The proper floor strength for all spans may be obtained by considering the loads on each pair of wheels, for each roadway, and this load on bridges of the first class may be taken at from four to five tons, on bridges of the second class three to four tons, and on ordinary country bridges two to three tons. This provision for local loads may seem extreme to many, but the jar and jolt of heavy springless loads comes directly on all parts of the flooring, at successive intervals, and admonishes us that any errors made should be on the safe side.

From the above consideration of local loads on wheels, it follows that the cross floor-beams of a bridge are required to be of the same size and carrying capacity, whether close together or far apart, being strained alike in any case. The longitudinal stringers, on the other hand, while increasing in size for the same loads as the floor-beams are spread farther and farther apart, are independent of their distance from each other. Stringers must be of the same strength, whether spaced two or four feet apart, since any stringer may support unaided a wheel load midway between its bearings. If the wheel loads are assumed to be as high as has just been recommended, a factor of safety of four will be ample for the floor-beams and stringers, since the possibility of such loads coming upon them is very remote.