

Karl Culmann und die graphische Statik: Zeichnen, die Sprache des Ingenieurs

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Christine Lehmann, Bertram Maurer, 2006

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Once again, a work has been published in Germany on Karl Culmann (1821-81), one of the leading German and also internationally recognised scholars of structural engineering of the 19th century. But rather than the book which the title leads us to expect, this publication is not a dry, scholarly treatise, but an entertaining and exciting story of engineering!

Culmann, who worked in railway construction in Bavaria in his youth, created a sensation amongst specialists when excerpts from his travel diaries were published in 1851-52 in the *Allgemeine Bauzeitung* which described the building of wood and iron bridges in England and America and his theory of analysing truss constructions. This led to his appointment at the ETH [Eidgenössische Technische Hochschule] in Zürich in 1855, where, following his motto 'drawing is the language of engineering' he devoted himself in particular to the further development and dissemination of graphic solutions to problems of statics.

The authors Christine Lehmann and Bertram Maurer depict the life and work of Karl Culmann in the social context of his day with inventiveness and in a beautiful literary style. The book's content is based on years of research by Maurer. A mathematician, historian of technology and Germanist, Maurer published a 550-page dissertation *Karl Culmann und die graphische Statik* in 1998. This up-to-date, but distinctly shorter work was written together with his partner, the journalist and writer Christine Lehmann. This second publication on the engineer Culmann is consciously aimed at a wider readership.

Concise chapters with rapid changes of scene, a successful concentration on key points in Culmann's output, together with a wealth of marginal information and illustrations result in an entertaining read. The educational tours which the young Culmann made to England and America, then almost obligatory for ambitious German engineers, are analysed by the authors from the perspective of Jules Verne and his 'Journey around the World in 80 days'. They describe the origins of the graphical statics which Culmann taught at the ETH Zürich, explain the force diagram and also the basis of his theories of truss construction. However, equally they philosophise about the "destruction of space" through the introduction of steam-driven locomotives or wide-span glass and iron constructions, and strive to find a connection

between Culmann's graphical statics, Leonardo's theory of proportion and Cubist art. At the same time, they portray life in the 19th century, report on marriage and conversation at the dinner table, the first female students at the ETH Zürich and the consequences of the introduction of photography for painting. Through the interpretation of Culmann's travel reports, which far exceed mere technical documentation, the authors try to portray not only the engineer and his work, but Culmann the man. A clear list of sources and further reading is provided for those who are curious to find out more.

This biography has already been well received by the German specialist press. It may well interest not only technologists interested in history, but also potential future engineers. Perhaps it will even draw those aesthetes who stood enthused and amazed in front of a bold steel construction. For it is precisely here – outside the classic scholarly, technical historical description, a realm where technologists write about technologies for other technologists to read – that the potential of the interdisciplinary approach adopted by the authors lies. It is to be hoped that this story of engineering will also find interested readers outside the specialism, and that perhaps an English translation will follow.

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(translated by Elizabeth Robinson)