

given to the Hamilton Bridge Co.—F. J. Rastrick & Son, architects, have awarded contracts for the erection of a school house for section No. 6, township of Baiton, as follows: Jas. R. Bradt, mason and brickwork; John Mills, carpentry; Poole & Son, plastering; J. E. Riddle, galvanized iron work. Heating and seating not let.—R. Clohocy, architect, has awarded the contract for the erection of a residence for Chas. Martin, to cost about \$2,500, to R. H. Biglowe, all trades.

WINNIPEG, MAN.—Tenders for sewers on Ellen and Qu'Appelle streets and Roslyn Place were received as follows: Dobson & Jackson, \$1,353 (accepted); Kelly Bros., \$1,439.—The contract has been awarded to Underwood & Hunter for a residence for Canon Coombes, of St. John's College. It will be of frame, on stone foundation, two storeys high. S. Frank Peters, architect.—The contract for pipe for setting hydrants has been awarded to the Vulcan Iron Works.—The tender of the Imperial Bank of Canada, at \$126.35 for \$100, has been accepted by the Provincial Government for \$5,500 of 5 per cent. 30-year bonds, to complete the court house and jail at Portage la Prairie.

MONTREAL, QUE.—Gamelin & Huot, architects, have awarded the contracts for one house on Mansfield street, Montreal Annex, for Wilfred Lajennesse, to Etienne Robert.—L. R. Montbriand, architect, has awarded the following contracts: reparations at the St. Louis of Mile End College, for the school commissioners—carpenter and joiner's work, Jos. Jeteau; plumbing and heating, Drapeau & Savignac; plastering not let.—Cox & Amos, architects, have awarded the following contracts for reparations and modifications of a church on Wood avenue, Westmount, for the syndicate of the Advent church: Masonry, Wighton & Morrison; carpenter and joiner's work, Jas. Shearer; roofing, Lessard & Harris; plumbing and heating, F. Horton; brick, Wm. McArthur & Sons; plastering, F. X. Descares; painting and glazing, W. Young. Reparations of a house on St. James st., for the estate Chs. Boyer: Felix Sauvageau, all trades.—L. R. Montbriand, architect, has awarded contracts as follows for two houses on St. Andre street for G. W. Crossan: Masonry, Bushier & Huberdeau; carpenter and joiner's work, W. Mercier; roofing, Montreal Roofing Co.; brick, Boucher & Huberdeau; plastering, E. Morache; painting and glazing, Desjardins & Dubois.—Arthur J. Cooke, architect, 43 St. Sacrament street, has let contracts as follows for alterations and an additional flat to 292 Upper Stanley street, for James Davidson: stone-work, Wighton & Morrison; carpenter and joiner's work, Beckham & Scott; brick work, W. H. Boon; roofing, Campbell & Gilday; steel work, R. Donaldson & Son; plumbing and heating, R. Mitchell & Co.; plastering, Knott & Gardner; painting, Riordan Bros. Same architect has awarded contracts for a double tenement house on Columbia ave. as follows: Masonry, cut stone and brick-work, I. Lewis; carpenter and joiner's work, W. Swan; roofing, Geo. W. Reed; steel work, Dominion Bridge Co.; plumbing and heating, Geo. W. Creed & Son; plastering, Knott & Gardner; painting, Riordan Bros.; electric wiring, C. W. Henderson; also a double tenement on Columbia ave. for John Creed, to same contractors as above except carpenter work, which has been given to M. Desautels. For two summer kiosks on Lake St. Louis, Chateauguay, for W. G. Ross, the contractor for all trades is M. Desautels.—The Crown Pressed Brick Co., through their Montreal agent, E. F. Dartnell, is supplying the brick for the new Congregational church, Westmount, and for the additions to the Church of the Advent.

## BIDS.

WINNIPEG, MAN.—The following tenders were received for asphalt paving on Donald, Hargrave and Kennedy streets and Assiniboine ave.: Barber Asphalt Paving Co., \$115,488 with certain alternatives, without these \$99,140; per square yard, \$2.90. Kelly Bros, \$81,634, per square yard \$2.49, with Trinidad or Bermuda asphalt, with Utah asphalt, \$80,304; per square yard \$2.44. The Warren Scharff Asphalt Paving Co., \$2.65 per square yard, totals varying with alternatives from \$88,690 to \$64,002. A. W. Godson, per square yard \$2.49; total, Trinidad asphalt, \$83,874. The city engineer was asked to report on the tenders.

## NEW COMPANIES.

VANCOUVER, B. C.—Golden Cache Mining Co., incorporated; capital, \$500,000. Promoters, W. R. Robertson, J. M. McKinnon, J. McQuillan, Wm. Munsie.

ROSSLAND, B. C.—Ivanhoe Gold Mining Co., incorporated. The company is composed of Edwd. N. Bouche, D. W. Higgins, D. Campbell, A. M. Whiteside, C. F. Jackson, C. O. Redd'n, J. S. Clute, jr., of Rossland.

HAMILTON, ONT.—Cataract Power Company, incorporated; capital, \$99,000. Promoters, Hon. J. M. Gibson, James Dixon, John Moodie, John William Sutherland, John Paterson, Edmund Brown Patterson, all of Hamilton.

TORONTO, ONT.—The Shipway Ash & Garbage Box Co., incorporated; capital, \$20,000; to manufacture the Shipway ash and garbage box receivers. The company consists of T. H. Shipway, C. R. Shipway, H. L. Stark, and K. F. Williams of Toronto.

ROSSLAND, B. C.—The British Lion Milling & Mining Co., incorporated; capital \$600,000. Trustees, Geo. A. Kirkup, W. G. Ellis, Geo. A. Williams and Wm. Stables.—The C. & C. Mining Co., incorporated; capital, \$500,000. The trustees are McIver Campbell and D. G. Marshall, Vancouver, and J. H. O'Leary, Rossland.

## BUSINESS NOTES.

The Erie Iron Works Mfg. Co., of St. Thomas, will be sold by auction on the 22nd of July.

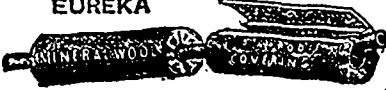
R. & S. Small, tinsmith, Dunham, Ont., have dissolved partnership. The business will be continued under the name of Small Bros.

Matthew McCarthy and John Kilbride, plasterers, Montreal, have formed a partnership, and will do business under the name of McCarthy & Kilbride.

## FREEZING AND CEMENT MORTARS.

The results of a large number of experiments recently carried out with a view of determining the effect of freezing on cement mortars were published recently. Most of the specimens were tested transversely, but many experiments in tension were also made. In order to reproduce the conditions of actual work as closely as possible, the various specimens were caused to set under a pressure corresponding to the average weight of a course of masonry 18 in. deep. These specimens measured 5 in. in length by 1 in. square in cross section. They were tested on a 4 in. span with a central load, and, after breaking, the long fragment was again broken on a 2½ in. span. Six brands of cement were used, and were mixed with screened sand in various ratios, and then allowed to set at low temperatures. Both salt and fresh water were used in gauging the specimens. The conclusions arrived at, based on over 6,000 results, is that Portland cement mortar suffers no surface disintegration under any condition of freezing, but that in most cases its strength is reduced, in some cases by as much as forty per cent. Rosendale cement is disintegrated when exposed to frost when setting, and its cohesion may be entirely destroyed by immersion in water which becomes frozen round it. Salt water presents this disintegration to a large extent, but seems to have an injurious effect on the strength. The cement below the disintegrated surface is stated to be increased in strength when the Rosendale cement is used. A mixture of a natural rock cement and of Portland cements gave very satisfactory results, as its surface did not disintegrate, and its strength was increased by the freezing. Portland cement is injured less proportionately as the percentage of cement in the specimens is reduced. Lime mortar is ruined by alternate thawing and freezing, but fairly good results can be obtained in the case of brick masonry when the mortar is kept frozen for some time after laying.

Paintings that have been injured by contraction of the coats, and the varnish of which is traversed by fine cracks that render the picture indistinct, are restored in the following manner: A vessel filled with alcohol is gently warmed, and air is blown through it. The air is thus impregnated with alcoholic vapor, and is conducted by a tube directly upon the picture. The ascending vapor condenses upon the surface of the picture and renders the parts to a slight degree soluble, so that they flow together and the flaws disappear.

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