

St. Louis, shown in Fig. 26. The former, while not beyond criticism, appeals to most observers as a beautiful structure, and yet it is almost totally devoid of ornamentation. On the other hand, while some people find the Franklin Bridge pleasing, the majority would prefer the former structure. The preference can only be based upon the admirable general form of the simpler bridge, which is undoubtedly superior to that of the Franklin Bridge with its sharp break in grade at the crown. This structure is an illustration of the inability of decoration to compensate for lack of beauty in the general form. The Park Bridge at Medford, Mass., shown in Fig. 27, is also an excellent illustration of the results which may be obtained from proper lines and proportions alone.

#### (8) LEGITIMATE ORNAMENTATION.

While the beauty of a structure arises principally from its general form, ornamentation as an auxiliary may by skillful employment be made to contribute much to the aesthetic excellence of the result. Thus, it may be legitimately and properly used to (a) accentuate or contrast the structural functions and characteristics of the parts, (b) emphasize the magnitude or strength of the structure, or (c) afford relief to long, unbroken, straight lines or large blank spaces. It should never be applied thoughtlessly to the first clear space, which occurs to the designer as in need of beautification, but only where it can serve as handmaiden to the chief element of beauty, the general form.

Instances of the misuse of ornamental features are sufficiently numerous to convince most engineers of the extreme difficulty of attempting anything at all extensive in this line without the collaboration of an expert architect. As a single instance of this the use of columns over the piers of the Waterloo Bridge, London, may be cited. The column is a member the function of which is to support vertical loads, and the insertion of them over the piers of a bridge suggests the existence of a considerable weight from above which must be carried down to the piers. As a matter of fact, but a trifling load can ever come on them, carrying as they do only a short entablature. The correct treatment above these piers would have been in the form of a counterfort, conveying the impression of lateral stability, as in the bridge over the intake of the Canadian Niagara Power Co., Niagara Falls, Ont., shown in Fig. 28.

To render the principal structural elements outstanding and their functions easy of appreciation by the observer, many artifices may be successfully employed. Reference to only the most self-evident of these will be made in the present paper.

Reasoning alone, apart from the actual observation of existing structures, would be sufficient to establish the principle that decora-