abnormal circumstances. The forces of nature may be measured and brought under control, provided they are properly understood, but human nature is not so amenable to laws.

**Filling of Air-Chamber & Completion of Foundation.**

The concrete for filling the chamber is all mixed above and let down through the supply shafts ready for distribution below.

No brick pillars were used as under the Brooklyn caisson, the bearings of the frames being so wide as to be equal to all contingencies when once uniformly packed under with concrete. Enough stones and earth were left below to reduce the amount of concrete required to 3,300 yards, about the same amount as in the Brooklyn caisson. The filling in took place in such a manner as to leave the final exit by means of the water-shafts; all the remaining quicksand was dug out below, down to the hard pan and worked up into the concrete.

In six weeks after commencing the filling it there remained only two hundred and eighty yards, showing an average of nearly one hundred yards per day.

By July 20th the water shafts were finally filled, the air pressure taken off, and the locks on the water shafts removed. Several trials were made to take off the air pressure before the filling was complete, but the water invariably came in when the pressure was reduced below thirty pounds. Up to the end as many as five air pumps were needed mainly because the concrete was so easily traversed by the air. Another month was consumed in removing the watershafs, air shafts, inner cofferdam, and outer shores, and in filling the two large well holes with concrete, as well as the other shafts and smaller pipes, and in completing the dock around the tower. The laying of stone was resumed before the air chamber was entirely filled.

The New York foundation was now finished.