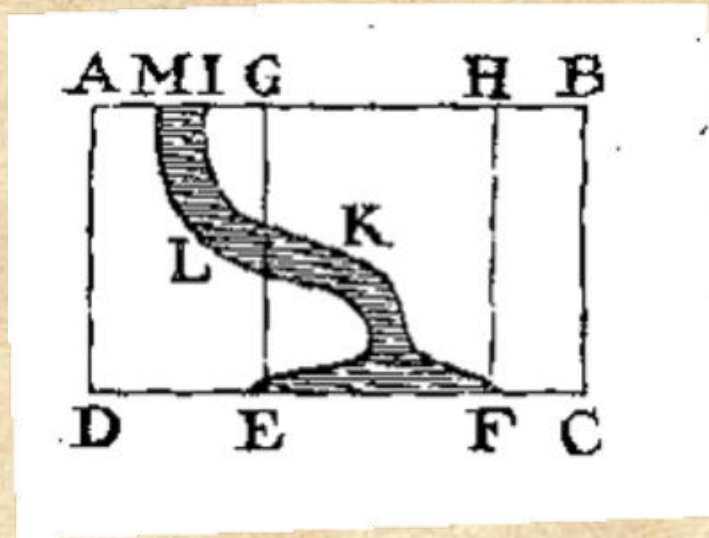


Marcus Aurelius, *Meditations*, Book VI. para. 48
(Farquharson trans. OUP. 1989, p.53)

“Whenever you desire to cheer yourself, think upon the merits of those who are alive with you....For nothing is so cheering as the images of the virtues shining in the character of contemporaries.”

Stevin, (1586) *De Beghinselen des Waterwichts* in Stevin
The Principal Works of Simon Stevin vol. 1 417



Stevin: The 'pressure' [vulgar sense] of the water in MIFEL upon EF is equal to that which would be exerted upon EF by water filling the prism GHFE. Go figure!

Gaston Bachelard, *La Formation de L'Esprit Scientifique*, 9th ed. Paris, 1975

**LA FORMATION
DE L'ESPRIT SCIENTIFIQUE**

CHAPITRE PREMIER

La notion d'obstacle épistémologique

Plan de l'Ouvrage

I

Quand on cherche les conditions psychologiques des progrès de la science, on arrive bientôt à cette conviction que *c'est en termes d'obstacles qu'il faut poser le problème de la connaissance scientifique*. Et il ne s'agit pas de considérer des obstacles externes,

Bracketing off means that one is not looking for effects shaped by [a] natural philosophical training; [b] belief; [c] commitment; or, [d] deployment of resources from the 'conceptual lexicon' of natural philosophy.

Bracketing off means that one is not looking for effects shaped by [a] natural philosophical training; [b] belief; [c] commitment; or, [d] deployment of resources from the 'conceptual lexicon' of natural philosophy.

Any of which might shape the following:

[1] the motives for specific instances of experiment and theorizing;

[2] longer term processes of experimenting, theorizing and debating;

[3] the framing of accounts of results of experimenting and theorizing.

There were disciplinary maturations in which one or both of the following were the case:

[1] the process of emergence of the field was entangled with natural philosophical categories, agendas and disputes; and/or,

[2] the 'final product' -- the first instance of the modern looking field-- embodied natural philosophical materials.

[1] The trajectory of realist Copernicanism--and celestial mechanics within that.

[2] Physical optics from Kepler and Descartes to Newton.

[3] Harvey's physiology.

[4] Or later, electro-statics.

[1] The trajectory of realist Copernicanism--and celestial mechanics within that.

[2] Physical optics from Kepler and Descartes to Newton.

[3] Harvey's physiology.

[4] Or later, electro-statics: In which the middle level concept for study by *recurrence* is electrostatic induction.

Framed in a Newtonian way by the Newtonian Benjamin Franklin in terms of the movement and distribution of a Newtonian weightless, elastic, conserved 'fluid' of electricity.

Completing the historical weave, outside the brackets:

[1] The pneumatic experiments of Torricelli, Pascal and Pecquet had a clear natural philosophical agenda.

[2] But, on Alan's own telling, Pecquet's *elater* feeds into Boyle's spring of the air,

[3] and then Boyle's work on the *sui generis* properties of air facilitates his theoretical breakthrough on pressure as the *sui generis* property of non-elastic fluids.

We miss the wider, longer weave, if we rest the case with Alan' bracketing based analysis.

Alan's clarification of the recursive story does suggest a wholesale re-reading of the primary and secondary literature.

Without this, we would not be in this new, fruitful posture regarding the ultimate 'Chalmers problem': what did natural philosophising have to do with the *longue durée* process of the Scientific Revolution?

END

Cartesian model of natural philosophical explanation:

1 metaphysics

2 high order natural philosophical principles

3 detailed and necessarily hypothetical corpuscular-mechanical models

4 facts, evidence, phenomena: old/new experiments, observations

Post-Cartesian model of natural philosophical explanation e.g. Huygens, Boyle, Rohault.

1 ~~metaphysics~~

2 high order natural philosophical principles

3 detailed and necessarily hypothetical corpuscular-mechanical models

4 intermediate causes at macro level of observation/manipulation

5 facts, evidence, phenomena: old/new experiments, observations

Boyle discovers and enters some '4's'.

This raises a question: did some matter and cause possibilities and impossibilities condition the moves, working both ways:

That is, what can be framed up and uttered as 'discovery' on level 4 is conditioned by and in turn conditions material that might be asserted at levels 2 and 3.

If the player has natural philosophical commitments and beliefs, these links and conditions may well have been in play, and are a part of the weave left out by 'bracketing off'.

This requires that we not rest with the bracketing, but launch further inquiry.