

follows does not, for this reason, purport to deal, except in the most cursory manner, with those phases of the subject having their basis largely in convention or in artistic intuitions, but only with the more rational aspects which frequently come up for consideration in the practice of a bridge engineer.

PRESENT DISREGARD OF THE AESTHETIC ELEMENT.

That there is very great need for increased attention to the aesthetic element in bridge design will not be questioned by anyone who has a fair acquaintance with existing highway or railway bridges in this country. Oftener than not they are nothing more than what the late George S. Morison called "tools of transportation." Nor does this apply exclusively to structures of one material, for very many of the present-day reinforced concrete bridges have little, if any, superiority aesthetically over the familiar and much-maligned structures of steel. This is particularly true of country highway bridges, where those responsible for the design and construction are often inefficient, careless, and utterly regardless of all save the requirements of strength and dimensions. In spite of the fact that the railways are regarded as exclusively money-making organizations, the general appearance and finish of steam railway bridge work at least is undoubtedly superior to that of most country highway bridges. The reason lies in the fact that all important railways are represented by expert bridge engineers, who give careful, painstaking attention not only to the original layout, design, and details, but to the constant maintenance as well.

The lack of good taste and conformity to aesthetic standards in bridge work is indicated in a variety of ways. Among general considerations may be mentioned the following: highly unsymmetrical layouts, often involving unsightly grades or skews; abrupt, irregular, or ungraceful structural outlines; false accentuation or misuse of ornamental features; badly proportioned piers and abutments, giving the impression of lateral instability or insufficient mass; incorrect layout of abutment wings or retaining walls, involving a waste of masonry or insufficient protection of the approach fill; deteriorating material or rough, discoloured, unsightly surface finish, and, not by any means the least, slovenly and unkempt condition of the approaches and surroundings.

DESIRABILITY OF ARTISTIC BRIDGES.

It is obviously unnecessary to point out at any length the desirability of artistic bridge structures. Because of enforced usage by the public and of its permanent character, a bridge, in a populous