This much by way of introduction, and the remark may be ventured, that the most experienced in bridge construction have yet much to learn, and it is but reasonable to conclude that, while the arts and sciences generally are making rapid strides in the path of progress, this particular branch can form no exception. The history of the past is fraught with lessons of significant import, teaching us in this, as in all other investigations, that modesty is a becoming virtue,—that however perfect in our estimation the present development of science may be, the march must still be onward, and the real question is, not whether we shall advance another step, but rather, what that step shall be.

As this is not intended to be a treatise on bridge construction, but a narrative of facts connected with the writer's experience on the subject, it will not be expected that more than the nature of the forces involved will be given, leaving the measurement and intensity of those forces to the student, who may be disposed to pursue a more elaborate investigation of the problems, requisite to a full understanding of this important branch of the profession.

In order to place more clearly before the reader a statement of facts and experiments which led to the adoption of the "Inflexible Arched Truss," reference to other and well-known bridge structures will be indispensable, and they will be alluded to, only so far as may be essential to a proper understanding of the subject.

No attempt will be made to discuss the merits or demerits of the great number of plans of bridge structures now before the public (several of which have been used to a limited extent, while others exist in theory only), the claims of all of which are generally based upon some unimportant alteration in detail, which in most cases, resolves