

Retaining Wall and Stairway Masonry at Shaft No. 25. The construction of the "Speedway" along the Harlem River made it necessary to extend the blow-off pipes from Shaft No. 25 and the overflow pipes from Shaft No. 26 to the bulkhead line. The necessary 48-inch pipes and special castings required for this purpose were ordered from R. D. Wood & Company under the authority given the Chief Engineer on January 23, 1895, April 10, 1895, and July 15, 1896. The Chief Engineer was authorized on October 16, 1895, and September 30, 1896, to have John C. Rodgers, the contractor for the part of the Speedway at Shaft No. 25, lay the pipes required for extending the blow-off and overflow pipes across the Speedway and to lay the masonry needed in this connection. The blow-off pipes were embedded in rubble masonry to the Speedway, across which they were laid in an arched passage 14 feet wide. The total cost of the work done by John C. Rodgers amounted to \$1,047.46.

On January 21, 1897, at 8:30 A. M., a great slide of rock, involving probably over 2,000 cubic yards, occurred on the face of the cliff near Shaft No. 25. The movement commenced at a point north of, and close to, the shaft, where the rock had been undermined by the extensive blasting for the construction of the Speedway. Some layers slid on their beds, the stratification being inclined towards the river on a very steep angle. This movement carried with it other masses close to the shaft and a small part of the retaining wall in front of Shaft No. 25. A corner of the blow-off gate-house was injured and the rock in front of the shaft was left in a dangerous condition. In order to protect Shaft No. 25 from any further slides of rock, the Aqueduct Commissioners decided on May 19, 1897, to build a strong retaining wall of rubble masonry, laid in cement mortar, along the toe of the cliff. This involved some changes in the Speedway, especially as regards the height of the sidewalk, which had to be raised about 10 feet above the original grade. This change in grade was made by three flights of steps.

The contract for building this retaining wall and the steps for raising the sidewalk was awarded on August 18, 1897, to John Twiname. The work was increased on December 9, 1897, to include an extension of the retaining wall to the south to the "conveyor shaft" of the high service pumping station. The sidewalk of the Speedway was covered with asphalt, except at the blow-off vault in front of Shaft No. 25, where platforms with bull's eye lights were placed. The contractor for the Speedway erected an iron railing on top of the retaining wall. Mr. Twiname's work was accepted by the Aqueduct Commissioners on July 12, 1898.

The wall built by Mr. Twiname was about 16 feet high above the roadway of the Speedway. As it was of vital importance for the water supply of New York to give Shaft No. 25 ample protection against any further slides of rock, the Aqueduct Commissioners decided to build a second retaining wall, about 37 feet high above the new grade of the Speedway sidewalk, in front of Shaft No. 25. This wall was made somewhat ornamental. A semi-circular arch, 20½ feet in diameter, was constructed in the wall over the blow-off stop-cock vault and a winding stairway was built from the Speedway sidewalk to the plateau on which the head house of Shaft No. 25 was constructed. Part of this stairway was built in an arched passageway, 5 feet wide, through one of the abutments of the 20½-foot arch. Another arched passageway, 4 feet 2½ inches wide, with steps, was constructed to lead from the sidewalk level into the blow-off vault, and then to the level of the roadway of the Speedway. Iron gates were placed at both ends of the last mentioned passageway and also at the entrance to the 20½-foot arch. An ornamental iron railing was placed along the winding stairway and on top of the retaining wall. Three iron lamps and posts for gas lights were erected along the stairway. The landings between the different flights of steps were covered with asphalt.

The two 48-inch overflow pipes from Shaft No. 26 were reduced at the top of the cliff by special castings to one 48-inch pipe, which was laid in the masonry of the stairway and joined to the pipe laid by Mr. John C. Rodgers across the Speedway.