pectations were more than realized. In a short time water became as scarce as it had been plentiful before.

Blasting.

When the caisson had arrived at the depth of twenty-five feet below the water-level, the boulders became so large and numerous as to compel us at last to resort to blasting.

The idea of using powder had been entertained all along, yet our imaginary fears, supported by plausible reasoning, had prevented the attempt thus far. It was supposed that the effect of the explosion would produce a violent concussion in that dense atmosphere, rupturing the ear-drums of the men. Again, the effect upon the doors and valves of the air-locks might be such as to endanger their safety.

The principal apprehensions were, however, in the direction of the water-shafts. Here were two columns of water seven feet square, and ultimately, forty-five feet high, held in a critical balance by the pressure inside, the margin of safety being an immersion of less than two feet on part of the lower edge of the shaft in the pool surrounding it. The sudden explosion might rapidly depress the level of the pool and allow the air to escape underneath, which would be fatal both to the caisson as well as the men inside. Again, as regards blasting under the shoe and partly outside of it, it was feared that the explosion might cause a vent outward, followed by a rush of air.

The result, however, justified none of these apprehensions. First, a trial was made by firing a pistol with successively heavier charges, then small charges were fired off by a fuse, and soon blasting became an established system. The good effects were at once apparent in the lowering of the caisson from twelve to eighteen inches per week in place of six inches. As many as twenty blasts were fired in one watch, the men merely stepping into an adjacent chamber to escape the flying fragments. The hard crystalline trap split more easily than the tough gneiss rock or rotten quartz boulder, The trap invariably broke into three nearly equally-sized pieces.