

**SCIENCE, TECHNOLOGY AND MEDICINE IN EAST ASIA, 1850-2000**  
YOUNG SCHOLARS' WORKSHOP

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**Université Paris Diderot**

Building Condorcet, 4 rue Elsa Morante,

Room 483A Malevitch (a.m.) – 646A Mondrian (p.m.) (4th and 6th Floor)

PROGRAMME

- 9:30 Marion Cousin (Université de Lyon 1)  
*The introduction of Euclidian geometry in Japanese education: mathematical language and logical reasoning in textbooks during Meiji era (1868-1912)*
- 10:30 Aleksandra Majstorac Kobiljski (Needham Research Institute, Cambridge)  
*Reading the Image: Technical Drawings and the Writing of the History of Technology in Modern Japan*
- 11:30 Coffee Break
- 12:00 Leon Antonio Rocha (Emmanuel College, Cambridge)  
*"The spirit of this sexology, how could the pedantic scholars be able to see its essence?" Ye Dehui 葉德輝 (1864-1927)'s The Shadow of the Double Plum Tree Anthology (Shuang mei jing an congshu 雙梅景閣叢書, 1903-1914)*
- 13:00 Lunch
- 14:30 Stéphanie Homola (EHESS, Paris)  
*Standing for Chinese science through 20<sup>th</sup>-century France and China: Liu Zihua and the "Cosmology of the eight trigrams"*
- 15:30 Coffee Break
- 16:00 Jiří Hudeček (Chiang Ching-kuo International Sinological Centre, Charles University, Prague)  
*What kind of independence? Competing visions of the development of mathematics in twentieth century China*

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### **The introduction of Euclidian geometry in Japanese education: mathematical language and logical reasoning in textbooks during Meiji era (1868-1912)**

The political context in East Asia in the middle of the 19th century made the Japanese authorities realize that, (among other things) they had no choice but to introduce Western technology on a massive scale. This was needed to aid development and to be considered as an equal by other major nations. As a result, in 1872 they ordered that all mathematical courses were to be based on Western theories rather than on traditional practices (*wasan* 和算, practices that were very popular at that time) and that new textbooks had to be produced.

In geometry, the situation was quite unusual, as this way of reasoning and the nature of the objects were completely new for the Japanese. Moreover, as the Euclidean deductive method had been established for a long time in Western culture, foreign textbooks used by Japanese translators sometimes did not take the time to present its basic characteristics.

In this presentation, I shall discuss the evolution of the first geometry textbooks, focusing on this question of logical reasoning. I show that, with the diversification of foreign textbooks taken as reference works, and with the evolution of the authors' education and activities, several efforts were made, especially in terms of language, to present textbooks where logical relations between statements were clear and where the characteristics of Euclidean form were made explicit and brought to the fore.

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### **Standing for Chinese science through 20<sup>th</sup>-century France and China: Liu Zihua and the “Cosmology of the eight trigrams”**

Liu Zihua 刘子华 (1899-1992) was one of the 1500 Chinese students who were sent to France between 1919 and 1921 as part of the Diligent Work and Frugal Study Movement (*qingong jianxue* 勤工俭学). In 1940, he completed a PhD thesis at the Sorbonne on “The Cosmology of the Eight Trigrams and Modern Astronomy”, in which he stated the discovery of a tenth planet in the solar system following an “analogical reasoning” which combined modern astronomy and the numerology of the *Book of Changes* (*Yijing* 易经). Sinologist Henri Maspero, member of the board of examiners, put this work in the context of Confucian scholars who, in the 17<sup>th</sup> century and again in the middle of the 19<sup>th</sup> century, faced the challenge of Western science by claiming that it was already contained in the Chinese Classics. When Liu went back to China in 1945, his constant efforts to win recognition first came up against nationalist and communist anti-traditionalism but were eventually integrated in the intellectual and cultural revival of the 1980s.

This individual case study, based on historical sources, first aims at contributing to more general studies of the Work-Study Movement from the last 30 years. Second, I also rely on anthropological fieldwork to show that Liu is an emblematic figure of the cultural upheaval caused by the introduction of modern Western categories of science, philosophy, religion and superstition at the beginning of the 20<sup>th</sup> century. Liu's story gives us a concrete example of the changing status of knowledge and practices related to the *Yijing* in Chinese society. As they lie at the crossroads of various disciplines, such knowledge and practices emphasize the inadequacy of Western categories of knowledge and provide a relevant frame to call for genuine Chinese categories. Thus, they shed light on the shaping of scientific and academic standards in China and on the connection between the traditional literary scholar and the contemporary "amateur scientist".

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### **What kind of independence? Competing visions of the development of mathematics in twentieth century China**

In the 1940s, prominent young Chinese mathematicians became dissatisfied with the derivative research and teaching patterns prevalent in Chinese mathematics due to its reliance on students randomly educated abroad. They sought to establish China's own mathematical culture, based on a local research agenda. First such attempt was the research team led by Chern Shiing-shen 陳省身 (1911-2004) at the Preparatory Institute of Mathematics, Academia Sinica (*Zhongyang yanjiuyuan shuxue yanjiusuo choubeichu* 中央研究院數學研究所籌備處) in 1946-7, with a concentrated focus on algebraic topology. After 1949, the independence of Chinese mathematics became tied to the ideological requirements of anti-imperialist struggle, socialist construction and later "independence and self-reliance". Chern's earlier model was criticised as too narrow and superseded by a consensus forged by Hua Loo-Keng 華羅庚 (1910-1985), that China should rapidly establish research groups in all important fields of modern mathematics, especially the under-developed applied branches. But this in effect again encouraged follow-up work rather than innovation, and was challenged by radicals during the Great Leap Forward. Led by Guan Zhaozhi 關肇直 (1919-1982), they advocated concentration on topics directly relevant to China's internal needs as a guarantee of both independence and relevance of mathematics. In this paper, I focus on the sometimes bitter debates between these two views recorded in their public pronouncements as well as internal documents of the Institute of Mathematics of the Chinese Academy of Sciences (*Zhongguo kexueyuan shuxue yanjiusuo* 中國科學院數學研究所). I show how despite the shared goal of breaking the circle of dependency, and many common views on how to proceed, Chinese mathematicians managed to create a split in their ranks, gradually reinforced by the divisive politics of the Mao Zedong era as well as personal ambitions.

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### **Reading the Image: Technical Drawings and the Writing of the History of Technology in Modern Japan**

What happens when we treat drawings as sources of information not as means of illustrating? For engineers, technical drawings and blueprints are essential tool of communication in the process of design and execution of industrial installations. As such they are every bit as important as narrative sources for the stories historians want to tell. Yet, we are trained to decipher words, not read between lines on blueprints. In love with words, we are not always as well versed in the art of looking. This paper will examine the methodological issues raised by this genre of sources in the context of a specific example: the private archive of Shimomura Kōtaro 下村孝太郎 (1863-1937), a chemical engineer working in the turn of the century Japan. The paper focuses on issues of distinction between drawings used in development and those employed in execution of an installation. It will argue that close attention to technical drawings, far from being pedantic, can change stories we were told and the ones we tell.

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### **“The spirit of this sexology, how could the pedantic scholars be able to see its essence?” Ye Dehui 葉德輝 (1864-1927)’s *The Shadow of the Double Plum Tree Anthology* (*Shuang mei jing an congshu* 雙梅景閣叢書, 1903-1914)**

This paper analyses the *Shadow of the Double Plum Tree Anthology* (*Shuangmei jing'an congshu* 雙梅景閣叢書, 1903-1914), compiled by the Hunanese literatus Ye Dehui 葉德輝 (1864-1927). This was a curious collection of texts, containing reconstructions of treatises on Daoist alchemical practices, specifically those concerning sexuality and immortality from the Han to Tan Dynasties. These texts, for instance, *The Classic of the Plain Girl* (*Sunü jing* 素女經), discussed sexual pleasure, the cultivation of “essence” (*jing* 精), the maintenance of health and attainment of longevity. Ye Dehui reconstructed these texts from the fragments recorded in the *Ishinpō* (医心方), the oldest surviving medical work from tenth-century Japan. Ye’s motivation to publish the anthology was to resist Western science and medicine. He argued that the “Art of the Bedchamber” (*fangzhong shu* 房中術) described in these early Chinese texts were absolutely superior to Western inquiries on sexual behaviour, and that they anticipated eugenics and birth control. Ye wanted to recreate and put back into circulation a canon of “Chinese sexology”. Ye’s case illuminates the operations of Sino-Japanese book-collecting networks, as well as crucial questions on translations and creative appropriations. The paper ends with a consideration of the subsequent reception and afterlife of *Shadow of the Double Plum Tree Anthology*, which became an important source to Western Sinologists including Joseph Needham and Robert van Gulik. Traces of Ye Dehui’s endeavour could now be found in all sorts of popular texts promoting Chinese “erotic practices”.