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Science, Technology and Medicine between the Global and the Local

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ICHM Co-Sponsored Symposium

079. Mathematical Methods at Work in Ancient China⸺Local Applications with Global Connections

Organized by Joseph W. Dauben (USA), GUO Shuchun (PRC),

HORNG Wannsheng (Taiwan), and ZOU Dahai (PRC)

The organizers of this special session devoted to the history of Chinese mathematics initially invited some thirty individuals to participate in the Rio Congress, and we received affirmative replies from twelve accepting our invitation. Of the twelve who sent us provisional titles, six later submitted official abstracts, of which four registered for the Congress. Of these, two withdrew begore the Congress began, and did not attend the Rio Congress. In the end, there were two papers presented in this Symposium co-sponsored by the ICHM. Despite the regrettable inability of many who had indicated their interest to actually attend this congress, the session itself attracted a reasonable audience and generated a substantial amount of discussion.

The following two papers were delivered in Rio de Janeiro on July 26, 2017, 10:30–12:00 noon. There were approximately thirty people who attended this session of the congress program, and both papers stimulated a good deal of discussion. They are presented here in the order in which they appeared on the congress program:

The Peking University Mathematical Bamboo Document 鲁久次问数于陈起
(Lu Jiuci Asks Chen Qi About Mathematics).
Global Significance of Rationales in Ancient Chinese Texts for Doing Mathematics

Joseph W. Dauben, City University of New York, USA

The recently published Beida Mathematical Bamboo Document, 鲁久次问数于陈起 Lu Jiuci wen shu yu Chen Qi (Lu Jiuci Asks Chen Qi About Mathematics), presents a dialogue between a master of mathematics, 陈起 Chen Qi, and a student, 鲁久次 Lu Jiuci. This may in fact have been meant as a preface to the substantial amount of mathematical material also found among the Beida bamboo strips acquired by Peking University in 2010. What the dialogue "Lu Jiuci Asks Chen Qi About Mathematics" raises are some very intriguing questions about the status of mathematics in ancient China and the relationship of the Beida material to other mathematical works that have also only recently come to light, like the bamboo slips also concerning mathematics that were excavated in 1983–1984 at a Western Han Dynasty tomb site near Zhangjiashan in Hubei Province, namely the 算數書 Suan shu shu or Book of Numbers and Computations. Another set of bamboo slips important for comparison's sake with the Beida slips are those acquired by the Yeulu Academy in 2007, including a mathematical work, simply entitled 數 Shu or Numbers. Direct comparisons with the LuChen dialogue may also be made with

the introductions and dialogues to be found in such later texts as the Zhoubi suanjing, the Jiuzhang suanshu, and the Sun Zi suanjing. In these, the student laments his inability to understand numbers and computations and then asks for guidance. What sets the Beida dialogue apart from the others is that the student, Lu Jiuci, admits that he has studied both classical literature and mathematical computation, but cannot thoroughly master them both, and then asks the master Chen Qi which of the two is most important? Chen Qi's answer, and its implications in the comparative context of ancient mathematics East and West will be the subject of this presentation.

Key words: Mathematics, Ancient, China, Peking University, Chen Qi

A Study of Japanese Mathematical Arts Kept at National Taiwan University and Prof. Heizaemon Kato

Shigeru Jochi, Osaka Kyoiku University (Osaka University of Education)
Bowen Liu, National Kaohsiung First Univ. of Science and Technology

In 2004, 5553 volumes of Chinese books, 2744 volumes of Japanese books and 1256 volumes of Modern Japanese books of Taihoku (Taipei) Imperial University were found at the Hall of the College of Liberal Arts, National Taiwan University. And about 510 books are Wasan (Japanese mathematics and astronomical science) collections. It must be the biggest Wasan collection in the oversea of Japan. It was said that the biggest Wasan collection in America is the Library of Congress. It has 404 books for Wasan, which were the librarian, Honda Shojo (1929-2015) collected. The collections of National Taiwan University, however, were collected by prof. Kato Heizaemon (1891-1976), former professor of Taihoku Imperial University and Taihoku High School, who is the famous Wasan researcher. Prof. Kato Heizaemon graduated the department of mathematics, Tohoku Imperial University, which is one of the center of Wasan studies in Japan. Therefore Kato Heizaemon already studied Wasan, and collected Wasan books systematically. He bought Wasan books of Sekiryu school, then bought books of Saijo-ryu school, that is to say, this collection has quite good quality. Prof. Kato Heizaemon bought Wasan books since 1938, then these books must become the basement of his Wasan studies. Actually he published the Wasan no Hoteishiki-ron in 1943 at Taipei, which is the core of his lifework of Wasan no Kenkyu since 1954. And prof. Kato Heizaemon's first work of Wasan of "Wasan no Gyoretsu-shiki Tenkai nitsukiteno Kento" was already published on the Tohoku Sugaku Zasshi in 1939.

Key words: National Taiwan University; Wasan-sho (Japanese Mathematical Arts); Kato Heizaemon