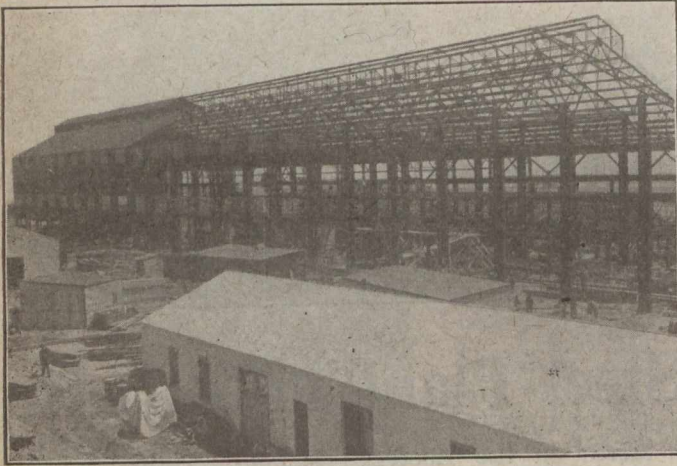


In regard to the transportation of employees, the plant is served with a stub line of the Toronto Street Railway, the transfer point being at Queen Street east, near the Don River.

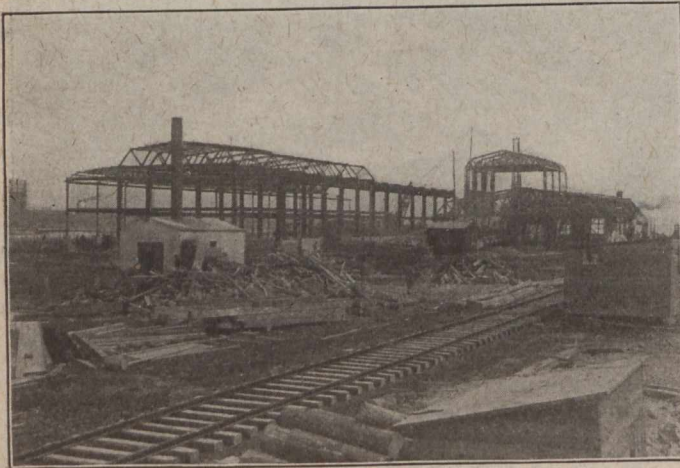
The elevation of the original ground, at the point where this plant is now erected, was about elevation 243.0 above mean sea level of New York harbor, or approximately two feet below zero of the Toronto Harbor Commissioners'



CONSTRUCTION OF THE MELTING HOUSE, SHOWING FRAMEWORK OF THE FURNACE OPERATING GALLERY—STOREHOUSE IN THE FOREGROUND

gauge. Before filling was commenced, the land was a continuous marsh with the usual growth of marsh grass and reeds. Filling by hydraulic dredging was carried out in 1915, and the elevation of the ground was raised to elevation 253.0, making a fill of approximately ten feet.

Owing to the fact that the original earth beneath this ten feet of sand fill could not be assigned any bearing value, it was necessary to support all building column piers and furnace foundations on piles. The cut-off of all piles was taken at elevation 245.0, this being considered the highest allowable elevation that would ensure permanent saturation of the wood. The maximum allowable spacing of piles was



STEEL FRAMEWORK OF THE FORGE SHOP AND THE TIMBER FRAMEWORK OF THE POWER HOUSE, SHOWING EXTENSION FOR THE HYDRAULIC ACCUMULATORS

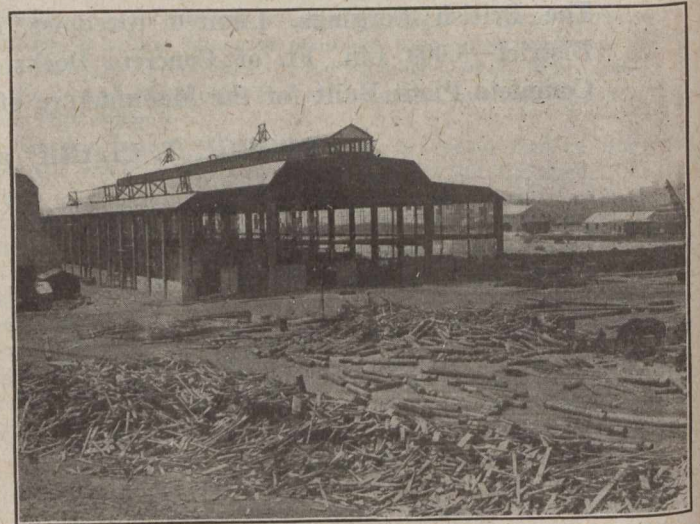
three feet and maximum allowable load on any pile was twenty tons, except in cases where the live load was a large percentage of the total, and where this load was computed from the greatest possible concentration of all live loads at a single column. In this case the allowable maximum load was twenty-two tons per pile. The total loads on the main building (melting house) column footings A, B and C were respectively 185,000 lbs., 472,000 lbs., and 300,000 lbs. These weights included the weight of the footing itself.

In the matter of pile driving, it was assumed from borings taken that the length of pile required would be thirty feet, and the actual driving of the piles confirmed this assumption. After penetrating the newly placed sand fill, the pile would drop through the underlying layer of bog under the weight of the hammer until it reached the harder strata beneath.

The equipment used were union double acting steam hammers, weight of 363 pounds, diameter 5¼ inches, stroke 12 inches, and steam pressure 125 pounds, from which the effort of the hammer was computed to be 3,070 pounds. The piles were driven to practical refusal and with a penetration of 39 blows to the inch, this gives the piles, according to the Engineering News formula for steam hammers, a bearing value of 24.5 tons each.

In construction, sheet piling coffer-dams were driven and the material excavated to such a depth that the pile would penetrate the concrete footing one foot. The round piles were then driven and after being cut off at the proper elevation the concrete cap was poured, using the sheet piling of the coffer-dam as forms. After the concrete in the cap had set, the balance of the footing was formed and poured.

Particular attention was paid to the furnace foundation of the melting house (steel plant) in order to secure a proper distribution of the loads. This was required on account



FORGE SHOP NEARING COMPLETION

of the fact that each furnace foundation was combined with the foundations of four building columns, and in addition provision had to be made for the furnace counterweight pit. A symmetrical and well balanced foundation was obtained.

In this building about 50,000 lineal feet of round bearing piles were used in the construction of the foundations for the columns and furnaces, and 2,500 cubic yards of 1-2-4 concrete were placed in the footings and furnace foundations.

#### Steel Plant

The melting house (steel plant) is 608 ft. in length by 75 ft. clear span in 27 bays of steel frame construction. The roof is a fink truss and monitor design covered with corrugated iron. A steel frame lean-to, 25 ft. in width, extends along the entire southerly side. The walls are built-in with hollow tile, and the roof is covered with reinforced concrete.

The main portion is 46 ft. in height and provides a charging platform, of steel and reinforced concrete, from which the electric furnaces are charged and operated. This platform is 12 ft. above the general floor level and is 32 ft. in width. This allows ample clearance for location and operation of the tilting device under each furnace, and provides room for the slag box under the furnace nozzles. The remainder of the floor in the main portion of the building is primarily used for the placing of the moulds, pouring and stripping the billets.