

Demarcation and its roots

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Prevailing model of science for policy and in society;

The 'demarcation' model' and its origins.

The problems with the double legitimacy system;

Guimarães Pereira, Â., and Funtowicz, S., Eds., 2015, The end of the Cartesian dream, Routledge's series: Explorations in Sustainability and Governance.

Saltelli, A., and Giampietro, M., 2015, What is wrong with evidence based policy? Draft, Submitted for a special issue on FUTURES, August 2015.

http://www.andreasaltelli.eu/file/repository/FUTURES_Saltelli_Giampietro_3.pdf

Rommetveit K Strand R Fjelland R & Funtowicz S, 2013 What can history teach us about the prospects of a European Research Area? Study procured by the Joint Research Centre EUR report 2612 (http://www.uib.no/sites/w3uibno/files/attachments/histera_final_report_25_2.pdf)

See also: The Rightful Place of Science: Science on the verge, An anthology by Alice Benessia, Mario Giampietro, Silvio Funtowicz, Jerome Ravetz, Angela Pereira, Andrea Saltelli, Roger Strand, Jeroen P. van der Sluijs, with a preface of Dan Sarewitz, Published by the Consortium for Science, Policy and Outcomes at Arizona State University, to appear winter 2015.

Ravetz, J. R. and Saltelli, A., 2015b. "Policy: The future of public trust in science", Nature, 524: p. 161.

Demarcation: facts
separate from values

On demarcation:

“the incoming commission must find better ways of separating evidence-gathering processes from the ‘political imperative’”, A. Glover, former Chief Science Adviser of President Barroso (Wildson, 2014).

Wildson, J. 2014. Evidence-based Union? A new alliance for science advice in Europe. In The Guardian. Available at: <http://www.theguardian.com/science/political-science/2014/jun/23/evidence-based-union-a-new-alliance-for-science-advice-in-europe>.



Anne Glover

Evidence based policy – in the prevailing positivistic narrative – is predicated on a separation of facts from values, of scientists from their customers, on demarcation of roles.

‘Demarcation model’ of science’s input to policy

- Protecting science from the political interference...
- Preventing possible abuse of science...
- ... and scientific information driven by agendas...
- Prescribes a clear demarcation between the institutions (and individuals) who provide the science, and those where it is used.

Funtowicz, S. 2006. What is Knowledge Assessment? In Guimarães Pereira, Â., Guedes Vaz, S. and Tognetti, S. (eds) Interfaces between Science and Society. Greenleaf Publishers, Sheffield.



Silvio Funtowicz
University Of
Bergen

The demarcation model is challenged in more recent epistemologies:

‘Post Normal Science’ (Funtowicz and Ravetz, 1993), ‘Co-production of knowledge’ model (Jasanoff, 1996).

Funtowicz, S. O. & Ravetz, J. R. 1993. Science for the post-normal age. *Futures*, 25(7), 739–755.

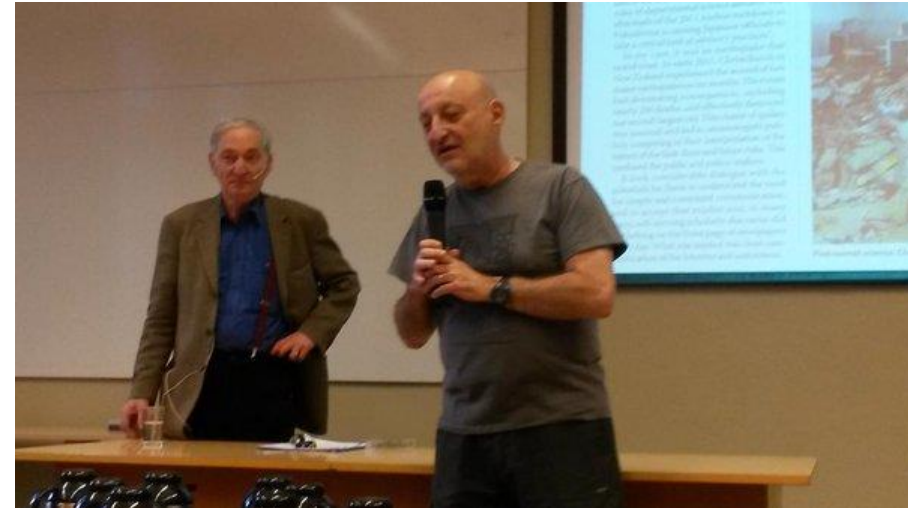
Jasanoff, S. 1996, *Beyond Epistemology: Relativism and Engagement in the Politics of Science*. *Social Studies of Science*. 26(2) 393–418.



Sheila Jasanoff

Jerry Ravetz and Silvio Funtowicz

Post Normal Science's model of
Extended Participation: across
disciplines ('lenses') and across
communities of both experts
and stakeholders;



From 'speaking truth to power' towards 'working deliberatively
within imperfections';

Science is but one among a plurality of relevant knowledges;

Facts become 'extended facts'.

Funtowicz, S. O. & Ravetz, J. R. 1993. Science for the post-normal age. *Futures*, 25(7), 739-755.

Funtowicz, S and Ravetz J 1990, *Uncertainty and Quality in Science for Policy*, Kluwer Academic Publishers, Dordrecht.

Where did this separation originate?



Francis Bacon
(1561–1626)

Magnalia Naturae, in the
New Atlantis (1627),
*‘Wonders of nature, in
particular with respect to
human use’*

Demarcation is part of the Cartesian dream of man as master and possessor of nature, of prediction and control, of Bacon’s prediction of the wonders of science.



René
Descartes
(1596–1650)

Discourse on Method
(1637)

Magnalia Naturae, in the New Atlantis (1627),
‘Wonders of nature, in particular with respect to human use’



Francis Bacon
(1561–1626)

Magnalia Naturae, in the
New Atlantis (1627),
*‘Wonders of nature, in
particular with respect to
human use’*

The prolongation of life; The restitution of youth in some degree; The retardation of age; The curing of diseases counted incurable; The mitigation of pain; More easy and less loathsome purgings; The increasing of strength and activity; The increasing of ability to suffer torture or pain; The altering of complexions, and fatness and leanness; The altering of statures; The altering of features; The increasing and exalting of the intellectual parts; Versions of bodies into other bodies; Making of new species; Transplanting of one species into another; Instruments of destruction, as of war and poison; Exhilaration of the spirits, and putting them in good disposition; Force of the imagination, either upon another body, or upon the body itself; Acceleration of time in maturations; Acceleration of time in clarifications; Acceleration of putrefaction; Acceleration of decoction; Acceleration of germination; Making rich composts for the earth; Impressions of the air, and raising of tempests; Great alteration; as in induration, emollition, &c; Turning crude and watery substances into oily and unctuous substances; Drawing of new foods out of substances not now in use; Making new threads for apparel ; and new stuffs, such as paper, glass, &c; Natural divinations; Deceptions of the senses; Greater pleasures of the senses; Artificial minerals and cements.



Francis Bacon
(1561–1626)

*Magnalia Naturae, in the
New Atlantis (1627),
'Wonders of nature, in
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[...]

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in use; Making new threads for apparel; and new
stuffs, such as paper, glass, &c; Natural
divinations; Deceptions of the senses; Greater
pleasures of the senses; Artificial minerals and
cements.

The study of letters leading to “doubts and errors”; Comparing “disquisitions of the ancient moralists to very towering and magnificent palaces with no better foundation than sand and mud”; condemnation of humanities and exaltation of mathematics.



René
Descartes
(1596–1650)

Discourse on Method
(1637)

“I perceived it to be possible to arrive at knowledge highly useful in life; and in room of the Speculative Philosophy [...], to discover a Practical, by means of which, knowing the force and action of fire, water, air, the stars, the heavens, and all the other bodies that surround us, [...], we might also apply them [...], and thus render ourselves the lords and possessors of nature.”



René
Descartes
(1596–1650)

Discourse on Method
(1637)

In the formulation of Condorcet:

“All the errors in politics and in morals are founded upon philosophical mistakes, which, themselves, are connected with physical errors” (Ninth Epoch)



Nicolas de Caritat,
marquis de Condorcet
(1743– 1794)

‘Sketch for a Historical Picture of the
Progress of the Human Spirit’

Considering the possibility of overpopulation leading to war due to scarcity of resources, he concludes that this would not happen because technical progress and ethical progress will go hand in hand. Man will understand that his duty “will consist not in the question of giving existence to a greater number of beings, but happiness.” (Tenth Epoch)



Nicolas de Caritat,
marquis de Condorcet
(1743– 1794)

‘Sketch for a Historical Picture of the
Progress of the Human Spirit’

<http://oll.libertyfund.org/titles/1669>

‘mathématique sociale’

‘Condorcet method’, ‘Condorcet winner’,

‘Condorcet–Kemeny–Young–Levenglick (C–K–Y–L) ranking procedure’



Nicolas de Caritat,
marquis de Condorcet
(1743– 1794)

‘Sketch for a Historical Picture of the
Progress of the Human Spirit’

Feldman, J., 2005, Condorcet et la mathématique sociale: enthousiasmes et bemols, *Mathematics and Social Sciences*, 172(4), 7–41,
<http://www.ehess.fr/revue-msh/pdf/N172R955.pdf>

Munda G. (2007) – *Social multi-criteria evaluation*, Springer–Verlag, Heidelberg, New York, Economics Series

Closer to our times Vannevar Bush's dream was couched in the 'Endless Frontier' metaphor (1945):

“One of our hopes is that after the war there will be full employment. [...] To create more jobs we must make new and better and cheaper products [...] founded on new principles and new conceptions which in turn result from basic scientific research. [...]the] Government should foster the opening of new frontiers. It opened the seas to clipper ships and furnished land for pioneers. Although these frontiers have more or less disappeared, the frontier of science remains.”



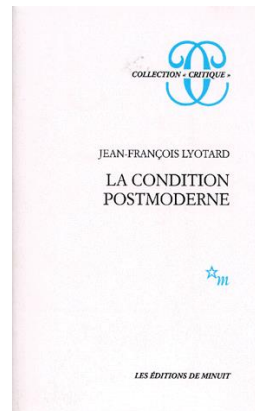
Vannevar Bush
(1890–1974)

Science the Endless frontier (1945)

Bush, V. (1945) Science: the endless frontier, United States Office of Scientific Research and Development, U.S. Govt. print office.

“The question of the legitimacy of science has been indissociably linked to that of the legitimation of the legislator since the time of Plato. From this point of view, the right to decide what is true is not independent of the right to decide what is just, [...] there is a strict interlinkage between the kind of language called science and the kind called ethics and politics ...”

Lyotard, J.-F. 1979. *La Condition postmoderne. Rapport sur le savoir*, Paris : Minit.

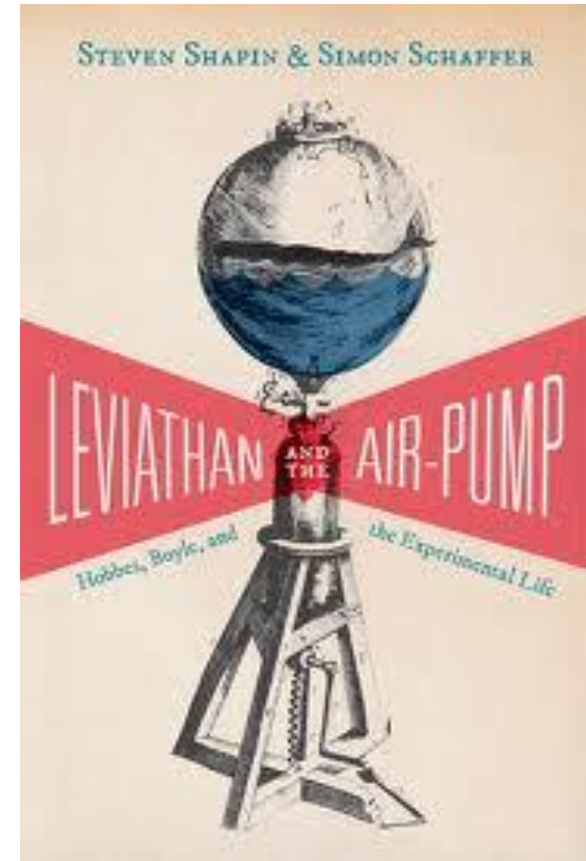


Jean-François
Lyotard

“Solutions to the problem of knowledge are solutions to the problem of social order.

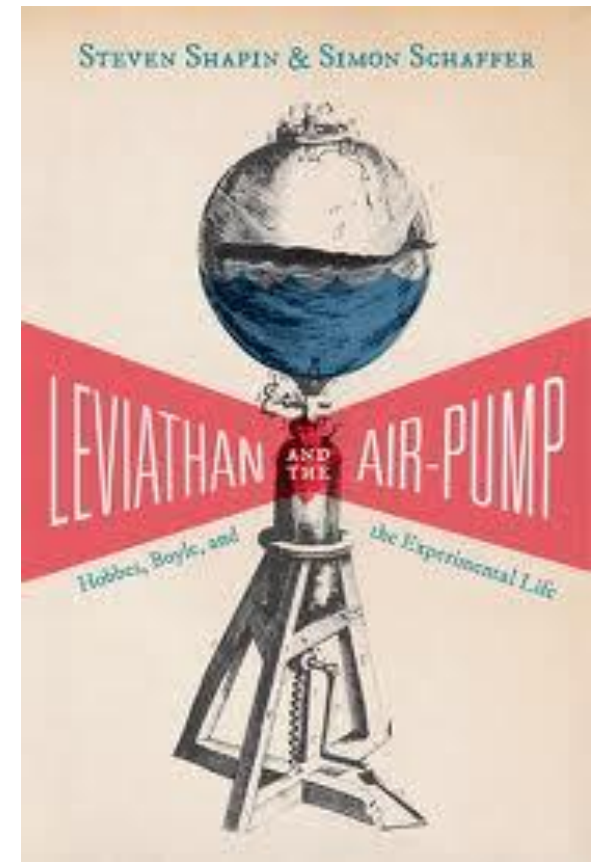
[...] Trust in Science and trust in the prevailing social order are linked.”

Shapin, S., Schaffer, S., 1985, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*, Princeton, 2011 Edition



Establishing ‘matter of facts’ under controlled ‘laboratory’ experiments before witnesses as a way to subtract the discourse about knowledge from religious squabbles ...

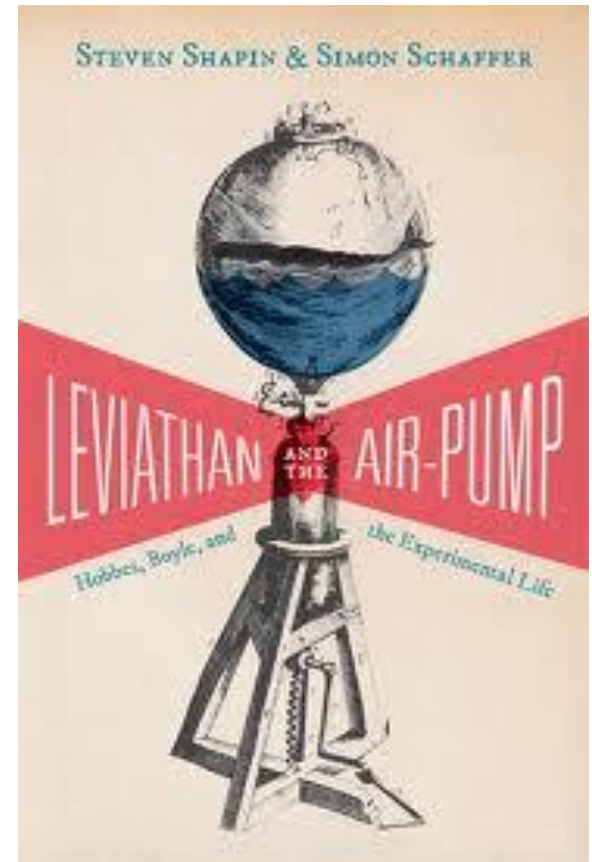
Shapin, S., Schaffer, S., 1985, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*, Princeton, 2011 Edition



Shapin and Schaffer's book inspired Bruno Latour's 'Nous n'avons jamais été modernes', 1991, and was 'hot' during the 'science wars'.



Bruno
Latour



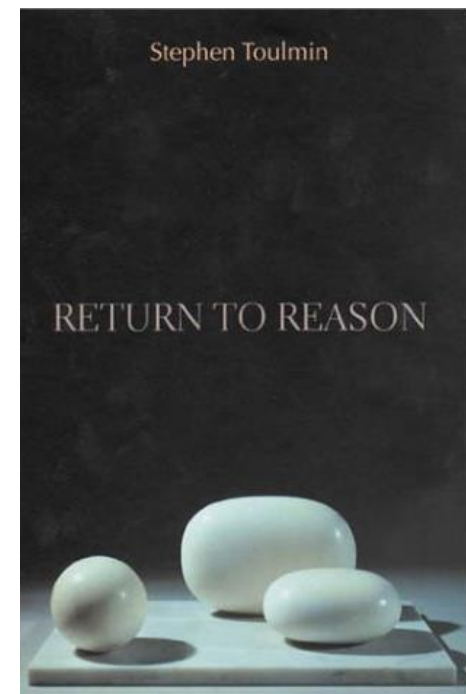
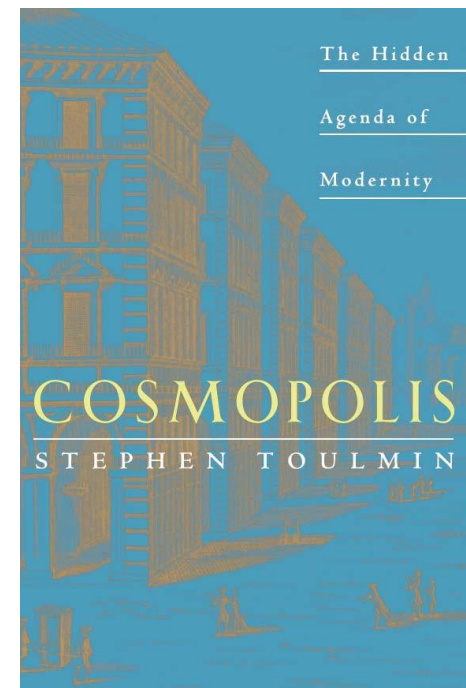
Latour, B., 1991, *Nous n'avons jamais été modernes*, Editions La découverte, 1993; *We Have Never Been Modern*. Cambridge, Harvard UP.



Stephen Toulmin

In “Cosmopolis – The hidden agenda of Modernity” (1990) and “Return to Reason” (2001) and a plea for reasonableness against rationality. Modernity (Westphalia) as a counter-renaissance (“quest for certainty”).

Descartes’s certainty versus Montaigne’s doubts.



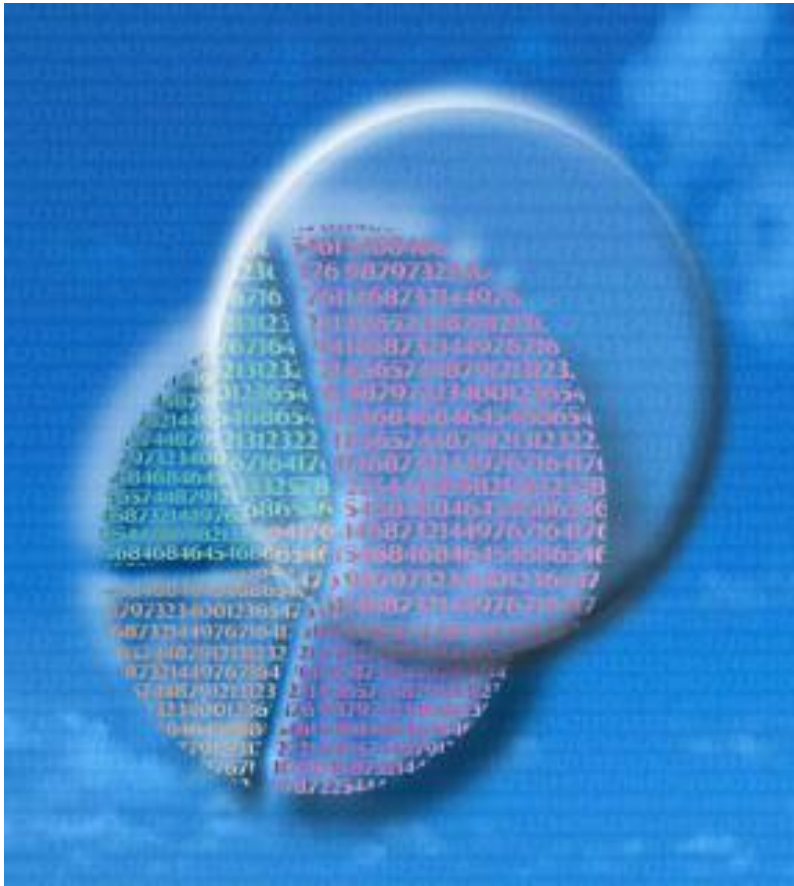
We were nourished (and professionally trained) with the principles of the Cartesian dream. This is especially true for scientists;

For Thomas Kuhn:

“When examining normal science [...], we shall want finally to describe that research as a strenuous and devoted attempt to force nature into the conceptual boxes supplied by professional education.”



Thomas Kuhn:



END

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