

Interactive comment on “Beyond Perrault’s experiments: Repeatability, didactics and complexity” by Stefano Barontini and Matteo Settura

Dani Or (Referee)

dani.or@env.ethz.ch

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1. Generally, the treatment tends to be superficial and not as definitive as the account of Raymond Nace 1974 (Wat. Res. Bull. Am. Wat. Res. Ass.) regarding Pierre Perrault’s contributions to hydrology (and, as the authors argue, to systematic experimental approaches to hydrology).
2. The attribution of the experiments that formed the basis of his early research, namely the capillary rise observations of Magnanus (Maignan) as reported by Schott are very sketchy, and despite their importance are poorly attributed

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3. Considering the focus on epistemology advanced by the authors, I find it remarkable that the authors have chosen to make focus on Aristotle in reference to to ancient school of thoughts when a pivotal book by Lucretius Caro (De Rerum Nature - on the nature of things) discusses much more definitively the basics and far more advanced concepts relevant to hydrology than Aristotle’s work (Caro was influenced by the scientific school of Epicurus and wrote about 200 years after Aristotle published "Meteorology"). For example, the role of the sun in the process of evaporation was well known in Lucretius Caro’s time (99-55 BC) as he writes “The same, spread out before the sun, will dry; Yet no one saw how sank the moisture in, Nor how by heat off-driven. Thus we know, That moisture is dispersed about in bits Too small for eyes to see”

4. We all agree that the work of Perrault was very important for modern hydrology as a scientific discipline – hence, it seems a bit odd that the authors have chosen to “recycle” an old exercise by the main authors to focus on unsaturated flow parameterization towards explaining the incomplete understanding of unsaturated flow at the time (it seems similar to Philip et al (1989, WRR - <https://doi.org/10.1029/WR025i001p00016> that relished the “surprise” of Perrault for not finding water in the buried clay pot experiment. . .) In other words, both the Hydrus experiment of Barontini, and the general tendency to glorify present state of knowledge regarding the unsaturated state does not add much insight nor appreciation of the the historically significant work of Pierre Perrault. In my view, the parameterization and interpretation (through modern tools) of unsaturated flow are detrimental to the main story of this paper

6. I am not convinced by the argument that Perrault pioneered and contributed to complexity, perhaps to experimentation – a more critical (and much earlier) thinker was Lucretius Caro that anticipated modern hydrology (and atomistic theories) – but this is my view. . .

7. Since this is an opinion piece with subjective interpretation of the work and Pierre Perrault to early hydrology and thus is a historical narrative – I am not in a position to ask the authors to write their piece the way I would have liked to see, but I hope the

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comments are useful.

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