

PREFACE

design, based upon the combined standards of economic proportions and æsthetic appearance. Engineers are frequently deficient in artistic training and taste, and architects in constructive knowledge, and the need of improvement is generally admitted. The tendency in this direction is shown by the coöperation between engineers and architects on many of the largest structures, particularly the proposed bridges for New York and Washington.

Mr. Gustav Lindenthal, who is an unquestioned authority on bridge building, says: "It cannot be denied that America is behind the standards of Europe in æsthetic construction. There, the more important bridges, particularly in cities, are invariably designed with a view to their architectural appearance. Details of construction are subordinated to it. The American practice is regulated more from the standpoint of utility, of quick fabrication and speedy erection, not always with the happiest results architecturally. Although the United States has the largest number of steel and iron bridges, it has also the distinction of having the ugliest. There are certain indications, however, of an improvement in taste and it is entirely within the possibilities of the near future that American engineers will be able in foreign competitions to furnish designs for bridges at once architecturally meritorious and economic of cost."

During the writer's twenty-five years experience he has made designs for several hundred bridges, many of which were built, and the suggestions in this book are the outcome of his effort and study to control dominant commercialism which has caused engineers to perpetrate so much vandalism. The book is the development of a series of articles on ornamental bridge construction, written by him and published in *The American Architect* in 1911, though more than fifty half-tones used in those articles have not been reproduced here. The number of illustrations might easily have been increased, only a few being included from the writer's collection of more than a thousand photographs. Certain principles of design have occasionally