

(3) SIMPLICITY AND CLEARNESS OF PRINCIPLE.

In general, the simpler the lines of a structure and the more easily understood the basic principles involved, the more pleasing will it be to the average observer. Any design which mystifies or leaves the public in doubt as to the adequate support of superimposed loads, is an aesthetic transgression. Instances of such are afforded in many early bridges in which the suspension and cantilever or the truss and arch principles have been combined. Such arrangements are liable to create a lack of confidence in the structure and, consequently, aesthetic dissatisfaction through the natural inference that one system was introduced to bolster up one already overtaxed.

For all truss spans, except possibly those of short length, single intersection trusses are more pleasing than the more complicated ones with multiple systems of webbing. Short spans approaching the legitimate field of the girder and possessing only a small number of members of a considerable length in relation to the span, and having to perform the same work as the solid girder section, are liable to create the impression of insufficiency. This is particularly true of especially short through spans where the height is necessarily large in relation to the spans, and where, in addition, an appearance of "stubbliness" is unavoidable. For this reason the multiple intersection truss for short spans being in effect only a girder with a number of holes cut through it, is to be preferred. Pony or low trusses of simple single intersection types are superior to short through trusses, since in general proportions they are closer to the rudimentary beam or girder with which everyone is familiar.

Simplicity and directness being essentials of aesthetic excellence, it would be expected that the simple beam or girder with constant depth, the earliest form of structure with which we are acquainted, would be the most beautiful of all forms for a bridge. That it is not is generally contended by critics, but wherein does the reason lie? Surely not because of the predominance of straight lines, for this is a distinctive feature of one of the most beautiful of architectural styles—the Grecian. Indeed, so much was the appearance of straightness of outline valued that special efforts were made to secure it, for example, by cambering cornice lines or increasing the diameter of columns near their centres. It seems to the writer, therefore, that the lack of beauty in the girder is not a basic quality, but that it most frequently occurs under special conditions, for example, in connection with its employment for very long spans, or for lengths quite out of proportion to the beautiful girders or arches of classic architecture. We have not, even yet, become inwardly convinced of the sufficiency of the slender proportions of