

# The 2015 History of Science Society Annual Meeting in San Francisco

Symposium on Saturday November 21

## Historical and theoretical approaches to comparison in the history of ancient science

**Organizer:** Karine Chemla (ERC Project SAW & SPHERE UMR 7219, CNRS & University Paris Diderot)

**Chair and commentator:** Mark Czikszenmihalyi (Professor and Eliaser Chair of International Studies, East Asian Languages + Culture Department, University of California at Berkeley)

### Presentation

In the 19<sup>th</sup> and 20<sup>th</sup> centuries, comparison has been a key operation in the history of ancient sciences like mathematics, the astral sciences, and medicine. Comparisons have become all the more widespread that Sanskrit, Chinese, and, later, Cuneiform documents have become available from the 18<sup>th</sup> and mainly the 19<sup>th</sup> century onwards, evidencing scholarly activities in the ancient world more widely. However, contrary to what has happened in the larger field of history, in the humanities or in biological sciences, comparison as it has been practiced in the historical approaches to ancient sciences has not been *as such* the object of a critical, let alone historical inquiry. The symposium intends to explore these questions. We will examine how comparisons were carried out in this domain, and by whom. What were the *comparanda*, and how did practitioners of history shape them? In particular, how did comparison carried out in other fields inspire or shape comparisons in the history of ancient sciences? We also intend to focus on what motivated these comparisons, and which conclusions were derived from them. Finally, we want to analyze how comparison has informed ways in which historical accounts were written, and how we can assess the impact of such comparisons on historiography more widely and beyond, on other academic disciplines. In brief, our intention is to begin identifying various uses and practices of comparison in the history of ancient sciences, the related social contexts, as well as their wider consequences.

## Speakers

**Michael Nylan** (History Department, University of California at Berkeley)

**Title:** Translating Chinese Concepts into European Models

**Abstract:** Michael Nylan proposes to assess the unfortunate history, from the eighteenth century onwards, of adapting European terms to Chinese usages in the sciences. Two in particular interest her: talk of "correlative thinking" and the discourse of the Five Elements. The former, used to categorize a host of supposedly more "primitive" ways of conceiving the world, in China and beyond, occludes one of the most distinctive approaches of Chinese scientific thinking: resonance theories relating to *qi*. The latter does great damage to the phase energetics that is fundamental to longstanding traditions of astronomy, medicine, and cultivation of the body and psyche in pre-modern China. Moreover, comparing Chinese traditions with EuroAmerican writings shows us a different (and in some ways more thrilling) mode of reasoning.

**Lisa Raphals** (University of California Riverside (Chinese and Comparative Literature))

**Title:** Comparative Views of Human Taxonomies

**Abstract:** Human taxonomies of the "temperaments" or "characters" of Western and Asian peoples informed a broad range of thinking from the 18th through 20th centuries, including medicine and the young disciplines of psychology and sociology. This paper examines comparative views of human taxonomies in ancient medical texts, texts on the selection of individual talent, and 18th through 20th century accounts. Part 1 briefly frames the pre-19th century background in the taxonomies of Francois Bernier (1625–1688), Carolus Linnaeus (1707–1778) and the discussions of China by Immanuel Kant (1724-1804), and 19th century discussion by Georg W F Hegel (1770-1831) and John Stuart Mill (1806-1873). Part 2 contrasts these accounts with human taxonomies in ancient Chinese and Greek sources, with particular attention to accounts of European and Asian peoples, flora and fauna in the Hippocratic text "Airs Waters and Places," accounts of "barbarians" by Herodotus and Aristotle, accounts of human difference in the Chinese medical Classic *Huangdi neijing*, and the rhetoric of human taxonomies in such texts as Liu Shao's 劉劭 (+3rd century) *Ren wu zhi* 人物志 (Treatise on Human Abilities) and the evidence of excavated texts. Juxtaposing the modern and ancient evidence helps us ask how comparisons were carried out, by whom and for what intellectual and social purposes. These taxonomies are important because, in both ancient societies and in the modern world, they inform a wide variety of practical assessments of human nature(s) and human abilities.

**Karine Chemla** (ERC Project SAW & SPHERE UMR 7219, CNRS & University Paris Diderot)

**Title:** Comparisons in early historiographies of mathematics in ancient China

**Abstract:** Edouard Biot (1803-1850) was probably the first professional sinologist outside East Asia to devote several articles and memoirs to mathematics and astral sciences in ancient China. He was soon followed by Protestant missionary Alexander Wylie (1815-1887), whose English publications on the topic had a significant impact in Europe. By contrast with the former, who had no opportunity to travel to China, the latter was based in Shanghai and had close contacts with Chinese scholars actively involved in the historical analysis of Chinese mathematical documents from a past that had been recovered only a few decades earlier. A few decades later, Mikami Yoshio (三上 義夫, 1875-1950), who cooperated with David Eugene Smith (1860-1944), and the Jesuit Louis Van Hée (1873-1951) both published extensively on the history of mathematics in ancient China. These various scholars had entirely different backgrounds, and they all played major roles in shaping images of mathematics in ancient China that became widespread in East Asia, Europe and North America. The purpose of this presentation is to show the various ways in which comparison informed their historical writing about mathematics in ancient China. I examine, in particular, how comparison is at play in the topics they emphasize and in their tools of analysis of Chinese sources. I also describe the types of *comparanda* each of them considered, how their writings dealt with these *comparanda*, and how these facets are correlated with the nature of the conclusion they drew.

**Ivahn SMADJA** (Université Paris Diderot – Sorbonne Paris Cité, Laboratoire SPHERE, UMR 7219 CNRS, F-75205 Paris, France & ERC Project SAW)

**Title :** History of Mathematics, the Crisis of the European Sciences and The Humboldtian Tradition

**Abstract:** This paper explores how different responses to the crisis of the humanistic sciences in the 1930s hinged upon different conceptions of history of mathematics. Distinctive positions in the German intellectual field at the time will be shown to reflect alternative ways to deal with tensions previously generated by the attempt to meet the challenges posed by comparisons between cultures in mathematics.

On the one hand, the editors of the pioneering series *Quellen und Studien zur Geschichte der Mathematik* (1929-1936), the mathematicians Otto Neugebauer and Otto Toeplitz, and the classical philologist and philosopher, Julius Stenzel, envisaged history of mathematics as a way to « bridge the gap between the so-called humanistic sciences and the apparently so unhistorical 'exact sciences' ». On the other hand, Edmund

Husserl concurrently dismissed what he termed « romantic » factual history, presumably fascinated with extra-European mathematics, in favor of some kind of « inner history », opposing the Greek breakthrough to universal validity to the so-called self-enclosed cultural particularity of all other historical peoples.

Both stances will be contrasted by tracing out how they connected - whether faithfully or not - with the Humboldtian brand of nineteenth-century comparative historiography of mathematics, practised by Hermann Hankel in the early 1870s. Confronted with newly available Eastern sources and ethnographic data of mathematical relevancy, history of mathematics then emerged as a professionalized subfield within German academia, while prompting thorough reflection on the nature of history writing in a context of structuring polarities (history vs. geography (ethnography), philology vs. mathematics).