

promise between the river and railroad interests, and leaves both with all reasonable facilities for the transaction of their business.

The waterway at low water would be four hundred and seventy feet between the piers; this would make the whole waterway fourteen hundred and ten feet, which I regard as too much rather than too little. In my survey of the river from the mouth of the Missouri to Jefferson Barracks, I found that wherever the low water channel is confined to about 1,200 feet there is deep water all the way across from shore to shore, and wherever there is a material excess over this width, there is either a bar in the middle of the river, or shoal water at one of the shores. The bridge would be of incalculable advantage to the steamboat interest; as the large fields of ice which are so destructive, would be broken up by the piers of the bridge, and the boats would therefore find at all times, a safe harbor below it. The levee would be much improved, as it would be widened to 265 feet, which is the width ordained from Market street south. In order then, to demonstrate the entire feasibility of the structure, it only remains to state its capacity to bear its load, and to accommodate the travel which is likely to pass over it. The ultimate strength of each span is about 6,000 tons. The weight of each span between the supports is 1,550 tons, which leaves an excess of strength over weight of 4,450 tons. The maximum load which can come upon each span is 600 tons, which is less than one seventh of the strength; and there is no probability of more than half this weight coming upon it. The effect of the severest storms upon the bridge will scarcely be perceptible, as the roadway flooring will act as a lateral stay and give it great strength, to resist the force of air-currents. Lest any one should fear that the tube might turn over by reason of the roadways being unequally loaded, I will suppose that one roadway has no load upon it, and that the other is crowded with men as close as they can stand, then there would not be more than one seventh of the weight required to overturn the tube. The capacity of the bridge to accommodate the travel, would be fully equal to all the wants of the present and the proximate future. Ten railroad trains, traveling at the rate of eight miles per hour, could pass over the bridge, in opposite directions, in one hour. This would be 240 trains per day, and I need not add that this number of trains would be largely in excess of what we may reasonably