTION, ONT.—The High School Board have awarded the contract for building the new school to Messrs. Patterson & Merry, their tender being $18,995.

MAGOG, QUE.—Mr. Jos. Corrivault has secured the contract for N. Lepine's new block on Main street. It will be 28 x 60 ft., three stories high, with plate glass front.

WINNIPEG, MAN.—The contract for the erection of the Stovel block, on the northwest corner of Arthur and McDermott streets has been let to A. G. Atkin, for about $7,000.

VICTORIA, B. C.—The contract for the new quarantine buildings at William's Head has been awarded to Messrs. Bishop & Sherbourne, of this city. They will cost about $11,000.

REGINA, N. W. T.—Messrs. Willoughby & Mollard have been awarded the contract for the erection of a hotel for Mrs. Doig, to cost $30,000.—The contract for the brickwork of the Baptist church has been let to Mr. W. F. Eddy.

BROCKVILLE, ONT.—The Rathbun Company, of Deseronto, have been awarded the contract for supplying 100,000 feet of pine and cedar lumber for street purposes at the following prices: pine plank $13 per thousand feet, cedar sleepers, $12 85, crossing plank, $15.

GUELPH, ONT.—Contracts have been awarded as follows for alterations to the European hotel. Brick and stonework and excavation, H. Benallick; carpentering, James Jarrett; plastering, P. Martin; tinsmithing, W. Sunley; painting, R. H. Barber, plumbing, Walker & Mahoney.

HAMILTON, ONT.—The Hamilton Gaslight Company have been given the contract to construct about 4,500 yards of coal tar asphalt pavement on King William and John streets, at $1.50 per square yard.—Mr. Edwards, architect, has accepted the tenders of the following contractors for a new building for the Victoria avenue Baptist church: Mason work, George Webb; carpenter work, F. Taylor; plastering, F. Thomas; plumbing, George Trueman; painting and glazing, F. Kirk; seating, the Globe Furniture Company, of Walkerville.—The contract for sinking a well for the Hamilton Natural Gas Company has been awarded to Messrs. Carmody Bros., of Bradford.

According to the *American Architect*, the best ordinary process to arrest a decay in sandstone, consists in saturating the stone as deeply as possible with a solution of silicate of soda, followed by a solution of chloride of calcium. The double composition leaves the pores of the stone filled with silicate of lime, the chloride of sodium washing out. The application of the process requires care, and some experience. The solutions should be applied very weak, and several times, at intervals, alternating the soda and lime solutions. If the silicate of soda solution is too strong, it will form a gummy coating, which will prevent the penetration of the subsequent solutions, and will effloresce later, spoiling the appearance of the stone.

For the heating of the Masonic Temple at Chicago about 40,000 square feet of radiator surface is required, all of which is direct radiation. Steam is supplied upon the "overhead" system. A 6 in. main supply runs directly to the attic and there 5 inches, running around the outside walls, and is tapped off for connections to descending risers which supply the radiators. The water of condensation runs down these distributing risers and returns to a receiving tank located under the basement floor, and from this is pumped to the boilers. So far as is possible, all exhaust steam is used in heating, and what steam is taken direct from the boilers is reduced in pressure. The exhaust steam passes first through a feed-water heater and from this to the open air in summer and to the heating system in cold weather. For the power and steam heat required there is provided a battery of eight horizontal tubular boilers, having in the aggregate a nominal rating of 1,000 horse power, this amount being, as in other cases, sufficient to ensure absolute immunity from danger of any accident requiring the stoppage of any one part of the plant

MUNICIPAL DEPARTMENT.

HOW TO DESIGN A SEWERAGE SYSTEM.*

When first called upon to design a system of sewerage the principal question to settle is, how we are going to dispose of the sewage. The principal requirement is that the sewage cause no offense. If it can be incidentally utilized so much the better, but in no case is it right to let the utilization of the sewage be the first consideration. Decomposition by means of oxidation is slow, because it is an organic process, and due to the action of bacteria. In the absence of air sewage will not be purified. The first thing to be done is to remove the coarse matter and so hasten the process. This is done by precipitation by means of chemicals or by mechanical straining. Then the sewage gets into a better position for exposing the liquid to the agents of purification.

This is done in several ways in practice. First by the dilution in running water and thereby supplying sufficient oxygen. For this purpose we need a stream of water which will give a summer flow of at least 150 to 280 cubic feet of water per minute for each 1,000 persons. If there is not sufficient water to dilute the sewage in its original condition, partially precipitate. This must be restored so as to remove some of the organic matter before directing it into the stream. The clarified liquid can then be diluted with less water. *The best precipitants are milk* of lime, or salts of aluminum or iron. Milk of lime is the least expensive one, and is probably sufficiently satisfactory. It throws down from one-half to two-thirds of the organic matter as a floculent mass, which rapidly settles to the bottom. The salts of iron, however, give the best results, and then comes the salt of aluminum. When the sewage is acid better results are obtained when the same is neutralized with lime than when it is not. The second method of disposal of sewage is by an intermittent application and spreading over porous soil or sand and allowing it to filter. *This is the best way to get purification* when suitable soil is at hand. The method is so effective that all the impurities can be removed from 20,000 to 80,000 gallons daily by the use of one acre of ground. After the discharge of sewesage has continued for several hours, the ground must be allowed to rest for a day or two, so that the water is given a chance to gradually soak through, and by means of the bacteria become purified. *It will simply run through* without purification if it is continuously or too thickly applied; therefore, the discharges should be intermittent. Frost has no bad effect upon the purification. In Pullman, Ill., this system is used and has worked satisfactorily at a temperature of 15 degrees below zero. The same results have been noted at different places in Massachusetts. It is easily seen that local conditions will determine which method is to be used. The discharge into rivers is the cheapest. Most large cities, such as New York, Boston and Chicago, dispose of their sewage in this way. At Chicago the supply of *running water is very insufficient*, and there is in course of construction a channel 160 feet wide and 20 feet deep by which the sewage, properly diluted, will be carried to the Mississippi River.

The next question to be considered is how is the sewage to be collected? This is done by means of underground pipes called sewers. The rain-water must also often be disposed of in this way. Therefore, the question arises, shall it be carried in the same pipes with the sewage or separately? Some object to the combined system of sewerage upon the grounds that the sanitary conditions are not so good. *Both systems, however,* can be made good, as I found in some investigation of 12 or 13 years ago. Local decisions should decide in favor of one or the other.

Finally, the third question is, what are the essential requirements of good sewers. They must be so constructed, first, that the sewerage is kept in motion from the time it leaves the receptacle in the house or on the streets down to the out-

*A lecture delivered at the Rensselaer Polytechnic Institute by Rudolph Hering, M. Am. Soc. C. E. Reprinted in abstract from *The Polytechnic*.