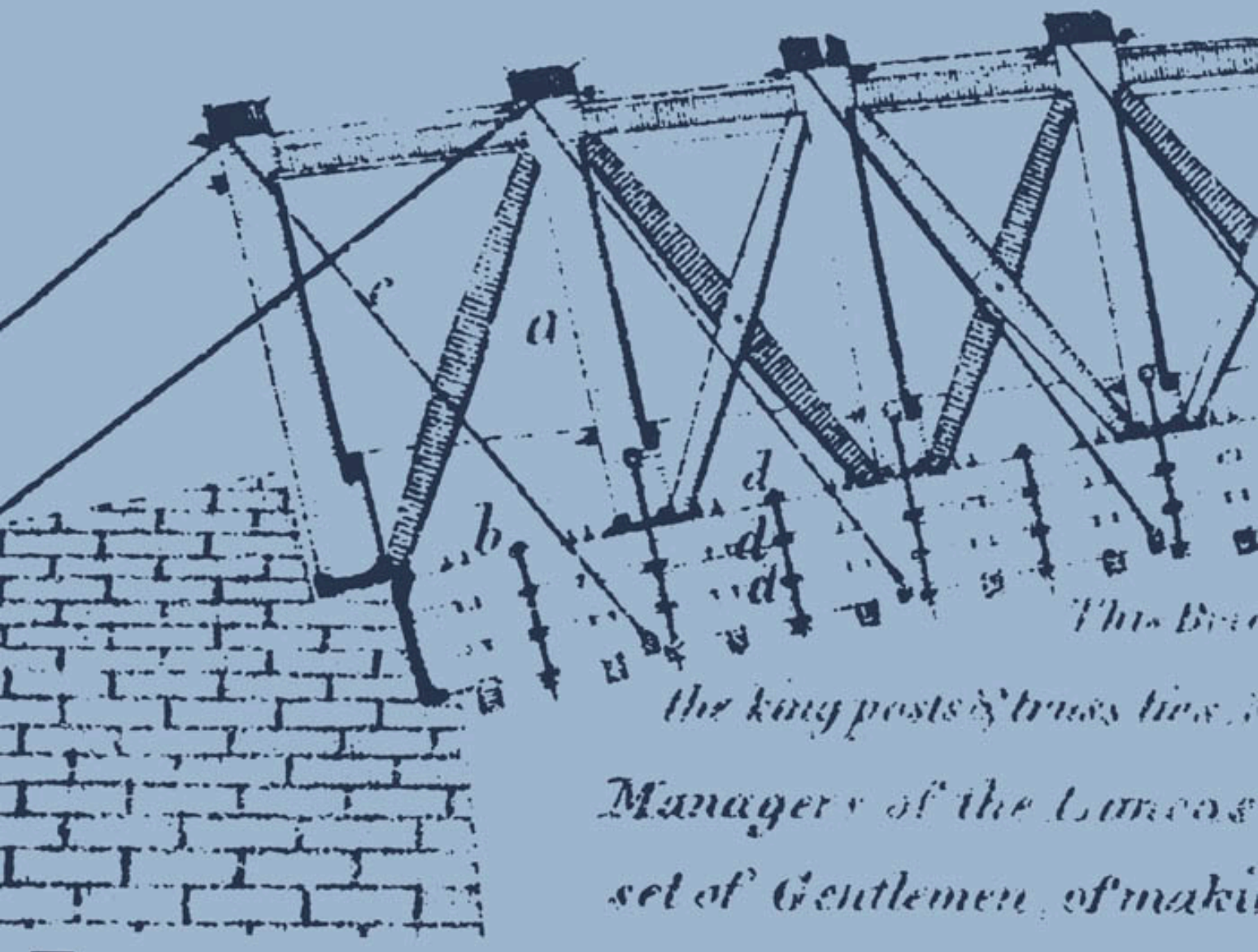
The Colossus of 1812:
An American Engineering Superlative



The Colossus of 1812:
An American Engineering Superlative

by Lee H. Nelson

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ABSTRACT

This book presents the developments in bridge building that occurred in the United States toward the end of the eighteenth century and in the beginning of the nineteenth century. With the growing need for bridges and the willingness to invest in such enterprises, American bridge builders were encouraged to be daring and inventive in their design. Their inventiveness led to the development of long-span wooden bridges with laminated members where the laminated members were used not only for major chords but for arched ribs in compression as well. This structural evolution in bridge design culminated with the building of the "Colossus" of Philadelphia, a 340 ft clear span wooden bridge designed and built by Lewis Wernwag in 1812. After explaining the historical context of this superstructure, the book then discusses "Colossus" in relationship to its wind bracing, abutments, and structural defects. In addition, a summary of a computer analysis of the bridge is presented. Due to Wernwag's innovated and superlative design, "Colossus" captured the imagination of both the romantic and technological minds of the day and influenced American bridge building for some time to come.

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Preface

Mr. Nelson deserves the thanks of all civil engineers for his scholarship and dedication in producing this oustanding book. It concerns one of the greatest structures ever produced by an American civil engineer, but one that has received very little attention by historians. To put this in perspective, "The Colossus" had the greatest span [340 ft] of any wooden bridge ever built. [N.B. Burr's McCall's Ferry Bridge, which lasted only a very short time, may have had a slightly greater span, but this has never been verified.] In any case, with the publication of this book a long-term historical oversight will have been rectified.

The writing of this book is a story in itself. Mr. Nelson's interest in bridges stems from his boyhood in Portland Oregon, which is famous for its many crossings of the Willmette River. It was largely due to his publication of 'Oregon Covered Bridges,' in about 1960, that a citizen's effort to save the state's remaining structures was inaugurated. Later, Mr. Nelson went to Philadelphia to work on the preservation of Independence Hall and other historic structures. In the library of the Historical Society of Pennsylvania he came across the papers of the Colossus Bridge. Then, for over 15 years he pursued the task of writing this book.

Mr. Nelson, an architect, has spent his professional career in the rewarding field of historic preservation and so has an intimate knowledge of structures. He couples this knowledge with his sense of history to produce a book that gives the reader both technical and historical insights which give it a double appeal to both civil engineers and historians.

Although it has been the long-term policy of the American Society of Civil Engineers to publish outstanding scholarly works on civil engineering history, there have been far too few to have even been considered. When this book was received by the Committee on the History and Heritage of American Civil Engineering, it was unanimously approved for publication.

It is hoped that the publication of this book will encourage architects, civil engineers, and historians to undertake the necessary research and writing to produce other works of this nature and caliber. Manuscripts or even ideas would be welcomed by the Committee.

Neal FitzSimons, Fellow ASCE
Chairman, Committee on
History and Heritage of
American Civil Engineering

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