

Workshop SAW

Writing histories of ancient mathematics - Reflecting on past practices and opening the future, 18th-21st centuries

organized by Karine Chemla, Agathe Keller, Christine Proust
and the SAW group

Université Paris Diderot Condorcet Building - Room 483A - 9:30 am to 5:30 pm
<https://sawerc.hypotheses.org/workshops/writinghistancmath-septoct16>

September & October 2016

Programme

September 6, 2016 - Which mathematics was used to read ancient texts, and which impact had this on the reading and interpretation of the ancient texts?

with

Pierre Chaigneau (ERC Project SAW & SPHERE - Université Paris Diderot)

Baptiste Mèlès (Archives Henri Poincaré, France)

ZHOU Xiaohan (ERC Project SAW & SPHERE - Université Paris Diderot)

From the 18th century onwards, ancient mathematical documents from Mesopotamia, China, and the Indian subcontinent have been read in Europe, in America, and in Asia, in the context of different mathematical cultures. How has this phenomenon affected the interpretation of the documents and the way in which history of mathematics was written, this is the question that will be addressed during this workshop. Pierre Chaigneau and Baptiste Mèlès will tackle it, by presenting a corpus of articles and documents illustrating the benefits and losses deriving from using mathematical formulas to account for ancient procedures. Célestin

Xiaohan Zhou will focus on 19th and 20th centuries reading of three sections of the *Siyuan Yujian*, the mathematical monograph completed by Zhu Shijie in 1303. He will compare how Qian Baocong (1892-1974) and Li Yan (1892-1963), among others, used modern symbols and formulas to interpret Zhu's text, and then compare this reading with the treatment of the same ancient texts by scholars from the Qing dynasty, who used different ways of interpreting the same procedures.

September 13, 2016 - Facets of cultural histories of mathematics

with

Karine Chemla (ERC Project SAW & SPHERE – CNRS & Université Paris Diderot)

Martina Schneider (ERC Project SAW & Universität Mainz, Germany)

Eric Vandendriessche (SPHERE – CNRS & Université Paris Diderot)

In the 19th and the 20th centuries, historians, anthropologists, philosophers, and also historians and philosophers of mathematics have used concepts of “peoples”, “nations”, “cultures” as key concepts for their work. This session of the workshop will examine how these concepts circulated from one field to the other, which meanings were given to them. It will also focus on the part played by mathematical knowledge and practices in these scholars’ views of “peoples”, “nations”, and “cultures”. Finally, it will address the issue of the impact such conceptual frameworks had on the projects pursued by historians and philosophers of mathematics, and on the facts of mathematical knowledge and practices on which they focused.

September 20, 2016 - Historiography of mathematics and the astral sciences in China in the 19th century : Editing, Writing Histories, and defining “Chinese practices”

with

CHEN Zhihui (ERC Project SAW & SPHERE – Université Paris Diderot)

TIAN Miao (IHNS, Chinese Academy of Sciences, Beijing)

The session will focus on the historical work Chinese scholars and protestant missionaries like Alexander Wylie carried out in China on mathematics and astral sciences of the past between the end of the 18th century and the end of the 19th century. After mathematical texts of the past were found, we will examine how Chinese practitioners worked on these texts, and in particular how some of them set to define new mathematical practices, coined “Chinese”. Moreover, we will analyze how Wylie carried out work on ancient astronomical data he gathered from Chinese sources. The questions we have in mind are the following: How did Wylie combine ancient and modern works to study these data? How

was his practice of research influenced by, and also different from, previous work carried out by predecessors in Europe on these issues? Which historical conclusions did he draw from these data? How did his results on the eclipse records influence subsequent sinological studies?

September 27, 2016 - The history of ancient mathematics in relation to its uses: the case of the classroom, around David Eugene Smith

with

Magali Dessagnes (ERC Project SAW & SPHERE – Université Paris Diderot)

Christine Proust (ERC Project SAW & SPHERE – CNRS & Université Paris Diderot)

Charlotte De Varent (ERC Project SAW & SPHERE – Université Paris Diderot)

Catherine Singh (SPHERE – CNRS & Université Paris Diderot)

David Eugene Smith (1860-1944), a mathematician, educator, collector, editor, and historian of mathematics, appears to be a ubiquitous protagonist of the historiography of ancient mathematics. His name is associated with the main projects that were developed in the early 20th Century in the United States for popularizing Sanskrit, Chinese, and cuneiform sources for teaching purposes. He promoted mathematics education as an independent academic field (he participated actively in the creation of the International Commission on Mathematical Instruction, and was its second president after Felix Klein). This session will examine the impact of David Eugene Smith on the historiography of mathematics, and his pioneering role in the promotion of history in mathematics education. In particular, we will consider to which extent Smith's views on the history of arithmetic are influential at the present day in historical and educational practices, and at the same time, how his global approach of the history of mathematics was forgotten.

October 4, 2016 - De Morgan and his impact on historiographies of ancient mathematics in China and India

with

Karine Chemla (ERC Project SAW & SPHERE – CNRS & Université Paris Diderot)

Martina Schneider (ERC Project SAW & Universität Mainz, Germany)

and

An article by **Adrian Rice** (Randolph-Macon College Ashland, Virginia, USA) to be discussed in absentia

Through his mathematical books and also his writings on the history of mathematics, Augustus De Morgan (1806-1871) played a major role in the mathematical knowledge introduced in China and the Indian subcontinent. Alfred Zhihui Chen has established that De Morgan's ideas on the history of mathematics, as well as the pieces of information he

gleaned from various publications on the topic, also played an important part in shaping ideas about the history of mathematics in China and its position in a global history of mathematics. More precisely, Chen established how De Morgan's notices for the *Penny cyclopaedia* were the main sources of Wylie's 1852 *Jottings on the Arithmetic of the Chinese*, a work that had a tremendous impact in Europe. The session will examine De Morgan's work on the history of mathematics in greater detail. It will also further analyze the reception of Wylie's *Jottings* through an examination of the context, and also the ways, in which this publication was "translated" into German, and then French in the 1850s and 1860s. Ulrich Libbrecht had already emphasized how this process of reception left an imprint on views that took shape in Europe about the history of mathematics in China. We intend to analyze this process in greater detail.

October 11, 2016 - Aspects of the historiographies of algebra in ancient China and India

with

HAN Qi (IHNS, Chinese Academy of Sciences, Beijing)

Agathe Keller (ERC Project SAW & SPHERE – CNRS & Université Paris Diderot)

From the 18th century onwards, European orientalists, historians of mathematics or philosophers were interested in what they perceived as a knowledge of algebra testified by texts in Arabic, Chinese and Sanskrit. How did they have access to these texts? With what ideas of algebra did they read these texts? How were categories such as "symbolism", "equations", "systems of equations", "unknowns" elaborated in relation to these texts? How was indeterminate analysis treated in this respect? Was it considered an algebraical practice? These are some of the questions we will tackle through specific case studies.

October 18, 2016

Part 1: De Morgan and his impact on historiographies of ancient mathematics in China and India... continuing

with

Dhruv Raina (Jawahar Lal Nehru University, Delhi)

Following the session held on October 4, the first part of this workshop day will be devoted to a Marathi translation of De Morgan's *Elements Algebra*, and a collective reading of (a translation of) the preface / introduction to this translation, reflecting on how it uses the history of mathematics.

Part 2: Aspects of the historiographies of ancient astral sciences

with

John Steele (Brown University, USA)

HIROSE Sho (ERC Project SAW & SPHERE – Université Paris Diderot)

The historiography of ancient astral sciences raises questions that echo, to a certain point, those raised by the historiography of mathematics. For instance, how were the corpuses that will be the basis of further histories shaped during the 19th century? In which way did such a shaping influence the way histories of astral sciences were written? Further, how were mathematical practices dealt with in relation to astral sciences? What preconception of the use of geometry and arithmetic influenced the way ancient astral sciences were read?
