

was filled with sand, and under the pressure of this additional weight, seventeen inches more descent was obtained. It was evident, however, that the bed rock was covered with about three feet of loose stones mixed with a moderate quantity of stiff blue clay ; the foundation would probably have been perfectly safe if kept where it was, but it was still thought best to place it directly upon the rock.

An additional number of divers were engaged, and on the 16th of February, a force of eight divers with four air-pumps and the proper complement of tenders, was ready for the work ; they were divided into two gangs, and the work was prosecuted both night and day, one man working in each chamber. The depth of water in the wells was about fifty feet, and to render the work less burdensome, the water was warmed by sending steam down the water jet pipes. The stones were removed singly from under the edge, piled up in the centre of the walls, and placed in the dredge buckets ; the dredges were worked for a short time after the divers had come up, bringing up the smaller stones ; the largest rocks were left below. The stones were of all sizes, from small pebbles to boulders containing two or three cubic feet ; the larger ones were mostly of limestone, and showed few or no signs of wear ; the smaller pebbles were well rounded, and of diverse geological character, presenting a strange collection of the different formations found on the eastern slope of the Rocky Mountains ; sandstone, granite, moss agates, and many other minerals were mixed in wild confusion, while bits of water-charred wood, reduced almost to pure coal, and several varieties of teeth, were found among them ; an Indian arrow head was also picked out of the lot.

On the 10th of March the rock was reached, at the elevation of 56.6. A hole was drilled into it five feet, as had been done at the three other channel foundations, and no sign of any flaw or weakness discovered. A row of bags, filled with freshly mixed beton, was placed around the edge, as had been already done at two of the other foundations, and the dredges were removed and the wells filled up with beton, laid under water, with the same boxes that had previously been used at Pier No. 2. Divers were still employed, to make sure that the beton filled up the whole space of the lower chambers, packing well in towards the edges, and covering the boulders which had been left piled in the centre ; the sand was thrown out from above the masonry, and the upper sec-