

Far Eastern Vacuum and Electricity: Augustin Hallerstein and Experimental Correspondence between Beijing and Europe

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Abstract

Hallerstein's astronomical excellence was widely recognized recently. As one of the prominent scientist attached to the Chinese Imperial Court, he was involved in other types of research besides astronomy, but his authorship was not always obvious amidst the Jesuits' collective work. Besides astronomical observations the Beijing Jesuits also provided early electricity experiment, which enabled Volta's inventions of the electrophorus and battery. The development of such devices paved the way for electrical observations that were longer in duration than the quick ones conducted with the Leyden jar. The scientists urgently needed a new approach because they wanted to know the process responsible for an interesting electrical spark. Electric experiments became fashionable in European high society meetings, as vacuum pumps had somewhat earlier. Both innovations were introduced to the Chinese court in Hallerstein's time, but never garnered the same amount of interest as Western astronomy did. One reason for the Chinese indifference was the nonexistence of a wider technical use for vacuum or electricity during Hallerstein's lifetime. Ingenhousz and other physicians educated in Leyden eventually developed a broader use of electricity in countries considered somewhat scientifically backward, such as Hallerstein's native Habsburg monarchy and Japan.

Key words: Hallerstein, Ingenhousz, Jesuits, Electrophorus, Air Pumps

1. Introduction

The Baron Augustin Hallerstein was born in Ljubljana where he finished philosophical studies. He joined the Jesuit order following the example of his mother's relatives. The Jesuit habit was almost unique opportunity to visit China where Hallerstein worked during the second half of his life.

After learning the scientific trade as Ignatius Kögler and André Pereira's assistant in Beijing, Hallerstein published extremely accurate astronomical observations¹ in various influential European centers.² He cooperated closely with both Jesuit groups in Beijing

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¹ Lu, Shi, 2003, 290. The content of the present paper is largely based on Južnič, 2003.

² Lu, 1997, 336.