

Seminar SAW

Exploring 19th and 20th centuries historiographies of mathematics in the ancient world, 2015-2016

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Comparisons between Tianyuan, Siyuan Procedures and Algebra Drawn by Wylie and Li Shanlan

Abstract – Alexander Wylie (1815~1887) was an British protestant who arrived in China in 1847. By collaborating with Chinese mathematician Li Shanlan (1810~1882) and translating Augustus De Morgan's (1806~1871) *Element of Algebra*, Wylie first introduced the modern symbolic algebra from the West. Apart from this important work, he wrote the "Jottings on the Science of the Chinese. Arithmetic" and some other works, in which he drawn the comparison between the history of algebra in Western and Chinese mathematics in the Song and the Yuan Dynasties (960-1368). This article compares "Jottings", English and Chinese Prefaces to the translation of the *Element of Algebra* and other documents in English, meanwhile, examines Chinese mathematical books collected by Wylie. Influenced by the Society for the Diffusion of Useful Knowledge and its publications, Wylie obtained a perspective of knowledge about Western algebra and its history from the articles written by De Morgan in *Penny Cyclopaedia*. For the mathematics in the Song and the Yuan Dynasties, Wylie mainly employed Yi Zhihan and Luo Shilin's *Interpretation on the Rule of Four Sources* 四元釋例, therefore he understood the characteristics in the "method for extracting roots using addition and multiplication", "procedure of Celestial Origin" (天元術 Tianyuan shu) and "procedure of Four Origins" (四元術 Siyuan shu). This understanding was the key with which Wylie's comparison could be drawn much deeper. Wylie's view on the history of mathematics was also influenced by De Morgan and other British historians: the historiographical goal was focusing on the practical use in the understanding and studies of mathematic knowledge and the transmission of Christianity at present, which embodies in some of Wylie's mathematical translation works after the "Jottings".