

that of the engineer who had spent his life in building bridges.

An impression exists in the minds of many persons, that it is purely a matter of opinion whether a bridge is safe, or not. In very many cases, however,—perhaps in most,—it is not at all a matter of opinion, but a matter of fact and of arithmetic. The whole question always comes to this: Is the material in this bridge of good quality? Is there enough of it? Is it correctly disposed, and properly put together? With given dimensions, and knowing the load to be carried, it is a matter of the very simplest computation to fix the size of each member. We know what one square inch of iron will hold, and we know, also, the total number of pounds to be sustained; and it is no matter of opinion, but one of simple