

CHINESE ARITHMETIC IN THE EYES OF A BRITISH MISSIONARY AND CALCULUS IN THE EYES OF A CHINESE MATHEMATICIAN COLLABORATION BETWEEN ALEXANDER WYLIE (1815–1887) AND LI SHAN-LAN (1811–1882)

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ABSTRACT

This workshop, which supplements and complements a presentation by the same authors titled “On Alexander Wylie’s *Jottings on the Science of the Chinese Arithmetic*”, will focus on several works of Wylie and Li Shan-lan. Through working together on relevant passages taken from these and related primary sources we try to see how equations were treated in traditional Chinese mathematics in comparison with Western techniques and how nineteenth century Chinese learnt calculus as a newly introduced subject with new symbols and terms to be translated and coined. We would also try to see whether we can relate the study to the modern context, especially in the classroom context.

Keywords: Alexander Wylie, Li Shan-lan, algebra, calculus, mathematics in the 19th century

1 Introduction

Starting from August of 1852 the British Protestant missionary and sinologist Alexander Wylie (1815–1887) published in nine instalments an account *Jottings on the Science of the Chinese Arithmetic* in the English weekly newspaper *North China Herald* published in Shanghai, which was later reprinted in *Chinese Researches* (Wylie, 1897/1966, pp. 159–194). In this account he critically examined Chinese mathematics which most European sinologists of the 18th and 19th centuries held in low regard owing to their limited knowledge of it.

Alexander Wylie was also a well-known figure in the last quarter of the Qing Dynasty for his contribution in transmitting Western science into China during the latter half of the 19th century. In particular he introduced Western algebra and calculus into China by translating in collaboration with the Qing mathematician Li Shan-lan (1811–1882) *Daishuxue (Treatise of Algebra)* (Wylie and Li,

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1859a) (based on *Elements of Algebra* by Augustus De Morgan in 1835) and *Daiweiji Shiji (Analytical Geometry and Differential and Integral Calculus Step by Step)* (Wylie and Li, 1859b) (based on *Elements of Analytical Geometry and of the Differential and Integral Calculus* by Elias Loomis in 1850). Before translating these books in collaboration with Li, Wylie compiled a book titled *Shuxue Qimeng (Compendium of Arithmetic)* (Wylie, 1853). This workshop will focus on these several works of Wylie and Li. Through working together on relevant passages taken from these and related primary sources we try to see how equations were treated in traditional Chinese mathematics in comparison with Western techniques and how nineteenth century Chinese learnt calculus as a newly introduced subject with new symbols and terms to be translated and coined. We would also try to see whether we can relate the study to the modern context, especially in the classroom context. A worksheet with problems and reading material from the primary sources will be prepared by the authors and distributed in the workshop.

2 Problems and Passages (Worksheet)

A workshop aims at interactive discussion on the spot, so it is not possible to write up a report on the proceeding when this paper is to be submitted five months before the actual workshop will take place. Selected problems and passages from the primary sources (see the references) will appear as a worksheet distributed to participants in the workshop.

REFERENCES

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