

estimated that the interest on the cost of a wrought-iron Tubular Bridge, of 500 feet span, with stone piers and suitable approaches, would renew the present Bridge every third year.

The masonry was commenced on the 1st of July, 1851, and the first Locomotive passed over it on the 14th of August, 1852, embracing a period of only thirteen and a half months, a rapidity of construction which speaks volumes for the energy and zeal of the contractors, Messrs. Lauman, Rockafellow, and Moor, who were also the contractors for the whole line of the road, and have been long connected with public works.

The manner in which the Piers or "Trestles" were erected may be worthy of notice. They were commenced on the Eastern bank, and as each "Trestle" was completed the Trusses were placed on them, and the track laid; upon which a Travelling Crane was advanced, over-reaching the space to the next Trestle, and by means of which each stick of timber was let down to its place, until the whole of the next Pier was completed, when the Truss was placed and the Crane advanced as before.

This is, we believe, the highest Timber Bridge in the world; and though not notable for the development of any new principle of construction, it is worthy of our notice, for the *cheapness*, the quickness, and the completeness with which it has obviated a serious obstacle in the way of an important line of Railroad,—all matters of first-rate importance to us at this moment.

The New York Crystal Palace, Reservoir Square.

Reservoir Square, of which the municipal authorities have given the association a lease, lies west of the Croton distributing reservoir, and between that mighty mass of stone and the Sixth avenue. The precise distance from the reservoir to the Sixth avenue is 445 feet, and the width, north and south, from Fortieth to Forty-second street is 455 feet. On this piece of ground—not very favourable, it must be owned, either in shape or location—the association have determined to erect the building in question, of which the plans have been selected among several competitors, of whom may be mentioned, Mr. Saelzer, the architect of the Astor Library; Mr. Downing, killed on board the Henry Clay; Mr. Eidlitz, Sir Joseph Paxton and others. The successful competitors are Messrs. Carstensen & Gildemeister.

The main features of the building are as follows:—The general idea of the edifice is a Greek cross, surmounted by a dome at the intersection. Each diameter of the cross will be 365 feet 5 inches long. There will be three similar entrances—one on the Sixth avenue, one on Fortieth, and one on Forty-second street. Each entrance will be 47 feet wide, and that on the Sixth avenue will be approached by a flight of eight steps. Each arm of the cross is, on the ground plan 149 feet broad. This is divided into a central nave and two aisles, one on each side—the nave 41 feet wide—each aisle 54 feet wide. On each front is a large semi-circular faulight, 41 feet broad and 21 feet high, answering to the arch of the nave. The central portion or nave is carried up to the height of 67 feet, and the semi-circular arch, by which it is spanned, is 41 feet broad. There are thus, in effect, two arched naves crossing each other at right angles, 41 feet broad, 67 feet high, to the crown of the arch, and 365 feet long; and on each side of these naves is an aisle, 54 feet broad and 45 feet high. The exterior of the ridgeway of the nave is 71 feet. The central dome is 100 feet in diameter—68 feet inside from the floor to

the spring of the arch, and 118 feet to the crown; and on the outside, with the lantern, 149 feet. The exterior angles of the building are ingeniously filled up with a sort of lean to, 24 feet high, which gives the ground plan an octagonal shape, each side or face being 149 feet wide. At each angle is an octagonal tower, eight feet in diameter, and 75 feet high. Each aisle is covered by a gallery of its own width, and 24 feet from the floor. The famous old church of San Vitale, at Ravenna, is, by the way, the only instance of any considerable building that we at this moment recollect, of octagonal shape—but its diameter is only 128 feet.

Now, a few words as to the size and proportion of this edifice. On entering, the observer's eye will be saluted by the vista of an arched nave, 41 feet wide, 67 feet high, and 365 feet long; while, on approaching the centre, he will find himself under a dome, 100 feet across, and 118 feet high. A few comparisons will show a little what this will look like. The Croton Reservoir is itself 40 feet high, so it will be quite overtopped. Trinity Church is 189 feet long, by 84 feet wide, and 64 feet high. The City Hall is 216 feet long, 105 feet wide, and, including the attic, 85 feet high.

The Reservoir square nave will thus be twice as long as Trinity Church, and nearly twice as long as the City Hall.

The Capitol at Washington comes somewhat nearer. That, including the wings, is 352 feet in length, and each wing is 121 feet deep; the rotunda is 95 feet in diameter, and, to the top of the dome, 120 feet high. So, if the eye could have a clear sweep from the extreme end of the Senate chamber, across or through the Rotunda, to the other extreme of the House of Representatives, the mind would get a pretty good idea of one-half of the Crystal Palace, for that building being as we have said a Greek cross of equal proportions, would present two vistas like this.

For aught we see, therefore, we must come to the inevitable conclusion, that this building will be larger, and more effective in its interior view than anything in the country. If so, the edifice will be a great show of itself.

This building contains, on its ground floor, 111,000 square feet of space, and in its galleries, which are 54 feet wide, 62,000 square feet more, making a total area of 173,000 square feet, for the purposes of exhibition. There are thus in the ground floor two acres and a half, or exactly 2—52-100; in the galleries, one acre and 44-100—total, within an inconsiderable fraction of four acres. There are on the ground floor one hundred and ninety columns, 21 feet above the floor, 8 inches diameter, cast hollow, of different thicknesses, from half an inch to one inch thick; on the gallery floor there are one hundred and twenty-two columns.

Now, to compare this building with some of the great foreign wonders: St. Paul's, of London, is five hundred feet long, and this beats the Reservoir square Palace. But, St. Paul's has only 84,025 square feet on its ground floor, and is thus, on the whole, decidedly smaller. St. Peter's Church, at Rome, is 660 feet long, and has 527,069 square feet. So that our Crystal Palace will be, on the ground floor, just half the size of St. Peter's—but, with the galleries, the available room in St. Peter's is only one-