son sank, the reservoir was raised from time to time. This was rather troublesome, and was avoided in the New York caisson by placing the gas tank below in the air-chamber, otherwise a tower of eighty feet in height, would have to be built by degrees. The gases could, of course, have been pumped directly into the tanks, were it not that the stroke of the pump creates an unpleasant jumping of the flame. The oxygen gas was delivered in a compressed state, and the coal gas was compressed on the spot. When the oxygen gas was of good quality, two calcium lights were sufficient for one chamber, one hundred and two feet long by thirty feet wide. The heat produced is less than that of a gas flame, and the product of combustion water. One attendant was sufficient for fourteen lights, besides all the gas lights. The lime-ball requires occasional turning, as it wears away by the action of the flame, and also requires frequent renewal when water condenses in the pipes. The blow-pipe burners are apt to burn out and get out of order. The explosive flame will also run back and melt the rubber connection. In short, quite an apprenticeship is necessary to adapt the calcium lights to all the new conditions. The only danger lies in leakage of pipes and from carelessness in leaving cocks open. One gas explosion took place below, sufficient to singe off whiskers and create some alarm. The sense of smell is so blunted that the leakage of coal gas is not easily detected. But the ordinary gas lights were found to be the most economical. Their cost is only one-fifth of the calcium light, and about one-third of candles. They give all the light that is needed, and can easily be located at all points. They produce, however, an intolerable amount of heat, and vitiate the air more than candles, although producing but little visible carbon. The gas-burners kept the temperature below at eighty degrees to eighty-five degrees. As long as the air-pressure was so irregular, all lights required careful attention and regulating. During winter, the water-pipes above, and the reservoir, were kept from freezing by steam-pipes laid alongside.

The cost of candles, calcium lights, and gas, was about five thousand dollars, of which candles cost more than one-