

of the vessel quickly. At Fort William steamers have been loaded with 200,000 bushels in one hour and fifty-eight minutes, or at the rate of about three thousand tons per hour.

The house illustrated in Fig. No. 3 unloaded a vessel containing 525,000 bushels in twenty-five hours, and the same house, it is understood, has since bettered that record.

The Fig. 3 shows part of a house at Port McNicoll. The original house held over two million bushels, and another of the same capacity has since been added to it. In the building of the first house 27,000 yards of concrete and 1,300 tons of steel were used. Fig. 4 shows the layout of the construction plant used in this work. The plant was located originally on an island, with a trestle half a mile long leading to the mainland. All the material had to be brought in. Owing to the difficulty of getting broken stone and sand in large quantities, it was decided to bring the gravel from a point on the railway about forty miles distant, and as this gravel contained a surplus of sand, a screening and washing plant was erected near the elevator site. The gravel was delivered by flat cars which were unloaded from an elevated track. Beneath the track there was a tunnel containing a belt conveyor, which carried the gravel to the screening plant, where it was separated into stone and sand. The surplus sand, together with such sand as was not required for concrete, was spouted to a waste pile. The stone and sand required for the work was carried from the washer to storage piles under which there was another conveyor in a tunnel. This conveyor carried the screened stone and sand up an incline to storage bins over each mixer, from which the material was dropped into a measuring box and thence into the mixer. There were four mixers on this work. In most cases the material was unloaded by hand, but after being once unloaded from the cars it was sent through the screening plant, and distributed around to the various mixers by means of belt conveyors.

An interesting problem arose during the construction of this building as to the proper mixture of cement, sand and stone to be used in the concrete. The cost of the cement delivered at the mixer was \$1.38 per bbl. and that of the gravel unloaded in the pile at the elevated track 38 cents a yard. The screened stone after passing through the screening plant was worth \$1.70. There was so much of the sand that it was not considered as having any value except for filling purposes, and the cost of the concrete mixture would depend on the allowance which the Railway Company might be willing to make for it. About thirty per cent. of the pit gravel delivered was stone and seventy per cent. was sand. After washing, a very good sand with about twenty-five per cent. of voids was obtained. The mixture under these conditions would cost from \$3.25 to \$3.71 per yard for 1-3-5 mixture, depending on what was allowed for the waste. If thirty cents were allowed it would cost \$3.25, and if no allowance were made it would be \$3.71. After figuring on what the different mixtures would cost with different allowances for the waste it was found that if