rock bottom is preferable to any other, but if such cannot be found at a reasonable depth, then other means must be resorted to, to make the bottom secure.

The cubic contents of one tower is 31,412 cubic yards, equal to 848,124 cubic feet, which at 160 lbs. weigh 135,699,840 lbs., or 67,850 tons. Add to this the greatest weight of superstructure and load of 4,753 tons, and we have a total of 72,603 tons neat. Now the area of base at water line is 4,660 superficial feet, and therefore the pressure upon each superficial foot will be 15.58 tons. It is important that this great pressure should be spread as much as possible over a larger area. This can be done by enlarging the base of the masonry itself, either by solid stone or by concrete. But neither of these methods is as good and as reliable as is a heavy solid timber foundation. I therefore propose to lay down a solid timber platform, with its lower base enlarged to 174 feet in length by 96 feet in width, and of a depth of about 20 feet or more. The area of the lower base will therefore be 16,704 superficial feet, and the superincumbent pressure will be reduced from 15½ tons to 4½ tons per superficial foot. Now a pressure of 3 to 4 tons per superficial foot of foundation is an ordinary and usual weight, imposed upon railroad bridge foundations, with piers of 50 to 60 feet high, and such a pressure will always be considered safe and secure on a bed of compact gravel or sand, provided there is no danger of undermining or spreading sideways.