

Book Review

Scheer, Joachim, *Failed bridges: case studies, causes and consequences*, Berlin: Ernst & Sohn, 2010, ISBN 9783433029510, £70

I am going to get to the point straight away. I really enjoyed reading this book. My favourite parts come at the end. The section about the rules and formulations in engineering literature, and especially the one by Sir Alfred Puglsey. It could almost read like the ten commandments of engineering, but for the fact that there are 17 of them. And then, right at the end, there are the lessons for teachers of engineering, which are written by the author as a set of rules to help train civil and structural engineers in design.

The book was originally written in German in 2000 by Scheer. The English version is new and updated with more bridge failure reports. It is factually excellent. It has a convenient format in which the latest failures since 1999 have been presented in tabular form. The list of publications on the subject is very impressive but, in my opinion, could perhaps have been included in an appendix so as not to interrupt the flow and narrative of the book. The summary of failure categories was so revealing for me; I had not realised until reading through the book that there are at least as many, or perhaps even more cases of bridges failing in service than during construction.

The author has collected some really poignant points about failures and their causes in the book. I found these as relevant today as they were at the time they were made, for example the tale from the St Lawrence River Bridge, near Quebec, of the elderly chief engineer who never set foot on the construction site and who was obliged to work without assistants because of the low fee paid to him: how familiar!

Then there is the concept of “success syndrome”. By this the author means that the success of engineering structures can lead to the failure of later, apparently similar constructions, due to the disregard of parameters taken account of in the earlier structure. The example of the collapse of the Dee bridge, designed by Robert Stephenson, is a case in mind.

There is something for everyone in this book: failure during construction, failure of falsework, which is quite extensively covered in the book, and failures due to lack of maintenance, not forgetting of course the more dramatic failures due to seismic events. The book also covers, failure due to ship impact which, having seen the examples and photographs of them in the book, seem to me to be some of most spectacular ones. The good thing about this book is that the author includes some useful guidelines and conclusions in each section which an engineer could learn from and use in future.

The book is easy to read and one can follow the story being told, however, in places, it does read like a translation. There are plenty of diagrams and good photographs illustrating how failures have occurred. The statistical information is covered well in many tables and the many references would make an excellent starting point for researchers and engineers alike.

There are a few omissions of UK failures, but thankfully not many. I am not sure whether this is due to the lack of transparency or perhaps our coyness in this country about publicising failures to the extent that perhaps our continental colleagues do.

This book is not cheap at £70 but I cannot remember finding many interesting books written and dedicated totally about failures of bridges, so I think this one is well worth the money. I recall when I was an undergraduate having to do an assignment about failures of

bridges and could only find the Westgate bridge failure report. I spent quite a few weekends trying to understand the report. I only wish I had had a copy of Scheer's book available, it would have made my life much easier!

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