

Gibson, Beamsville, \$34,000, Wm. Grant & Co., Toronto, \$34,543. Doing work next year in concrete—Wm. Grant & Co., \$29,441; Schultz Bros., \$33,000; Elliott, Workman & Bogue, \$33,917.90, McDonnell & McDiarmid, \$34,024; Elliott & Wingate, \$36,764. In masonry—Wm. Gibson, \$31,120; Wm. Grant & Co., \$32,000; Schultz Bros., \$36,000, Elliott, Workman & Bogue, \$36,437.90; Elliott & Wingate, \$39,888. The tender of Wm. Gibson, to carry out the work this fall, has been accepted.

WINNIPEG, MAN.—Tenders were received as follows from Kelly Bros. for pavements: Main street south, cedar block, \$3,065; macadam, Broadway, Assiniboine avenue to Maryland, \$7,385.50; Pacific avenue, Princess street to Nena street, \$9,602.50; Elgin avenue, from end of present pavement to Nena street, \$8,600; Alexander avenue, from Ellen street to Nena street, \$6,196; Arthur street, from Notre Dame avenue to McDermott avenue, \$1,273.50; Portage avenue, from Hargrave street to Sherbrooke street, \$23,646. It has been decided to construct the pavements by day labor. For pipe sewers on Langside street these tenders were received: Pipe sewer on Langside street, from Broadway to Cornish, W. F. Lee, \$2,391.50 (accepted); Dobson & Jackson, \$2,959.

PRICE OF BELGIAN CEMENT.

MONTREAL, 4th October, 1898.

Editor of the CANADIAN CONTRACT RECORD:

SIR,—Your issue of the 28th ultimo contains an article on the cement market, in which you state that the price of English brands is \$2.25 to \$2.35, German \$2.35 to \$2.50, Belgian \$1.85 to \$2.05, ex wharf Montreal, thus leaving the uninitiated to suppose that Belgian cement is cheaper and consequently inferior to both English and German. This is entirely erroneous. There are two classes of Belgian cement, just as there are two classes of English and German, namely, the "Artificial Portland," which is a high grade cement, and the "Common Natural" cement, which is a low grade. Belgian artificial Portland cement is as high priced and of as high a quality as any cement in the world, and the two leading Belgian artificial brands, the "Josson" and the "Condor," bring the very highest price in all markets. They are selling to-day ex wharf Montreal at \$2.50 per barrel freely, and only very large dealers can obtain a shade under this price. It is true that Belgian natural cement sells at a lower figure, but so do the natural cements of Germany and England. Will you please have this matter corrected, as I notice frequently in the market reports of many

papers that they fall into the common error of supposing that because some Belgian cements are cheap and low grade that all are. I remain,

Very truly yours,

C. I. DE SOLA.

PILE RINGS AND METHOD OF PROTECTING PILE HEADS IN DRIVING.

A committee of the Association of Railway Superintendents of Bridges and Buildings appointed to consider this subject has reported as follows:

First. We find that the best way to protect the pile head is to use a 1 x 3-inch ring, made out of the best iron that can be obtained at the place where used. We recommend, where a railroad company have a steam hammer in its shops, that they make their pile rings out of hammered iron from old car axles. The cost of a 1 x 3—14-inch diameter ring is \$1.75, while the same size ring made out of best bar iron costs \$2.00. A pile ring made out of hammered iron will last to drive 75 oak piles and at least 300 cedar piles. The rings made out of best bar iron usually last to drive 50 oak piles and 200 cedar piles; in fact, one of your committee had 50 pile rings made out of old car axles four years ago, and since that time has driven 250 oak piles and 6,000 cedar piles without any renewal of pile rings. A pile driver should carry on the tool car 60 pile rings, 10 pile rings 15—30—14 inch., 10—13½ inch., and 10—13 inch. in diameter.

The 14-inch diameter are the ones most used, 14 inch being the width of caps used by most roads. It is not necessary to have the pile head larger in diameter than the cap is wide.

Second. In fitting the pile ring, the pile should be neatly sawed off square; the pile should be neatly chamfered down at least 5 inches from the end, so the ring will just catch on and let the pile hammer do the rest. This is a little hard on rings, but in this way you are sure to get a good fit of the ring and the pile head is best protected.

The face of the pile hammer should be concaved to the depth of 1½ inches in the centre, and run out to nothing two inches from outside of the hammer; this will drive the fibre of the wood down slightly over the edge of the ring and make a neat fit of the hammer, and if the piles are kept exactly under the hammer, there is very little danger in fracturing the pile. The best weight of a pile hammer is 3,300 pounds. The height of the blow should not exceed 12 feet in driving cedar piles, or 20 feet in driving oak piles. It will be found that short, quick blows will drive the pile as quick as long blows, and are

less liable to injure the pile. The pile should be neatly prepared before driving it; the knots should be neatly trimmed off, and the pile sharpened to a 4-inch square point for hard driving, the point to be made as near straight with the pile as possible. Piles should never be over-driven. When a pile does not go over 1 inch at a fall of 10 feet with a 3,300-pound hammer, the blow should be shortened to 6 feet, and the pile carefully driven until it stops going or don't go over ¼ inch at a blow. The driving of piles for railway traffic, and for all kinds of structures, requires a great amount of judgment to do good work. The use of the iron cap for driving piles in trestles that are in use is not very practicable, as you cannot drive the piles up so close to the stringer with them as you can without them. It is too much extra work to move the stringers so as to use the iron caps and follower, but for driving piles for foundations and dock work, or any place where there is no obstruction, we think Wm. T. Casgrain's patent cap and follower an excellent device. It is especially adapted in driving foundation piles, as that class of piles are generally short—not over 25 feet in length, and with the patent cap they will not need any toggles to keep them right, and they are good protection to pile heads, as the piles in foundation should be driven home

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