

**TORONTO, ONT.**—Mr. Wm. Calvert, of McCaul St., has purchased a lot and is having plans prepared for a residence which he proposes to erect in Deer Park.—Mr. Wm. Ince, of the firm of Perkins, Ince & Co., wholesale grocers, proposes to erect a residence on Huron St., to cost about \$20,000. Messrs. Darling, Curry, Sproatt & Pearson, architects, are preparing the plans.—It is stated that Mr. Robert Cook has determined on the erection of a commodious skating and curling rink in the northern part of the city.—The Separate School Board have requested the School Management Committee to provide additional accommodation for St. Mary's school.—The time for receiving tenders for the reclamation of Ashbridge's Bay has been extended to the 1st of December.—The O'Keefe Brewing Company intend enlarging their premises on the corner of Gould and Victoria streets.—The town council of North Toronto will construct a sidewalk on the east side of Yonge street, at a cost of \$1,000.—The City Engineer has recommended the extension of the Simcoe street sewer into deep water in the bay, by laying 120 feet of steel pipe.—A joint stock company is being formed to explore for natural gas at Mimico. They will commence in a few days to sink a well 1,300 feet deep, at a cost of \$7,000.—The annual report of the Infants' Home and Infirmary contains a recommendation that an addition be erected to the present building, at an estimated cost of \$4,000.—At the next meeting of the Public School Board a motion will be presented requesting the Sites and Building Committee to have plans prepared for a twelve-room school on Winchester street.—Mr. T. P. Whitlam, 56 First avenue, wants tenders for plastering and plumbing of two houses on Cawthra Square.—Messrs. Knox & Elliott, architects, will receive tenders until 10 a.m. on Tuesday, 10th inst., for the plumbing and steam fitting required for the Confederation Life Association buildings.—Tenders are wanted at 344 Parliament street for excavating.—Tenders are invited at 111 Ossington avenue for plumbing, slating, gas fitting, tin-smithing and painting.—Building permits have been granted as follows: Marshall & Pinkerton, pr. s. d. 2-storey and attic bk. dwellings, w. side Brunswick Ave., 600 feet n. of Bloor St., cost \$6,000; Geo. Burry, det. 2-storey and attic bk. dwellings, n. side Euclid Ave., s. of Lennox St., cost \$4,500; H. & E. Hudson, two pr. s. d. 2-storey and attic bk. dwellings, w. side Euclid Ave., 40 feet n. of Lennox St., cost \$14,000; Dr. Cassidy, alterations n. e. cor. Church & Queen Sts., cost \$4,000; J. M. Stares & Co., 26 Toronto St., three att. 3-storey bk. stores, 143-5 Victoria St., cost \$5,500; G. Eldridge, 3-storey bk. store and dwelling, and two att. 3-storey bk. dwellings, n. w. cor. Britain and Sherbourne Sts., cost \$9,600.

#### FIRES.

The two-story brick building of John Boos, merchant tailor, Mount Forest, Ont., was burned on the 2nd inst. Loss, \$4,000; insurance, \$3,500.—The Western Hotel stable, Sarnia, Ont., was burned recently. Loss, \$2,000.—Mr. John Frederick's large flouring mill at Holloway, Ont., was burned on the 3rd inst. Loss, \$22,000.—A brick residence at Smith's Falls, Ont., owned by Mr. Haley, was burned on October 30. Loss, \$4,000.—A fire at Kingsville, Ont., on the 2nd inst., destroyed McKay's hardware store, and a number of other frame buildings. Loss, \$12,000.—The saw mill, planing mill and sash and door factory belonging to L. C. Dick, at Fordwick, Ont., were burned on the 3rd inst. Loss, \$3,500; insurance, \$2,200.—Fire at Port Dover, Ont., on the 3rd inst. destroyed the Erie Hotel and the residence of J. Johnson.—On the 1st inst., the Hochelaga Cotton Mills at Montreal were totally destroyed by fire. Loss, \$30,000.

#### CONTRACTS AWARDED.

**GUELPH, ONT.**—The Council have accepted the tender of the Guelph Gas Co. for lighting the streets by electric light at 24½ cents per light per night for 300 nights in the year.

**LONDON, ONT.**—Contracts have been awarded as follows for the erection of St. Joseph Hospital: Masonry and brick work, Flory & Co.; cut stone, J. Mathewson; carpentering, Wm. Tytler.

**WOODSTOCK, ONT.**—The House of Refuge Committee of the City Council have accepted the tender of Mr. Thos. McClay for the erection of the new building, at the price of \$11,977. Work will be commenced in the spring.

**TORONTO, ONT.**—The Toronto Athletic Club Association have accepted the tender of Mr. Walter Page for the stone work of their new building.—The City Council have accepted the tender of the Constructing and Paving Company of Toronto for covering the present Toronto St. pavement with asphalt.—Major Stuart & Co., of Ottawa, have been given the contract for the new Toronto drill hall. Their price is \$250,000. Construction will begin at once.

**MONTREAL, QUE.**—The Building Committee of the Board of Trade have accepted the tender of Messrs. Forde & Casey for the erection of their new building. The contract price is \$354,000. Sub-contracts have been awarded as follows: Iron work and elevators, Lomer & Rose; stone work, H. Hutchinson; brick work, A. Cowan; plumbing and heating, Charles Garth & Co.; marble work, Robert Reid; roofing, G. W. Reed; painting and glazing, Castle & Son; plastering, W. J. Cooke; lighting and apparatus, Edison Electric Light Company.—A. F. Dunlop, architect, has awarded the contract for seven houses on Hutchison street for Mr. J. D. Adams, as follows: Mason, J. Lewis; bricklayer, A. Wand; carpenter, Labrecque & Mercure; plasterer, Thos. Phillips; painter, D. Couchon; plumber, McCrae & Watson; roofer, G. W. Reid.—The same architect has awarded the following contracts for a residence for W. Clendenning, Jr., on Dorchester street: Mason, W. Morrison; carpenter, H. Kneen; other trades not let yet.

#### USEFUL HINTS.

Some interesting experiments were recently made in the famous granite quarries of Quincy, Mass., with an Edison electric percussion drill designed for quarry work. The generator was placed on the edge of the quarry, 350 feet from where the drill was to work and 100 feet above it, and holds one and one-half inches diameter were drilled two and three-fourth inches deep per minute.

In excavating at Kouyundjik and Nimroud, Layard found a number of drains covered over with pointed and elliptical arches, each layer or band of stones being built, not in a vertical plane, but slanting, so that it rested on that immediately beneath it. This method of building renders a timber center or scaffolding to support the stones until the keystone is in position unnecessary, and experiments have been recently made with it at Columbia College, New York. Its simplicity is recommended to builders and civil engineers having long stretches of vaulting to construct. There are good illustrations of the plan in Perrot and Chipiez's "History of Chaldea and Assyria."

At a recent meeting of the Civil Engineers' Club, of Cleveland, Ohio, Mr. James Ritchie read a paper describing a design for a built plate girder to span a 60-foot store front and carry the floors above of a heavily loaded building. The depth of the girder is the height of the second storey and has openings in the web so that ordinary windows are not interfered with. The main difficulty is the transmission of shear on account of the web being interrupted by the window

openings. This is overcome by forming the bottom flange partly of a 42" plate securely riveted at the pilasters so that the load concentrated there is transmitted through the rivets and the 42" plate as if the latter were the full depth of web.—*American Engineer.*

Fortifications built in 24 ft. of water, and covering about 16 acres, call for some interesting work at "Middelgrund," near Copenhagen. These works are about 3 miles from the coast and include breakwaters on the north covering an arc half a mile long and rising 8 ft. above the water. To form the foundation and to protect the base of the walls 240,000 cu. yds. of stone were required. On this stone, timber caissons 45 ft. long were floated into position and then sunk by filling with stone. On these caissons concrete blocks were set, extending from 3 ft. below low water to 1½ ft. above, and on this a granite wall 12 ft. thick at the base. The pier at the south end is built of concrete blocks, 18 ft. thick, and is protected on the outside by rip-rap. A basin 60 ft. wide and 9 ft. deep for torpedo boats has been formed inside. The forts proper cover 9 acres, and the material for filling has been obtained by dredging the south entrance to Copenhagen. The guns, 17 in number, will be elevated 45 ft. above the water and be protected by armor shields. Behind the battery, earthworks rise to a height of 70 ft. above sea level and a lighthouse 20 ft. high tops this.—*Engineering News.*

A new application of a combined construction of concrete and iron has been made in Germany, where a considerable number of bridges have been built, consisting of arches of concrete, in which a number of iron wires or iron rods have been imbedded, near each surface. The theory of arches shows that such structures generally fail by the opening of the joints, either at the extrados or the intrados, according to the form of arch and the manner of loading. It is found that the use of a good cement in the joints aids powerfully in preventing the rupture of the arch, and it is a natural inference that the reinforcement of the resistance at the inner and outer surface by the tensile strength of iron would still further increase the security of the whole. Experiment has shown that this theory is correct; and an arch of concrete, formed as heavily as possible to exclude the line of pressure in the middle third of its thickness, and containing, near the intrados and the extrados, a network of strong wire, is found to have a surprising resistance. The most important bridge of the sort, as we learn from *Le Genie Civil*, seems to be a foot-bridge over a river at Bremen; but the Southern Railway of Austria has recently constructed, with permission of the Government, several highway bridges in the same manner. As nothing in the way of materials is needed but the centering, the wire, and sufficient Portland cement, sand and gravel, the construction is easy and cheap. In the German examples, cross bars were combined with longitudinal wires, to form a sort of gridiron, but, in practice, it seems as if a wire netting could be made, which would be cheaper, more easily put in place, and equally good. Obviously, the same construction might be adapted to making floor arches, or vaulting spaces of any sort; and architects will do well to keep it in mind.—*American Architect.*