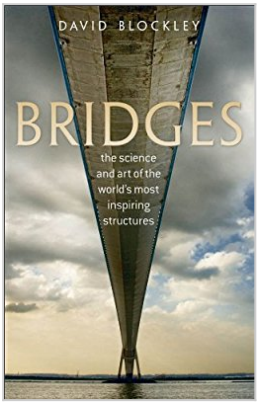

Bridges: The science and art of the world's most inspiring structures

By David Blockley

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Bridges touch all our lives - every day we are likely to cross a bridge, or go under one. How many of us stop to consider how the bridge stands up and what sort of people designed and built something so strong?

Bridge building is a magnificent example of the practical and every day use of science. However, the story of bridges goes beyond science and technology, and involves issues relating to artistic and cultural development. After all, bridges are built by people, for people. Bridges can be icons for whole cities; just consider New York's Brooklyn Bridge, London's Tower Bridge, and Sydney's Harbour Bridge. Such bridges can be considered functional public art, as they have the power to delight or be
an eyesore.

David Blockley explains how to read a bridge, in all its different forms, design, and construction, and the way the forces flow through arches and beams. He combines the engineering of how bridges stand up with the cultural, aesthetic, and historical importance they hold. Drawing on examples of particular bridges from around the world, he also looks in detail at the risk engineers take when building bridges, and examines why things sometimes go wrong.

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Bridges: The science and art of the world's most inspiring structures By David Blockley Bibliography

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Editorial Review

From Publishers Weekly
Starred Review. In this fascinating exploration for lay readers, Blockley lucidly explains both the basic forces at work on every bridge—tension, compression, and shear—and the structural elements combating those forces: beams, arches, trusses, and suspension cables. He succeeds in his desire to read a bridge like a book. Following fellow civil engineers and writers David Billington and Henry Petroski, Blockley makes clear that engineers as much as architects and scientists design bridges and that technology is not merely applied science. The author provides an excellent history of bridge construction, from primitive rope bridges and Roman aqueducts to 19th- and 20th-century railroad bridges and contemporary achievements like Japan's Akashi-Kaiky Bridge, which has the largest central span of any suspension bridge. The author also discusses important bridge failures and the lessons learned from them, including the Minnesota I-35 bridge, and the less seriously damaged London Millennium Bridge, which was closed for two years after opening day's huge crowds caused wobbling. Blockley concludes that bridges do not merely transport people and goods but also help us express some of our deepest emotions. Bold, insightful statements help make this a remarkable work. 50 b&w illus. *(Mar.)*

From Booklist
Bridges vault valleys and leap rivers, but how? British civil-engineering professor Blockley answers in this “attempt to help nontechnical readers understand the technical issues bridge builders have to face.” Emanating from the engineer’s abiding anxiety to ensure against structural failure, such issues are successfully clarified in the author’s engaging presentation. Essentially, the bridge engineer calculates the physical forces acting on the materials and shapes used to construct a bridge, but, as Blockley iterates throughout, engineering knowledge about how a bridge will perform has finite or indeterminable dimensions. The bridge collapses he describes were typically caused by some previously unrecognized behavior, and the collection of behaviors learned through bridge-building experience infuses Blockley’s arrangement of bridges into four classifications—beams, arches, trusses, and suspensions. If we cross bridges unmindful of the forces they tame, Blockley’s text, sketches, simple equations, and photographs instill appreciation for a physical dynamism that the engineer aspires to control. Also discussing the architectural beauty of bridges, this is a model explanation of technological design for a general audience. --Gilbert Taylor

Review
Review from previous edition: "David Blockley expertly describes the processes, relationships, materials and philosophies of engineering that give the world some of its most symbolic pieces of public infrastructure."

--Hugh Pouliot, Canadian Geographic

"In this fascinating exploration for lay readers, Blockly lucidly explains both the basic forces at work on every bridge."

--Publishers Weekly

"The two concluding chapters 'How safe is safe enough' and 'Bridges built by and for people' are masterly summaries of some of the biggest issues in engineering illuminating the nature of risk, how engineers think, and the need for them to understand uncertainy."

--Kathy Stansfield, The Structural Engineer

"David Blockley expertly describes the processes, relationships, materials and philosophies of engineering."

--Hugh Pouliot, Canadian Geographic 14/12/2010

"Engaging and thoughtful book. Bridges deserve our attention.'
David Rooney. History Today 01/10/2010

Users Review

From reader reviews:

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