Kao Gong Ji: The World's Oldest Encyclopaedia of Technologies trans. by Guan Zengjian and Konrad Herrmann (review)

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is currently being revisited by thinkers such as Isabelle Stengers, Steven Shaviro, and Bruno Latour.

These artists were working in the context of the Cold War, using the master's weapons to dismantle the master's house, and the systems thinkers offered the means to understand the complex systems that governed the Cold War world. Many of the artists discussed were closely involved in the Peace Movement, and the urgency of the situation confronting them made their work very compelling. Filippone also shows how, even amid the Cold War with the imminent possibility of total destruction, they aimed to build, or at least to imagine, the idea of a feminist techno-utopia. Such a utopia would reject the "perfect world" model with its closed systems and be based instead on fluid boundaries and open systems.

The work of these artists comes from their own times and contexts, but also holds lessons for today, especially in light of the environmental catastrophe society is now witnessing. It is not just their engagement with technology and systems that offers models for current artistic practice, but also their utopianism. Utopias may be necessarily unrealizable in practice, but they can also offer a horizon of possibility—a sense that it is possible to imagine a future different from the one we seem doomed to endure. This act of imagination is something that artists are uniquely suited for. Christine Filippone is to be congratulated not just on an excellent work of scholarship, but also on a work that offers a template for future artistic activity. As such, it is an invaluable resource not just for the field of art history, but also for those thinking about how to respond artistically to our current crisis-ridden world.

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Charlie Gere is professor of media theory and history at Lancaster University. His latest book is *I Hate the Lake District* (Goldsmiths Press, 2020).

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Kao Gong Ji: The World's Oldest Encyclopaedia of Technologies

Translated and commented by Guan Zengjian and Konrad Herrmann.
Leiden: Brill and Shanghai Jiao Tong University Press, 2020. Pp. 222.

Kao Gong Ji (The artificers' record), the earliest Chinese book on technologies, probably written during fifth to fourth centuries BC, is widely known for the difficulties in understanding it. Except for Joseph Needham, who cited *Kao Gong Ji* extensively in his monumental *Science and Civilisation in China*, few scholars in the West have carried out systematic research on it. The first full translation in English appeared in 2013 under the title *Ancient Chinese Encyclopedia of Technology: Translation and Annotation of the Kaogong Ji*,

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translated by Jun Wenren. The publication of Guan Zengjian and Konrad Herrmann's full translation of *Kao Gong Ji* in both English and German is another valiant effort to do justice to this difficult and important text—and to promote global interest and research in ancient Chinese technologies.

Guan and Herrmann's book is composed of an introduction, the text, analysis-commentaries, and bibliography. The introduction provides a concise examination of three issues, namely extant editions of *Kao Gong Ji*, its historical background, and the location and period of its origin. While the discussion of the editions of *Kao Gong Ji* and its origin is informative for readers in understanding the transmission history of the text, the survey of its historical background seems somewhat superfluous, since that information can be easily found in general surveys on China's history.

The text comprises two parts, with Part One covering such sections as the manufacture of chariots, bronze weapons, measuring standards, and descriptions of the roles of associated craftsmen. Part Two includes other crafts and their craftsmen, such as the manufacturer of chimes, jade polishers, arrow tip manufacturers, potters, weapon carpenters, and construction workers. Compared to Wenren's book, which completely separates the English translation from the original classical Chinese text, the text in Guan and Herrmann's book is organized in sections, with each section comprising of the original text in classical Chinese, then the text translated into modern Chinese, English, and German in that sequence. This presentation provides readers with the great benefit of easily crosschecking a specific part of the text in different languages.

It is interesting to compare Guan and Herrmann's English translation with those by Needham and Wenren. Needham's translation put more emphasis on the meaning of the text, while Wenren clearly followed Needham's approach and directly adapted Needham's translation at many points in his book. However, Guan and Herrmann's translation exhibits their own style, which is featured by the translation of almost every sentence in their original order. As a result, Needham's translation appears more fluent, while Guan and Herrmann's translation is better in reflecting the original writing structure and mode of the presentation of arguments of the text.

The analysis-commentaries present some detailed discussions in English on ten major subjects, namely the manufacture of carriages, astronomy, bronze technology, bronze objects, metrology, musical instruments, jade, ceramics and porcelain, civil engineering, and the manufacture of bows. These discussions present a comprehensive review of previous studies that have been carried out over the past thirty years. For example, on the six formulas for bronze alloys, scholars have for decades debated over the explanation of the formula "金锡半(copper, tin one half)" for casting bronze mirrors. On the basis of previous studies, Guan and Herrmann have taken the ratio 2:1 as the formula for bronze mirrors, since "a desired silver-like colour of the alloy was achieved because of its high Sn content (ca.30%)" (p. 138).

The bibliography lists nearly all publications in Chinese related to *Kao Gong Ji*, in particular those of the past thirty years. They are organized into four groups: research papers, editions of *Kao Gong Ji* and related research works, master's theses, and doctoral dissertations. This helpful bibliography provides an essential starting point for any scholar who would like to pursue further research on *Kao Gong Ji* and issues related to it.

There are a few omissions and defects that need to be pointed out. In Part One: Introduction, the modern Chinese section is incomplete, and two major paragraphs are missing. A few figures are quite poor in both photo quality and content, such as Figures 6, 9, 44, and 47. Nevertheless, Guan and Herrmann deserve our appreciation for their remarkable efforts in making this excellent new translation of *Kao Gong Ji* available for a wide international readership.

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The English East India Company's Silk Enterprise in Bengal, 1750–1850: Economy, Empire and Business

By Karolina Hutková. London: Boydell Press, 2019. Pp. 275.

Karolina Hutková's book is a welcome addition to our understanding of technology transfer in colonial context and its wider consequences on the colony and the metropole. The book focuses on English East India Company's (hereafter EEIC) "silk enterprise" in Bengal from 1750 to 1850.

The book sits at the intersection of global history, history of technology transfer, and business history in the eighteenth century and beyond. The narrative reflects overlapping strands of these distinct historiographies. The introduction situates EEIC's silk enterprise in the wider debates about the role and impact of EEIC's policies on Bengal's economy—and the history of EEIC and British political economy. The first chapter is an overview of the early modern silk industry across the globe. It also contextualizes EEIC's silk enterprise in Bengal. Next, the book shows how Britain's inability to produce raw silk necessitated the search for potential sources of supply (ch. 2). This need, Hutková argues, was underpinned by principles of mercantilism. Consequently, Britain preferred a region within their expanding empire. Bengal