

## Seminar SAW - Exploring 19th and 20th centuries historiographies of mathematics in the ancient world, 2015-2016

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### Historiography of Measurement units

WANG Xiaofei (SAW Project, SPHERE Université Paris Diderot)

*The reform of measurements and weights in the French Revolution and the changes in teaching arithmetic*

**Abstract** – The reform of measurements and weights, set off in France in 1790, in the wake of the French Revolution, perfected the metric system and facilitated enormously calculations. In correlation with this, there was also a major change in the ways of teaching arithmetic, and the relationship between the arithmetic of measured quantities and that of decimal numbers was modified. This is reflected in Condorcet’s posthumous publication of the treatise on arithmetic in 1799 , and Lagrange’s lectures on elementary mathematics at the Ecole normale in 1795. In fact, arithmetic got recognized of its fundamental status, as Lagrange mentioned arithmetic and geometry as two wings of mathematics. At the same time, we see an interest in France in the history of mathematics in ancient Greece, and also in the “arithmetic of the Greeks”. On the occasion of the publication in 1807 of the translation of Archimedes’ *Opera Omnia* by Peyrard, who had already published the translation of Euclid’s *Elements* three years before, Delambre inserted in the book an article titled “*De l’Arithmétique des Grecs*” in the same book. Moreover, Jean Guillaume Garnier, who had been Lagrange’s assistant at the Ecole polytechnique, compiled an extract of Delambre’s memoir, when the second edition of his *Traité d’arithmétique* appeared in 1808. These facts suggest that the interest in Greek arithmetic and the reform of arithmetic are related. Indeed, in Garnier’s *Traité d’arithmétique*, the history of Greek arithmetic is treated side by side with the ancient and the new arithmetic.

This talk would like to examine why Greek arithmetic became a specific topic of interest, and why the interest was not limited to Greek geometry. Moreover, I would like to examine how this topic was dealt with in the context of the change in the way of teaching arithmetic, from arithmetic of measured quantities to arithmetic of decimal numbers. Finally, I will attempt to understand why Garnier’s book combines history of mathematics and arithmetic with and without measuring units.