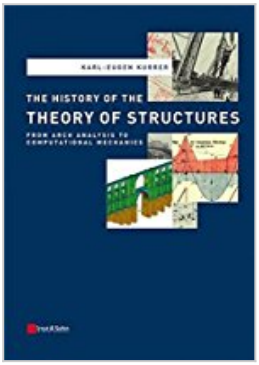

The History of the Theory of Structures: From Arch Analysis to Computational Mechanics

By Karl-Eugen Kurrer

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This book traces the evolution of theory of structures and strength of materials - the development of the geometrical thinking of the Renaissance to become the fundamental engineering science discipline rooted in classical mechanics. Starting with the strength experiments of Leonardo da Vinci and Galileo, the author examines the emergence of individual structural analysis methods and their formation into theory of structures in the 19th century. For the first time, a book of this kind outlines the development from classical theory of structures to the structural mechanics and computational mechanics of the 20th century. In doing so, the author has managed to bring alive the differences between the players with respect to their engineering and scientific profiles and personalities, and to create an understanding for the social context. Brief insights into common methods of analysis, backed up by historical details, help the reader gain an understanding of the history of structural mechanics from the standpoint of modern engineering practice. A total of 175 brief biographies of important personalities in civil and structural engineering as well as structural mechanics plus an extensive bibliography round off this work.

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The History of the Theory of Structures: From Arch Analysis to Computational Mechanics By Karl-Eugen Kurrer Bibliography

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Editorial Review

Review
"The history of statics is statics itself", claims Karl-Eugen Kurrer, paraphrasing Goethe. In "Geschichte der Baustatik", based on a long series of specialized articles and more than two decades of study, Kurrer spreads a host of personalities and their interests before us, weaving them together into a thematic whole. Thought is, of course, inextricably bound to personality and education, and Kurrer demonstrates how engineering thought, far from being abstractly objective, is imbued with the character of the thinkers, their teachers, and their pupils. Personal experience conditions the definition of theoretical problems and their solutions, and this renders theoreticians human and their thoughts part of an ongoing professional discourse.

Prof. Dr. Tom F. Peters, Lehigh University, Betlehem/USA (Technology and Culture, Vol. 45, 2004)

The book is about much more than the origins of statics and its use in building and bridge engineering since the late sixteenth century. It is also about the very ideas of "statics" and "strength of materials" and how they came to be an integral part of the engineer's life; how they were developed into an academic discipline and a rigorous technique in engineering education; How they became the subject of growing numbers of technical books and periodicals, both for the academicians and the practitioners; and last, but not least, how the epistemology of the subject developed. Nowhere is the point of this book better demonstrated than in its title and, for non-German readers, how it should be rendered into English, or French or Spanish. "Baustatik" is not statics, or building statics; it is not structural engineering or strength of materials or structural science or analysis or design or calculation. It is a part of all these, and more. It is what united and binds a whole community of professionals together (...). Kurrer's excellent work makes for an interesting comparison with Antoine Picon's book "L'invention de l'Ingenieur Moderne" which charts the history and contribution of the "Ecole des ponts et chausees" between 1747 and 1851.

Bill Addis PhD, Buro Happold Consulting Engineers, London (Construction History, Vol. 18, 2002)

Kurrer is the Chief Editor of the German journal "Stahlbau" (Steel Construction). His book is an important contribution to a subject on which little has been published so far.

Prof. Dr. H. J. Cowan, University of Sydney (Architectural Science Review, Vol. 46, 2003)

This "history of theory of structures" could only have been written by an expert, an engineer who knows the discipline inside out. This fully revised English edition, which explores international developments in greater depths, follows on from the highly successful German edition We should be very grateful to Dr. Kurrer, and also "his" publisher, Ernst & Sohn, for this treatise.
PROF. EKKEHARD RAMM, UNIV. OF STUTTGART

Erstmalig wird eine zusammenfassende Darstellung der Entwicklung von der klassischen Baustatik zur Strukturmechanik und "Computational Mechanics" im letzten Jahrhundert geboten.

Summary: This book offers fascinating insights into the emerge of theory of structures and structural analysis itself on various levels. ... So on the whole a cohorent picture of the development of theory of structures emerges. Recommendation: definitely worth reading!

HOLGER EGGEMANN, BRUHL

Das vorliegende Werk ist weit mehr als ein Fachbuch zur Gesschichte einer technikwissenschaftlichen Disziplin. Es ist spannendste Ingenieurlekture in einer heute selten gewordenen, gepflegten Sprache.
WILFRIED B. KRATZIG, BAUTECHNIK, HEFT 9/2008

Das Buch ist ein wunderbares Werk, welches die Bedeutung der Geschichte im strukturellen Ingenieurbau unterstreicht. Es bildet ein Werk, das zum kurzen Nachlesen von statischen Verfahren und auch gleichzeitig zur Aneignung von Hintergrundwissen bezuglich der zugehorigen geschichtlichen Entwicklungen geeignet ist.
ALFRED STRAUSS, BETON- UND STAHLBETONBAU, HEFT 1/2009

Wer wollte von sich behaupten, ein wissenschaftliches Fach wirklich durchdrungen zu haben, ohne uber dessen Geschichte ausreichend Bescheid zu wissen? ...Dazu gibt das vorliegende Werk, bei dem es sich um eine Revision, Erweiterung und Aktualisierung des im Jahre 2002 in deutscher Sprache erschienenen Buches "Geschichte der Baustatik" vo. K.-E. Kurrer handelt, wertvolle Hilfestellung. ...Zu den vielen Vorzugen des Buches zahlen seine hervorragende Strukturierung, die ausgezeichneten Illustrationen, die reichhaltige Bibliographie und ganz besonders der relativ umfangreiche Abschnitt "Brief Biographies" mit einem angemessenen Anteil an Biographien osterreichischer Fachgelehrter. Dem Autor ist dafur zu danken, dass er mit dem vorliegenden Buch die internationale Fachwelt und daruber hinaus die weltweite Gemeinschaft der Bauingenieure und -ingenieurinnen an seinem umfassenden Wissen teilhaben lasst. Damit sei die Hoffnung verbunden, K.-E. Kurrers Opus Magnum moge zur weiteren Starkung des Selbstbewusstseins der Kollegenschaft in einem Fachgebiet mit stolzer Geschichte und hervorragenden Zukunftsperspektiven beitragen.
Herbert Mang (aus OIAZ 4-9/2008)

From the Back Cover
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About the Author
Dr.-Ing. Karl-Eugen Kurrer has been chief editor of the journal "Stahlbau", published by Ernst & Sohn, Berlin, since 1996. His interest in the history of theory of structures from the scientific and engineering perspectives began some 30 years ago. The great success of his book "Geschichte der Baustatik" published at the end of 2002, the repeated requests for an English edition and the members of the Berlin-based VDI History of Engineering Study Group inspired him to write this revised edition.

Users Review

From reader reviews:

Robert Landers:

Book is to be different for each and every grade. Book for children until adult are different content. As you may know that book is very important for people. The book The History of the Theory of Structures: From Arch Analysis to Computational Mechanics was making you to know about other know-how and of course you can take more information. It is extremely advantages for you. The book The History of the Theory of Structures: From Arch Analysis to Computational Mechanics is not only giving you more new information but also for being your friend when you truly feel bored. You can spend your personal spend time to read your book. Try to make relationship with all the book The History of the Theory of Structures: From Arch Analysis to Computational Mechanics. You never sense lose out for everything in case you read some books.

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