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Landscapes of Technology Transfer

Swedish Ironmakers in India 1860–1864

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ABSTRACT

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In the early 1860s three Swedes, Nils Wilhelm Mitander, Julius Ramsay and Gustaf Wittenström, were engaged by the British to build and run charcoal-based ironworks in India. These works, the Burwai Iron Works of the British Government in the case of Mitander and the privately owned Kumaon Iron Works in the case of Ramsay and Wittenström, were both to be based on the most modern European technology. The projects were pioneering in Indian ironmaking. The ambitions were high and stakes big, but after only a few years the projects were closed and the Swedes returned home. *Landscapes of Technology Transfer* presents a detailed study of the Kumaon and Burwai Iron Works, from their first conception to their final closure. The investigation is basically empirical and a fundamental question is: Why were the works never brought into full and continuous production?

The ironworks projects should be considered as *processes* of technology transfer rather than fully fledged and *completed* transfers. In spite of this lack of success, or maybe because of it, the history of the ironworks and the Swedes also forms a fruitful case to put other questions of wide relevance. It exposes workings and effects of colonialism and offers an explanation of the late development of India's iron and steel industry and analyses of the complex totality forming the prerequisites for a successful transfer of technology. The long traditions of bloomery ironmaking in India and its marginalisation is also discussed.

Landscapes of Technology Transfer is a comprehensive empirical study. From a local and individual perspective it traces lines of connection across boundaries of time and geography. The historical landscapes of technology transfer are described in their cultural, social, economic and political dimensions and the thesis underlines the importance of a close acquaintance with local settings and conditions, where history is manifested in a physical presence. The remains of the ironworks and their local landscapes in present-day India are used as a central source for

writing their histories. There is also a strong emphasis on the use of photographs and drawings as sources.

The outcome of the projects was the result of the interplay between the local and the global, between a diversity of concrete factors influencing the construction of the works and their running and their colonial character. The study emphasises the importance of technological systems and networks, both on a micro and a macro level. On a local level demanding logistics, a sometimes adverse climate, the procurement of charcoal and iron ore in sufficient quantities and the build up of knowledge of ironmaking posed serious but not insurmountable difficulties. Most obstacles were overcome already during the first few years of the 1860s, the period of the Swedes, but to put the works into full and continuous production would have needed perseverance and purposeful efforts to support and protect the iron production, at least during an initial period. In the end the position of India as a colonial dependency, subjected to the primacy of British interests, set the limits of the projects.

Key words: History of technology, industrial heritage studies, industrial archaeology, technology transfer, diffusion, technological systems, landscapes of technology, iron and steel, charcoal iron, direct and indirect ironmaking, bloomeries, 19th century, industrial history, industrialisation, de-industrialisation, underdevelopment, colonialism, India, Sweden, Great Britain, global history, annales.

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