

It is a matter of every great consequence to have the masonry rest on the solid rock if possible.

With a view therefore to bring about these results, that is to construct by means of a coffer-dam, which shall not be subjected to the perils of a slight hold in the uncertain lands on the top of the rocks, and at the same time to avail as much as possible of the comparative cheapness of the caisson plan, I have endeavored to suggest such a structure as shall combine both, which has already been described.

It has been suggested to me to employ *blocks* made of timber in cribs with loose stones in them, sunk in the same manner as the piers near the City, and upon these to build the towers.

Independently of the objections which will arise to this method from want of permanency in the material used and the method of putting together, there would be great danger of the mass changing its position on the shelving surface of the bed of the river, and should such be the case the entire structure above must be irreparably ruined.

There being no doubt that the solid rock bed of the river will sustain a load equal to many times the weight of the bridge, it is proposed to demonstrate the strength of the towers.

It is shewn in Appendix C, that the weight which comes on the towers will under all circumstances be direct vertical pressure, and for this reason, the forces coming in this direction only have to be provided for, except for such parts of the system as sustain a lateral pressure within themselves.

That part of the tower which has the least sectional area is immediately under the saddle plates. At the four points of bearing there are 1440 square feet of surface to sustain the pressure. To these points there will be transmitted