



David P. Billington

The TOWER and the BRIDGE

The New Art
of Structural
Engineering

The Tower and the Bridge: The New Art of Structural Engineering, David P. Billington, Princeton University Press, 1985, 069102393X, 9780691023939, 306 pages. .

Modern British bridges , Dorothy Henry, Jack Albert Jerome, Jan 1, 1965, Technology & Engineering, 189 pages. .

Bridge Engineering Design, Rehabilitation, and Maintenance of Modern Highway Bridges, Demetrios E. Tonnias, 1995, Technology & Engineering, 470 pages. Design, rehabilitate, and maintain modern highway bridges. From steel and reinforced concrete design, to highway layout and basic geometrics, to geotechnical engineering and

Bridges of the World Their Design and Construction, Charles S. Whitney, 2003, Architecture, 363 pages. "A book to delight the heart and eye of a pontist whether he be an admirer and lover of bridges or a designer and builder. . . ."--Saturday Review of LiteratureThis profusely

An Engineer imagines , Peter Rice, 1994, Architecture, 191 pages. .

Elegant arches, soaring spans C.B. McCullough, Oregon's master bridge builder, Robert William Hadlow, Nov 1, 2001, Biography & Autobiography, 211 pages. Conde Balcom McCullough ranks as a modern bridge builder of national and international acclaim. This study of McCullough traces the professional life of an engineer and builder

The Making of the Modern Architect and Engineer The Origins and Development of a Scientific and Industrially Oriented Education, Ulrich Pfammatter, 2000, Architecture, 312 pages. The very first school for architecture came into being when the Ecole Polytechnique opened its gates in Paris in 1794 and with this, the profession of the architect as we

The London Tower Bridge , Margaret Speaker-Yuan, Apr 1, 2004, Technology & Engineering, 48 pages. Describes the techniques used and difficulties faced building the London Tower Bridge..

The Tower bridge A lecture ..., Sir John Wolfe Wolfe Barry, 1894, Technology & Engineering, 64 pages. .

Emulation and Invention , Brooke Hindle, Nov 30, 2008, , 192 pages. .

Bridges Three Thousand Years of Defying Nature, David J. Brown, 2001, Architecture, 176 pages. Examines one hundred bridges from around the world, including early Chinese bamboo and iron chain suspension bridges, the new London Bridge, the Quebec bridge, and the first

From my own experience, I've always been frustrated with the tendency of the architecture community to either completely overlook the aesthetic works of the great structural engineers or shamelessly claim them as their own. This book is beyond a simple consensus of great engineering works; it is Billington's clear and rational case for the distinction of the discipline of Structural Art - the engineer's means of expression - from that of Architecture.

This book is just the thing any student or young professional in structural engineering should have along with their library of technical books. Instead of explaining the aesthetics and beauty of structures in vague architectural terms, Billington looks at them in terms of the technical (formwork, stress diagrams, material economy, etc.). When has an architectural critic discussed the elegance behind a moment diagram?

Billington goes through the evolution of structural art/expressionism in great detail. It is helpful to have a preexisting knowledge about the various engineers/artist discussed in this text, however, it is not necessary. This book is very interesting and encourages the engineer to consider the aesthetic consequences of structures.

This book has engaged my artistic mind in the search for opportunities to become such a designer as the individuals biographed so explicitly by Billington. The unseemingly artist, architect, or engineer is left believing that even he/she has the potential to add to the realm of amazing structures. An inspiring read.

After reading this book I wanted to quit work and return to school to study civil engineering. Of course, I made the mistake of mentioning this to my wife, who fell into paroxysms of laughter, saying she had seen some of the stuff I had built at home, and there was no way she would ever go on a bridge that I designed.

Billington discusses the interrelationship of efficiency, economy, and aesthetics and how great engineering works combine all three of these to the exclusion of none. The great designers manage to balance beauty with simplicity and cost. Frankly, I found this book riveting (pun intended, although he really celebrates the use of concrete as opposed to steel) and never fail to look carefully at bridges with a new eye.

aesthetic Ammann arch bridge architects architecture beauty began bridge design Britannia Bridge Brooklyn Bridge Brunel building built cables Candela cantilever Center century Chicago Christian Menn Civil Engineers columns competition completed construction contrast cost create curved deck developed dome Eads economy Eiffel Tower engi Eugene Freyssinet express facade Fazlur Khan feet figure Ganter Bridge Garabit girder Gothic Gustave Eiffel Hancock Heinz Isler Hell Gate Hell Gate Bridge Hennebique horizontal Ibid ideals ideas industrial integration Khan Lindenthal load major masonry material mathematical Menai Menn's metal modern neering Nervi Othmar Ammann Pier Luigi Nervi prestressing Princeton railway reinforced concrete ribs Ritter River Robert Maillart Roebling Roebling's roof Saltash scientific Society steel Steinman Stephenson stone struc structural art structural artists structural design structural engineering supports suspension bridge Swiss Switzerland symbolic technical theory thin shell Thomas Telford tion Torroja tradition truss tural vaults vertical Veudre visual walls York Zuoz Zurich

Billington adds a whole new dimension to engineering by interpreting a scientific discipline in a subjective light. He offers criteria for aesthetic appreciation and brings forth the subtleties in an otherwise inaccessible field. Well written and unintimidating to even the most science-phobic reader.

"David P. Billington is clearly moved by great structures--he means it when he says that major works of structural engineering are like the art of poetry, while architecture is the art of prose. . . . This is a book on structural engineering that sees its subject as part of the larger drama of history and culture, and for the breadth of this stance alone, it is impressive."--The New York Times Book Review

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