

they will build a number of cottages. They are also negotiating with an American gentleman to build a summer hotel.

KINGSTON, ONT.—Mr. George Penn will shortly erect an expensive cottage at Thousand Island Park.—It is reported that the Thousand Island Steam Boat company will build a new steamer for river accommodation.

ST. JOHN, N. B.—It is understood that Mr. Hanson, of the Fina Sarsaparilla Company, will shortly visit the city with a view of selecting a site for a four-story building which the company propose to erect for manufacturing purposes.

GLERNOKA, ONT.—Mr. J. C. Wilson, of this town, intends building a summer hotel here during the coming fall. The building will cost about \$10,000, and will be lighted by electricity. Mr. Wilson also contemplates building a cable railway at the mountain.

OTTAWA, ONT.—Mr. Smith, Deputy Minister of Marine, will receive tenders until the 17th inst for the construction of a wooden lighthouse, with dwelling and outbuildings, on the southern extremity of Giant's Tomb Island, in the Georgian Bay.

HAMILTON, ONT.—The committee appointed to consider the petition for a water supply of the Central Fair Agricultural and Industrial Company, have recommended to council that a six inch water main be laid from Breithour's Corners to the grounds of the company, the cost of which is estimated at \$2,600.—The following building permits have been granted: William Strong, two-story brick dwelling on Ontario avenue, cost \$1,600; Mrs. John Hunter, a two-story brick dwellings on Colborne street, between Macnab and Park streets, cost \$2000.

WINNIPEG, MAN.—C. H. Wheeler, architect, has prepared plans for repairs to Jas. Robertson & Co's block which was damaged by fire recently. The cost of execution is estimated at \$5,000.—The City Council has decided to construct a cedar block pavement on 1st street, from Portage avenue to 8th avenue south.—Tenders were asked during the past week for the construction of a number of sewers, the contracts for which have not yet been let.—Hon. Mackenzie Bowell was in the city recently to arrange for the construction of new barracks for the Canadian Dragoons stationed here.

MONTREAL, ONT.—Tenders have been called during the past week for the construction of sewers on a number of streets. Contracts for which will be awarded in a day or two.—Permanent sidewalks will be constructed at an early date on St. Catherine street, from Harbor street to De Lorimer avenue; St. Alexis and Hospital streets, opposite lot cadastral No. 115, West ward.—At a special meeting of the St. James club, held last week, the plans prepared by Messrs. Hopkins for the contemplated improvements, were submitted and approved. The cost of this work is estimated at \$50,000.—Theo. Daoust, architect, will shortly call for tenders for 28 stores and a large theatre for Messrs. Wilson & Frost, to be erected on St. Lawrence street, also for several private residences in this city and surrounding country.

TORONTO, ONT.—The Toronto Public Hall Company, which has recently secured possession of the Academy of Music, is said to have selected a site on Yonge street on which to erect a new theatre, to be fitted up with all modern improvements.—It is reported that Mr. Massey, of the Massey-Harris Company, contemplates the erection of a building for religious and philanthropic purposes at the south west corner of Victoria and Shuter streets, and that he has already secured an option of the property.—Mr. Hamilton, Superintendent of Waterworks states that when the new engines are completed he will recommend that the 2,367 feet of wooden conduit that runs partly across the Island and out into the lake, be changed to steel. The cost is estimated at \$50,000.—The Local Board of Health has decided to ask the council to have all the sewers emptying into the bay, extended to the windmill line.—The agreement between the city and the railway companies regarding the erection of the new Union Station has been signed, and it is stated that the work will be proceeded with at an early date.—The by-law to grant a bonus of \$20,000 to the Toronto and Richmond Hill Electric Railway was carried by the ratepayers o

the County of York on Monday last, and the construction of the road will now be proceeded with. The main line of the railway will commence at the junction of Bathurst street with the C. P. R. tracks, running north about five miles, by way of Spadina road, thence to Richmond Hill. The company also intend to construct a line from east to west on St. Clair avenue.—Ground has been broken at the south west corner of Bloor and St. George streets for an expensive residence.—A sufficiently signed petition has been received by the Council for the construction of a granolithic sidewalk on the west side of Sherbourne street, from Bloor street to Wilton avenue, and tenders will be called for the work.—J. O. Orr, Chairman Parks and Gardens Committee, will receive tenders until the 7th inst. for alterations to pavilion at Island Park and for filling in lagoon near Lakeside Home for Sick Children. Plans at office of Park Commissioner, St. Lawrence Hall.—The following building permits have been granted. Francis Ferguson, No. 1 Courtney Place, six det. a story and attic bk. dwellings, w. side Cowan ave., s. of King st., cost \$27,000; Urquhart & Smith, 21 Mansfield ave., pr. s. d. a story and attic bk. dwellings, n. side King st., w. of Beatty ave., cost \$8,000; J. Jennings, 247 Concord st., det. a story bk. dwelling, cost \$1,200; Sisters of St. John, a story bk. addition to hospital, Major st., cost \$6,800; R. T. Brown, three att. a story and attic bk. dwellings, 28 Oxford st., cost \$6,000; J. A. Kent, 6 Garden ave., pr. s. d. a story and attic bk. dwellings, n. side King st., nr. Queen st. (Parkdale), cost \$7,000; Louisa Tolton, 70 Harvard ave., det. a story stone and bk. dwelling, e. side Dowling ave., n. of King st., cost \$8,500.

FIRES.

The town hall and market buildings at Parkhill, Ont., were totally destroyed by fire on Wednesday last. Loss about \$7,000; insurance \$2,500.—Lawrence Bros. flour mill at Watford, Ont., was burned to the ground on the 27th inst. Loss \$8,000.—A residence on North Front street, Belleville, owned by Mr. Robert Moffatt of Toronto, was burned on Saturday last. The house was insured.—The American Rattan works at the corner of Niagara and Tecumseh streets, Toronto, were damaged by fire on the 26th August to the extent of \$55,000. The loss on the building, which was owned by the Canada Permanent Company, is said to be \$40,000.—The residence of John P. Creer, at Shakespeare, Ont., was totally destroyed by fire on Monday last. Insurance \$500.—Sinclair's tannery at Shelburne, Ont., was destroyed by fire on Thursday last. Loss \$3,000. Insurance \$1,500.

CONTRACTS AWARDED.

EMBRO, ONT.—Messrs. B. F. Young, of Stratford, and A. E. Causey, of St. Marys, have been awarded the contract for the erection of the new town-hall.

WINNIPEG, MAN.—The contract for the erection of Ald. Hallam's new block on Ross street, has been awarded to Messrs. Gray Bros., at the price of \$6,300.

KNOWLTON, QUE.—The Council have accepted the tender of the Dominion Bridge Company, of Montreal, for three new iron bridges, at the price of \$1,815. It is estimated the masonry will cost about \$2,400.

TORONTO, ONT.—The contract for paving King street from Dufferin street to Roncesvalles avenue has been awarded to Mr. C. H. Clarke. The contract price is \$20,700.—At a meeting of the Board of Works held on Friday of last week, the following contracts were awarded: sewers on Markham and Cunningham streets, Cathro & Co., \$793 and \$448 respectively; cedar block paving on Evans and Montague avenues, W. H. Gibson \$528 and \$548 respectively; cedar block paving, Delaware avenue, from Bloor to College street, Construction and Paving Company, \$10,097.

MONTREAL, QUE.—Theo. Daoust, architect, has awarded the following contracts: Two tenement houses on St. Denis street, for P. G. Martineau; Stonework, P. Mainville & Son; brickwork, Meloche & Bourgeois; roofing, plumbing and plastering, N. Zureal; for six stores for Messrs. Wilson & Frost, at corner

Sherbrooke and St. Lawrence streets; stone-work, Wilson & Frost; brickwork, Charpentier & Pepin, iron girders, E. Chanteloup, plastering, H. Constant. For building on St. Charles Berromme street for Mr. Jos. Gauthier, whole contract to Messrs. Wilson & Frost.—P. Lortie & Son, architects, have awarded contracts as follows for the erection of a building at the corner of Wellington and Charron streets, to cost \$11,000, brickwork, G. Leger, roofing, J. Thibault, plastering, St. Denis & Dube, painting, Jos. Guy

STRENGTH OF STRUCTURAL IRON.

The greatest strength of cast iron is resistance to crushing, hence it is applicable for columns. Its strength as a girder is greater than that of wrought iron, but its comparatively brittle character makes it inapplicable for this purpose, where it would be subject to jarring, as in bridges or girders for buildings. Its most important element, however, is probably its stiffness, in which it is not exceeded by any other material except expensive grades of steel. It is therefore used in machine frames in all possible forms, where its strength may be so great that jars and shocks will have no effect whatever upon it. In general it may be said that cast iron should be used wherever its strength can be made so far in excess of any strain that can be put upon it, that there is no necessity of applying calculation to determine the strength. The only exception to this is its use in columns supporting a perfectly dead load, as in the columns of tall buildings. The columns of a bridge or an elevated railway should be wrought iron or steel. If it is desirable to make structures of this kind stiffer than they can be made with wrought iron, it will be found better and cheaper to use stone than iron for the columns, because of the immense mass of material required to absorb the shocks.

Wrought iron is strongest under tension, next strongest as a girder, the weakest under compression. Its extreme between strongest and weakest is not nearly so great as in cast iron, consequently it may be used in any position, but its compression strength and stiffness are so much less than cast iron that it is not used in these forms except for special reasons. It bends, but does not break easily, and it is not affected by any shock that does not bend or batter it. It is, therefore, an excellent material for anything that it is subject to continual vibration, as bridges shafting and boiler plates. Wrought steel is of so many different grades that it is almost impossible to keep track of them, but in general it may be said to have the same characteristics as wrought iron, slightly exaggerated, and is therefore valuable in the same kinds of places. Its use is recommended in place of wrought iron when increased strength is required without increased size.

Cast steel apart from those grades used as cutting tools, has the same characteristics as cast iron, but is stronger in every way. Its use is especially valuable in the place of cast iron from which it was made, but it does not have the same brittleness. For example, a piece of cast iron bearing a load would be easily broken by a hammer blow that would not affect a similar piece of malleable iron similarly loaded. A blow that would break the loaded piece of malleable iron would not affect the same piece if it were wrought iron, while a load that would bend a piece of wrought iron used as a girder would be easily borne by a cast-iron girder. A cast-iron girder having only a load that would easily be borne by a similar wrought-iron would be broken by a blow that would not affect the wrought iron. Cast steel is not only stronger than cast iron, but it is less susceptible to shock, but a blow that would break a piece of cast steel would not affect or at most batter, a similar piece of wrought iron of wrought steel.

MUNICIPAL DEPARTMENT.

BRICK SIDEWALKS.

All things considered, bricks for sidewalks are cheaper and more desirable than any other material, for the man who must count the cents before he spends the dollars, and cost is usually the first consideration in the matter of home building.

There are other kinds of sidewalk that are more attractive, easier kept clean, are smoother, or drier; but the item of cost is of paramount importance to the average home maker.

In our larger cities, on business streets it is fitting and proper that property owners put down heavy stone walks, or pavements of cement or granolithic concrete or manufactured stone. But suburban residences do not need such expensive sidewalk material. Usually the masses are well content with a sidewalk of bricks if it is properly constructed.

Right there is the point we would emphasize, "The proper construction of brick sidewalks." An inspection would reveal the fact that in three-fourths of all brick sidewalks put down, the work is illy done. This is why the "Tar and Sand" men are driving their humbug article over us in their attempt to supplant the old standard sidewalk, and we can see now in the suburbs, great stretches of these walks put down as an inducement to would-be purchasers of town lots.

In my daily walks around the towns, both at home and abroad I have studied the sidewalks first, the people afterwards. I find they all do about as their neighbors. If A puts down a board walk, B does likewise. If C lays a brick walk, and does the work himself, D will make the attempt, or set his boys at the job. The work is performed without any attempt at skill or perfection of detail. In these days of light and knowledge, the average citizen thinks he need not be told how to put down brick sidewalk. He will tell you he has seen it done hundreds of times and it is a very simple affair. So he has, usually by some one as ignorant of the matter as he himself.

In the South there are a great many colored men who call themselves bricklayers. They generally secure all the jobs of laying brick sidewalks or repairing same, at an advance of twenty-five cents per day above laborers' wages. These men without having learned a trade, with little skill or practical knowledge of mechanical work, are entrusted with work that requires care and judgment to insure a good and lasting job.

We frequently find the brick walk full of sunken holes, crushed or rotten bricks, the whole walk is wet, sodden, muddy, and one is inclined to avoid going over it. The bricks are lying in a pool of clay and water, that when stepped on roll around and sink deeper in the mud, or send a shower of muddy water upwards waist high over the person. The writer has had the water squirted in his face on several occasions from beneath the bricks of such walks. The trouble was, there was no drainage for surface water. The bricks were laid on the clay which is no foundation. Every wet spell or heavy shower drove them down deeper, and made bad matters worse. This caused the owner and all others who walked over it to condemn brick sidewalks. The fault was not in the