

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

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Historiography of Measurement units

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Two different roles units can play in the mathematical formulation of physical relations

Abstract – One seldom takes into consideration how much the construction of a shared system of units contributes to shape the way in which we represent physical relationships mathematically. I will first review the two paths that have been followed in the nineteenth century in order to put physical relations into the form of mathematical equations and point out that they involve quite different conceptions of the role of units. I will go on to examine how these two paths became articulated in the double interpretation of the equations of physics advanced by Maxwell, and now implicitly accepted by physicists. I will finally examine how this double interpretation came to the fore in the context of the discussions raised by the passage from the MKS to the MKSA system of units in the 1950s and why it largely escapes our notice today.