



# Reformation in the Church of Science

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March 10 2023



From: Reformation in the Church of Science. How the truth monopoly was broken up

## Saving the Real

*Andrea Saltelli & Daniel Sarewitz on why the 95 THESES are back*



# THE NEW ATLANTIS

A JOURNAL OF TECHNOLOGY & SOCIETY

## REALITY: A POST-MORTEM

♦ Whither Consensus? ♦ Life in an Alternate Reality Game ♦

A new essay series by *Jon Askonas*

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*David Bentley Hart on minds in SIMULATED WORLDS*

*James Mumford on THERAPY beyond good and evil*

*Kit Wilson on READING ourselves to death*

*Laurence Scott on why hell is OURSELVES*

*Alan Rome ~ Star Trek into sadness*

*Gabrielle Bauer ~ Precautionary peril*

*Paul Dicken ~ AI & HR's unholy union*

*John Konicki & James Pethokoukis ~ Do Americans care about space?*

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[TheNewAtlantis.com](http://TheNewAtlantis.com)



# Trump's false or misleading claims total 30,573 over 4 years

Analysis by [Glenn Kessler](#), [Salvador Rizzo](#) and [Meg Kelly](#)

January 24, 2021 at 3:00 a.m. EST



**The Washington Post**  
*Democracy Dies in Darkness*

A pandemic of lies?

Get the facts straight!

Better science communication!  
More independent fact-checking!



# Appoint a 'reality czar.'



By Kevin Roose

Published Feb. 2, 2021 Updated May 20, 2021

## *How the Biden Administration Can Help Solve Our Reality Crisis*

These steps, experts say, could prod more people to abandon the scourge of hoaxes and lies.



Post truth as a  
perversion of a well  
ordered society?

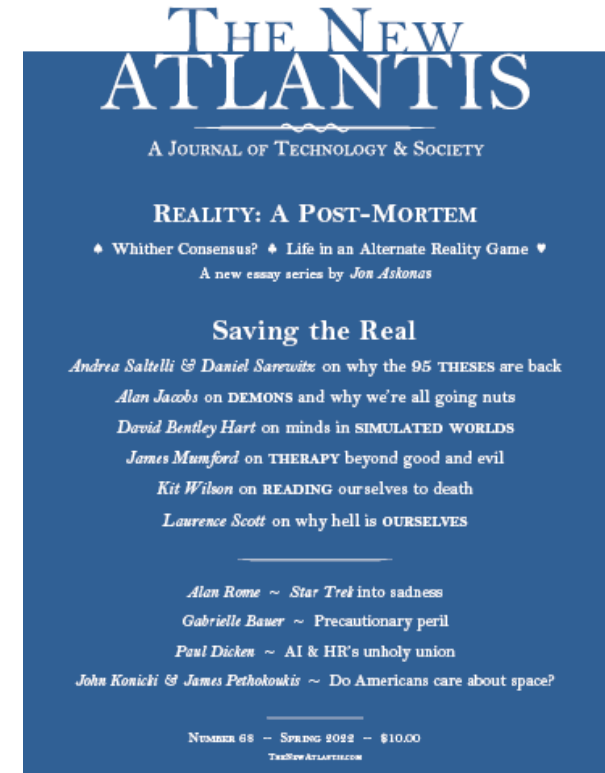


Or the loss of a  
monopoly on truth?

This is treacherous terrain. The urge to insist on the integrity of the old order is widespread: Truth is truth, lies are lies, and established authorities must see to it that nobody blurs the two.



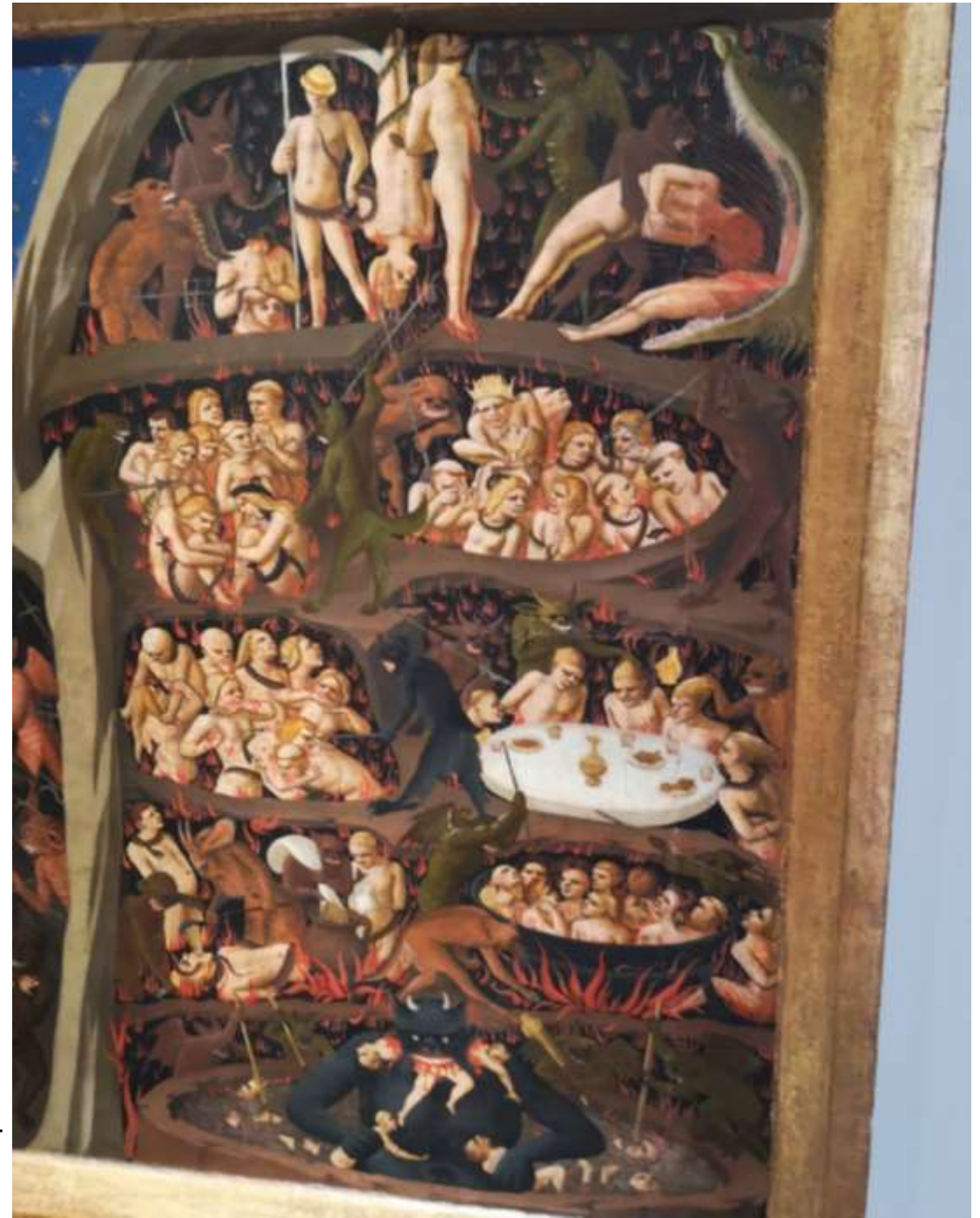
Source: Encyclopædia Britannica, Inc./Patrick O'Neill Riley





We know from history that what seemed to be stable regimes of truth may collapse, and be replaced

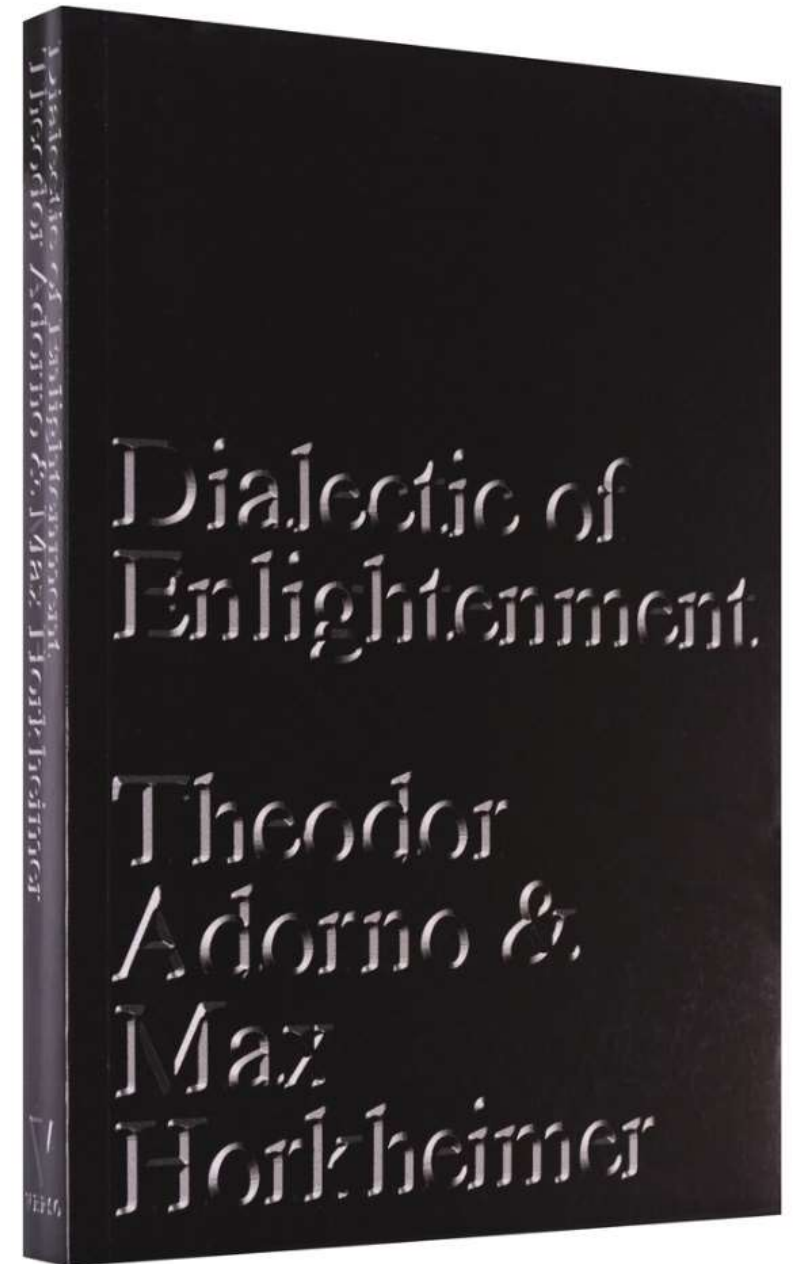
*The Last Judgment* (Fra Angelico, c. 1425-1430, San Marco, Florence)



How did we get here?

1) Radio and television, mass communication; unabashed lies become common currency, to the amazement of philosophers

1944





… mass media normalized the application of hyperbole, superlatives, and untestable claims of superiority to the rhetoric of everyday commerce



Source: Tint blog, <https://www.tintup.com/>

2) Science underwent a massive expansion of its role into the domain of public affairs (XX century)

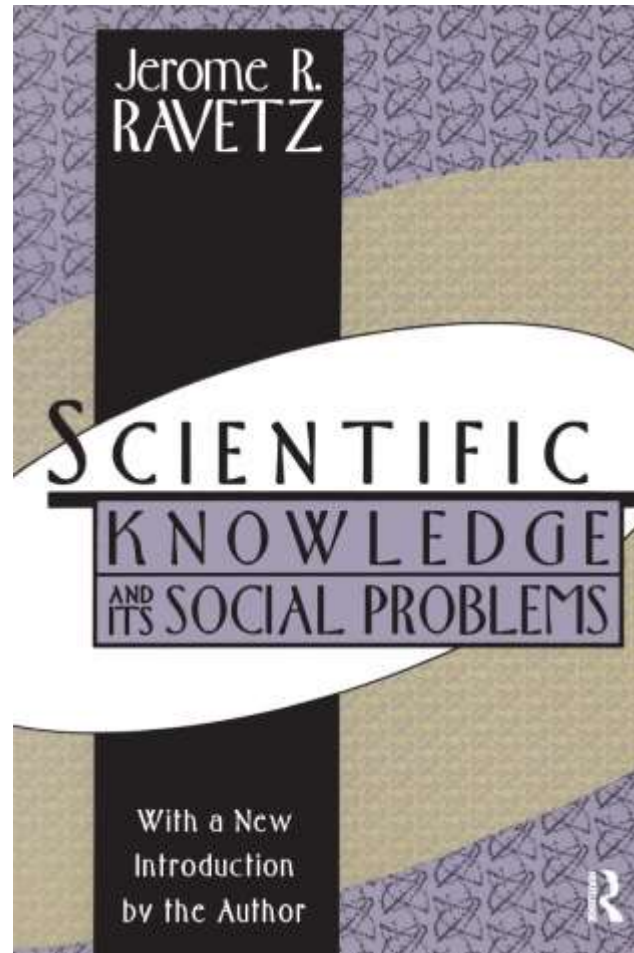


Linus Pauling debating  
Edward Teller on the topic of  
nuclear fallout in a televised  
broadcast, February 1958

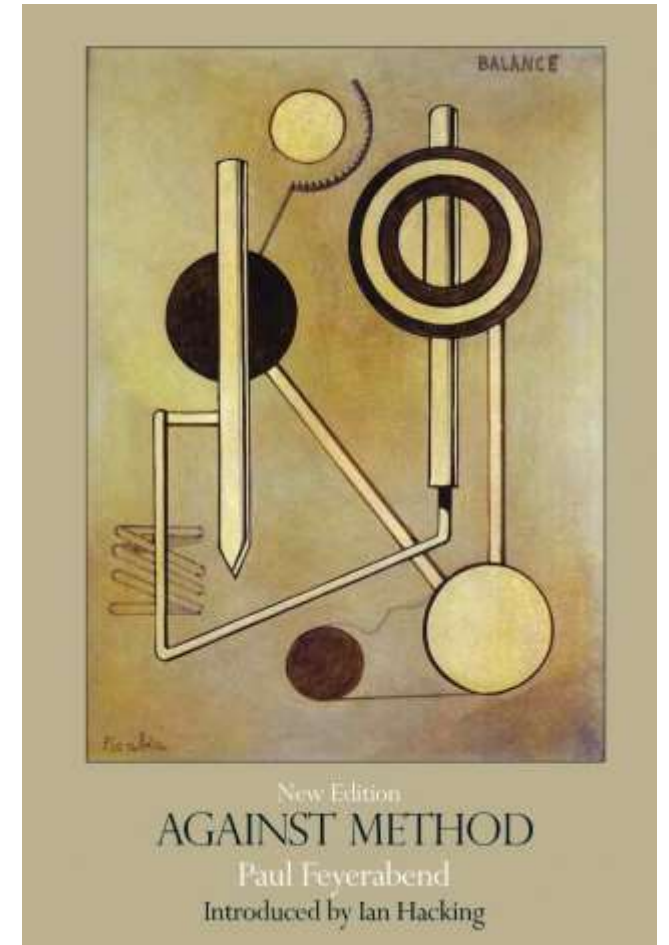
Source: The Pauling blog

Thanks to new instruments and strategies of measurement and quantification the scope for scientific application expanded → blurring of the science policy boundary

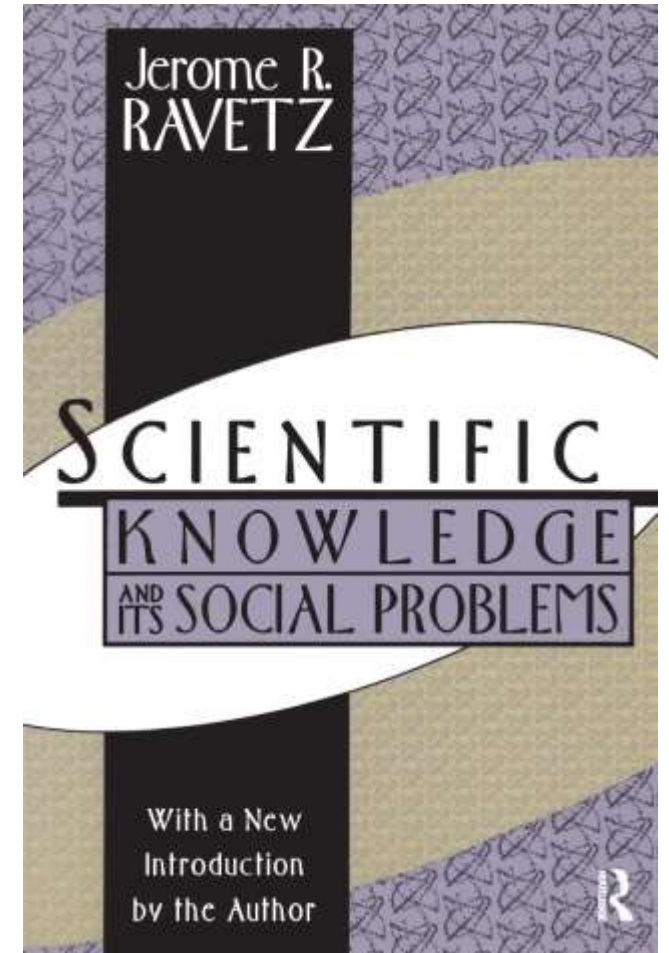
1971



1975

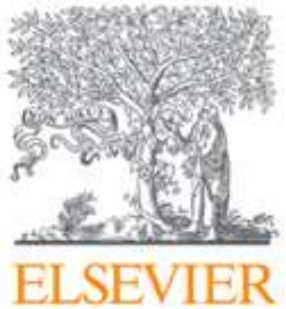


There is naturally a great temptation for the leaders of science to attempt to gain the best of both worlds for as long as possible: to extol the virtues of the free search for truth to one audience, and to promise useful services to another (p. 420)





- Science deals with the irreducible uncertainties of complex and messy problems at the intersection of nature and society
- Science is used for taking decisions that are themselves value-laden and contested



Futures

Volume 25, Issue 7, September 1993, Pages 739-755



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## Science for the post-normal age

Silvio O. Funtowicz, Jerome R. Ravetz ✉

The fathers of post-normal science were among the first to realize that science as used as input to policy decision had become inherently contestable, and that a new approach was needed



## Futures

Volume 25, Issue 7, September 1993, Pages 739-755



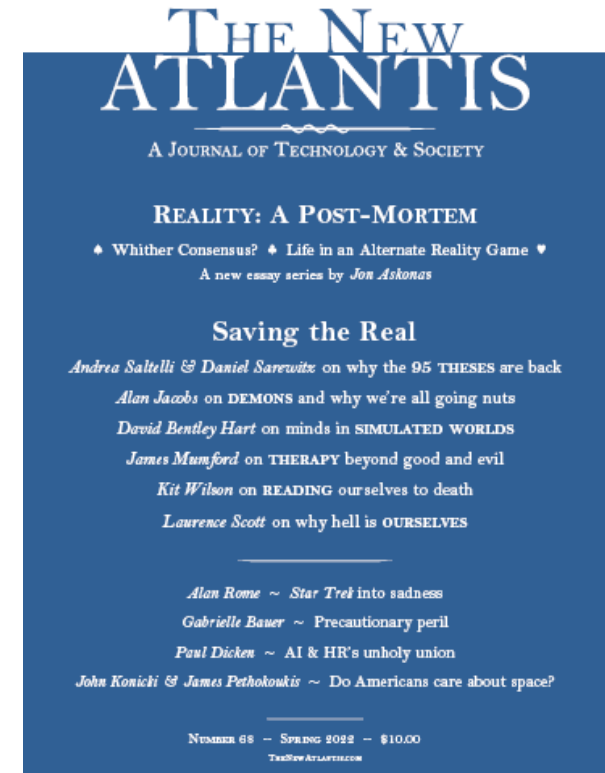
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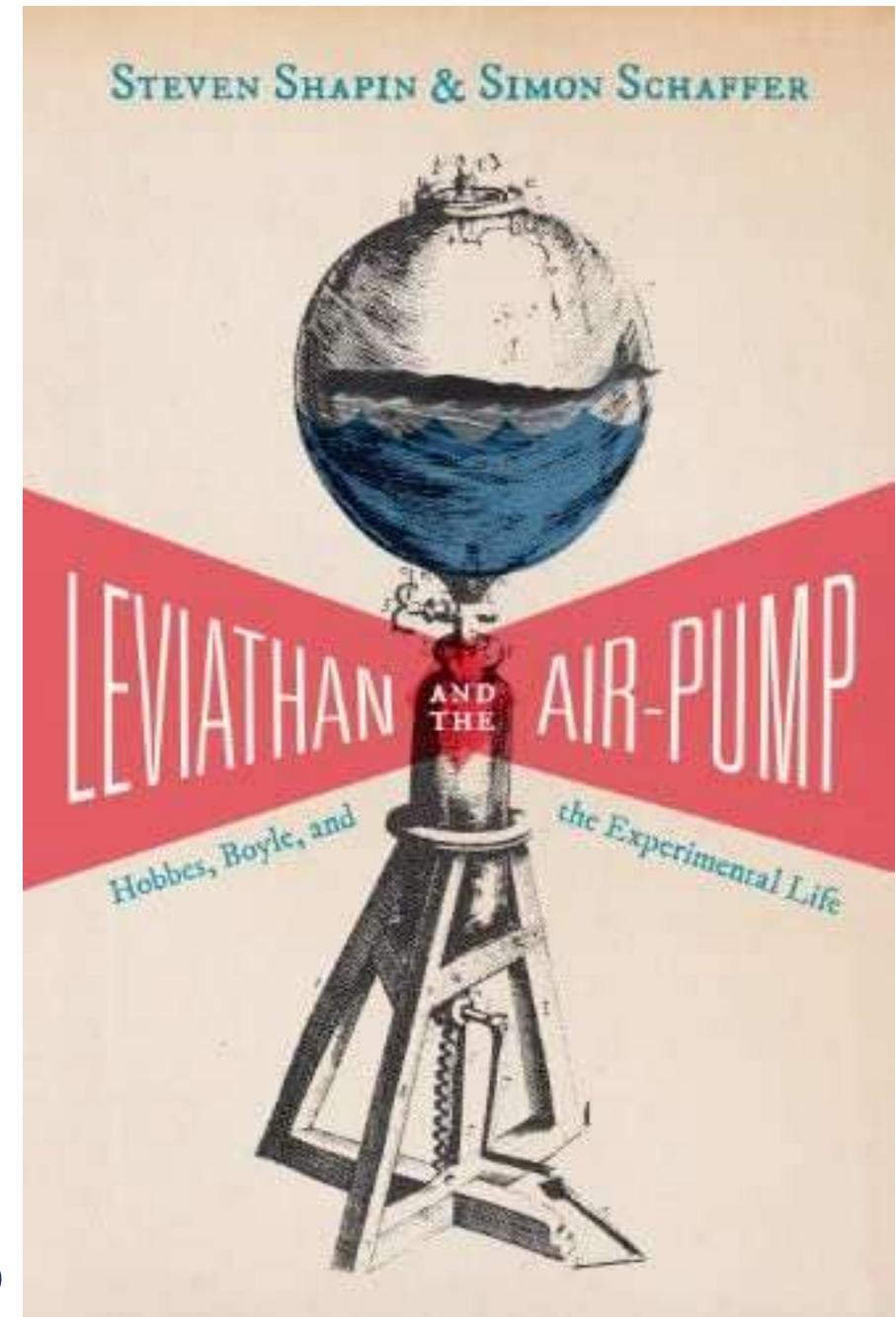
Jerome Ravetz and  
Silvio Funtowicz,  
circa 1988, at Sheffield

3) Internet and the new media change the landscape of communication: scientific institutions lose the monopoly over factual claims



“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”

1985





Science can only work as part of a “fiduciary system”  
conferring authority over true – false science claims

‘Irritated’ by the new media the social systems  
science, technoscience, and policy run into conflict



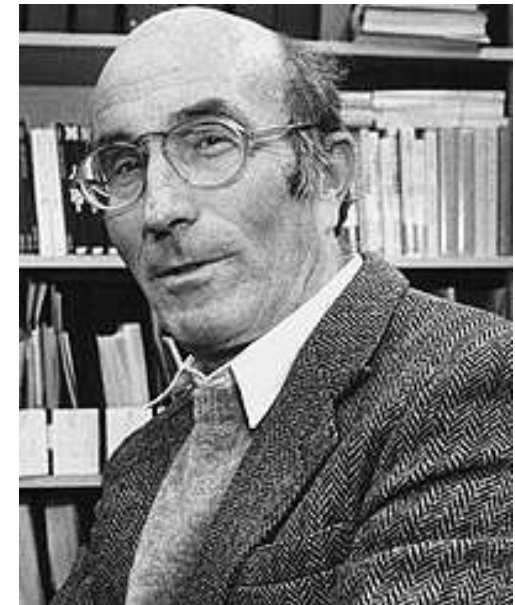
Futures

Volume 115, January 2020, 102491



## Technoscience, policy and the new media. Nexus or vortex?

Andrea Saltelli <sup>a, b</sup>  , Paul-Marie Boulanger <sup>c</sup> 



Niklas Luhmann, 1927–1998  
social systems theory

# Irreflexive confidence is replaced by conditional trust



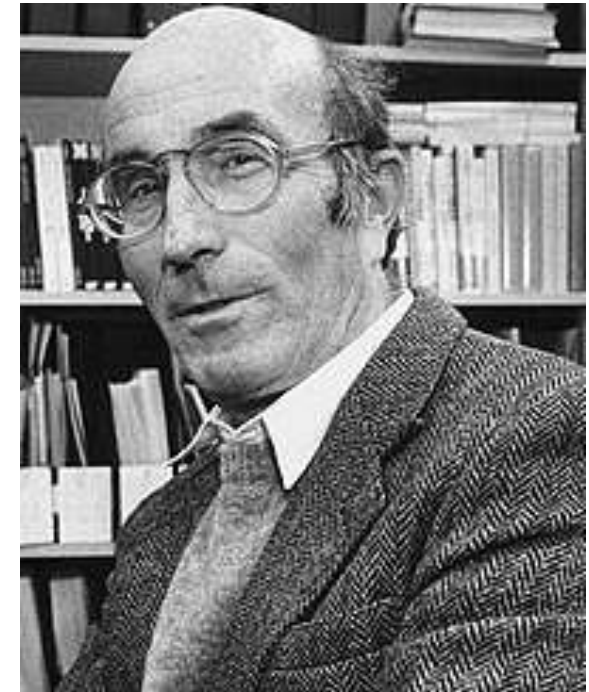
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Volume 115, January 2020, 102491



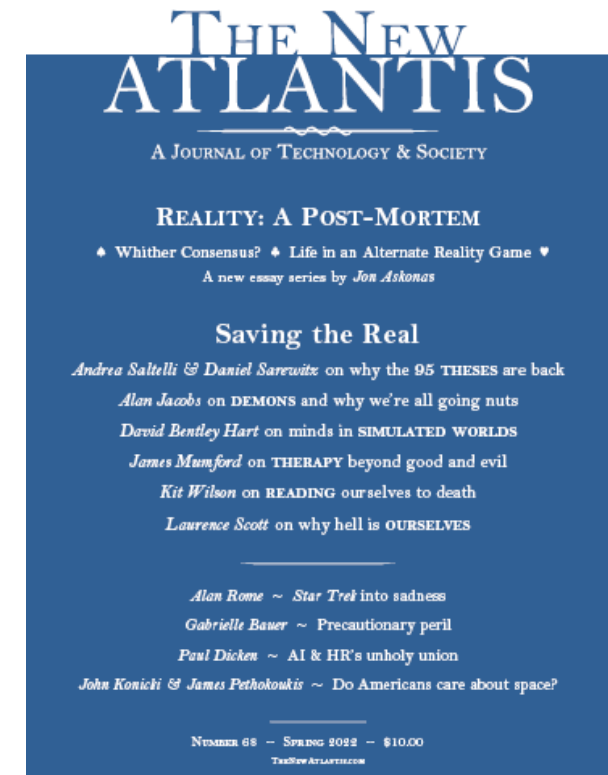
## Technoscience, policy and the new media. Nexus or vortex?

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Niklas Luhmann, 1927–1998  
social systems theory

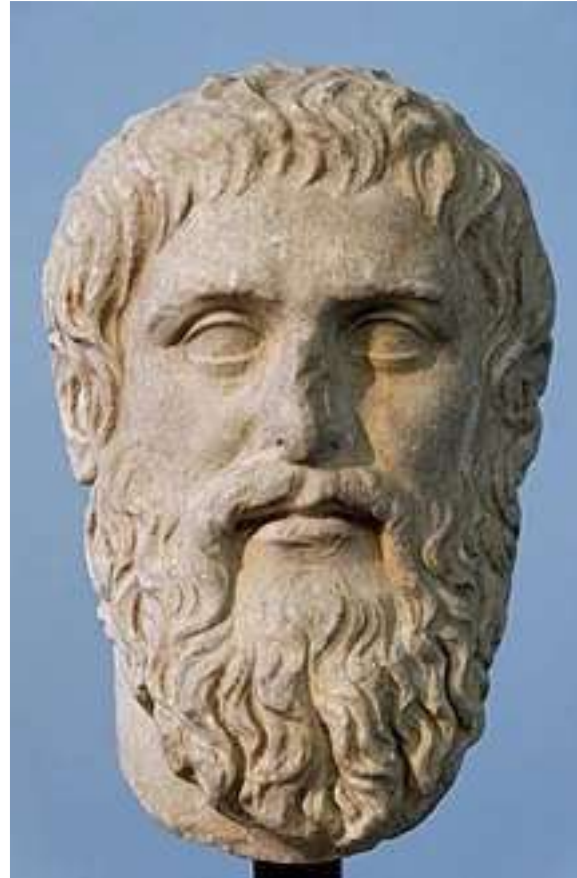
A nearly inexhaustible supply of competing and contradictory claims made by credentialed experts has become available, as can be seen on the case of COVID



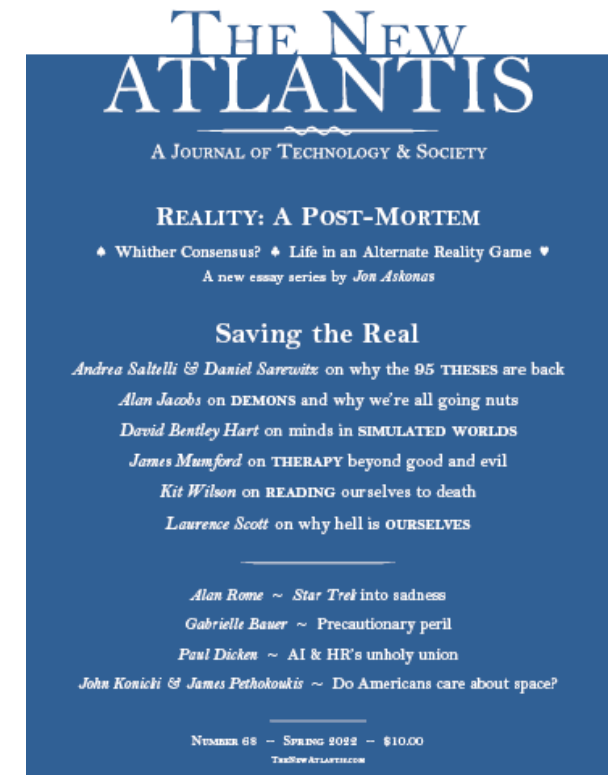
Source:  
<https://www.medicalnewstoday.com/articles/anti-vaxxer>



... the more the authorities insist on the factiness of facts, the more suspect these become to larger and larger portions of the populace



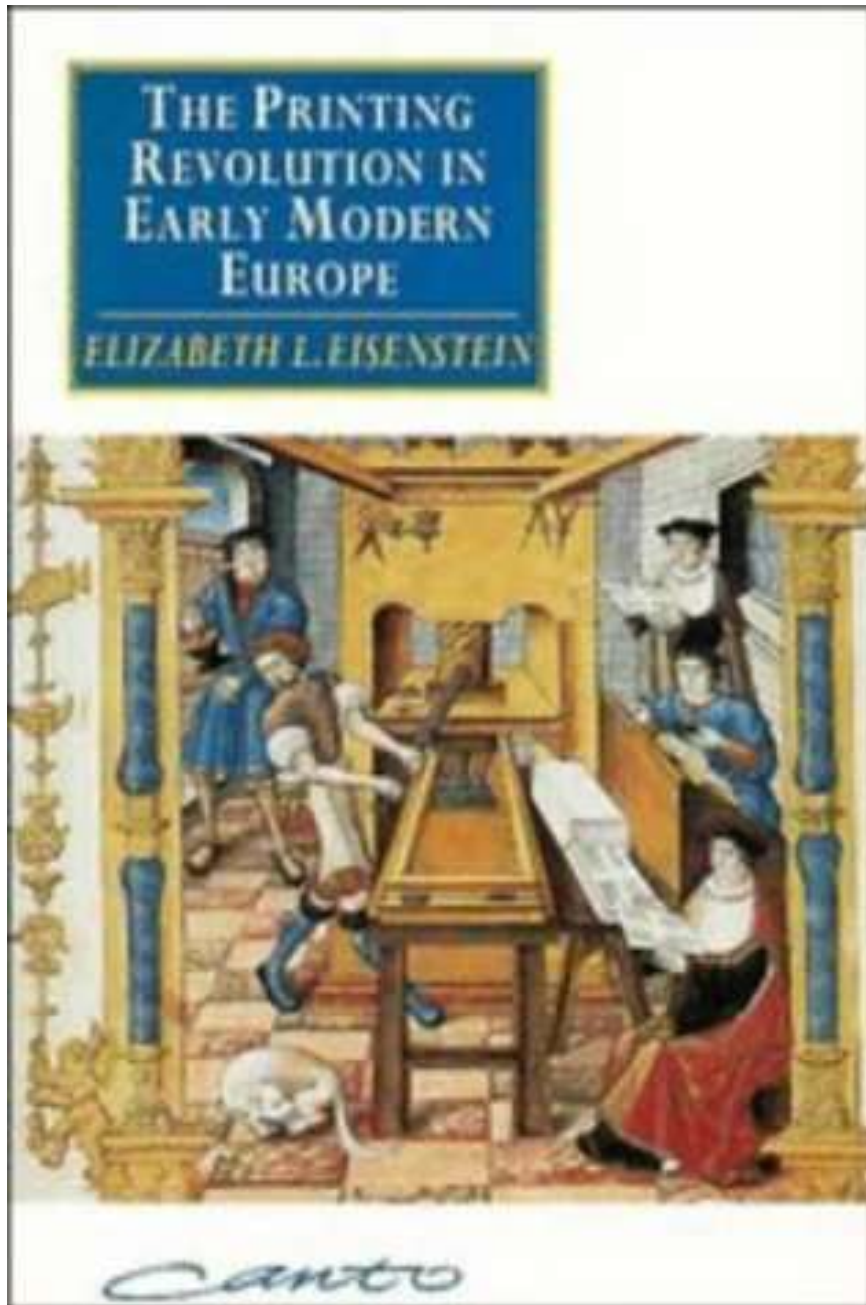
The end of “Noble lies”



Source: Wikipedia  
Commons



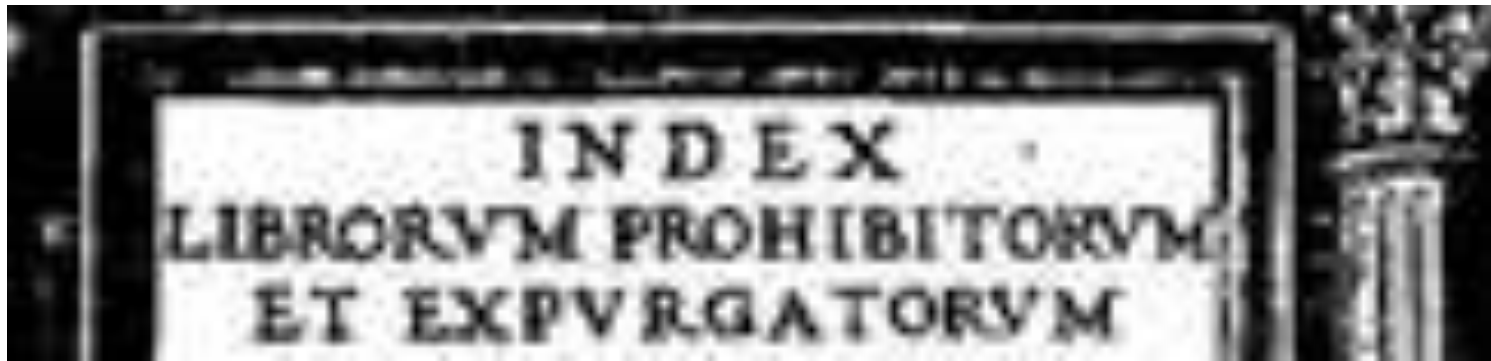
Can we learn from history?



The printing revolution  
(initiated c. 1439):

- Millions of books are printed in a few years, from treatises of demonology to translations of bibles.
- The printing press permits religion, music and pornography to roam free

The church loses its monopoly on printed material; reacts with its index of forbidden books; it is eventually unable to contain change



Source:  
Panda Edizioni

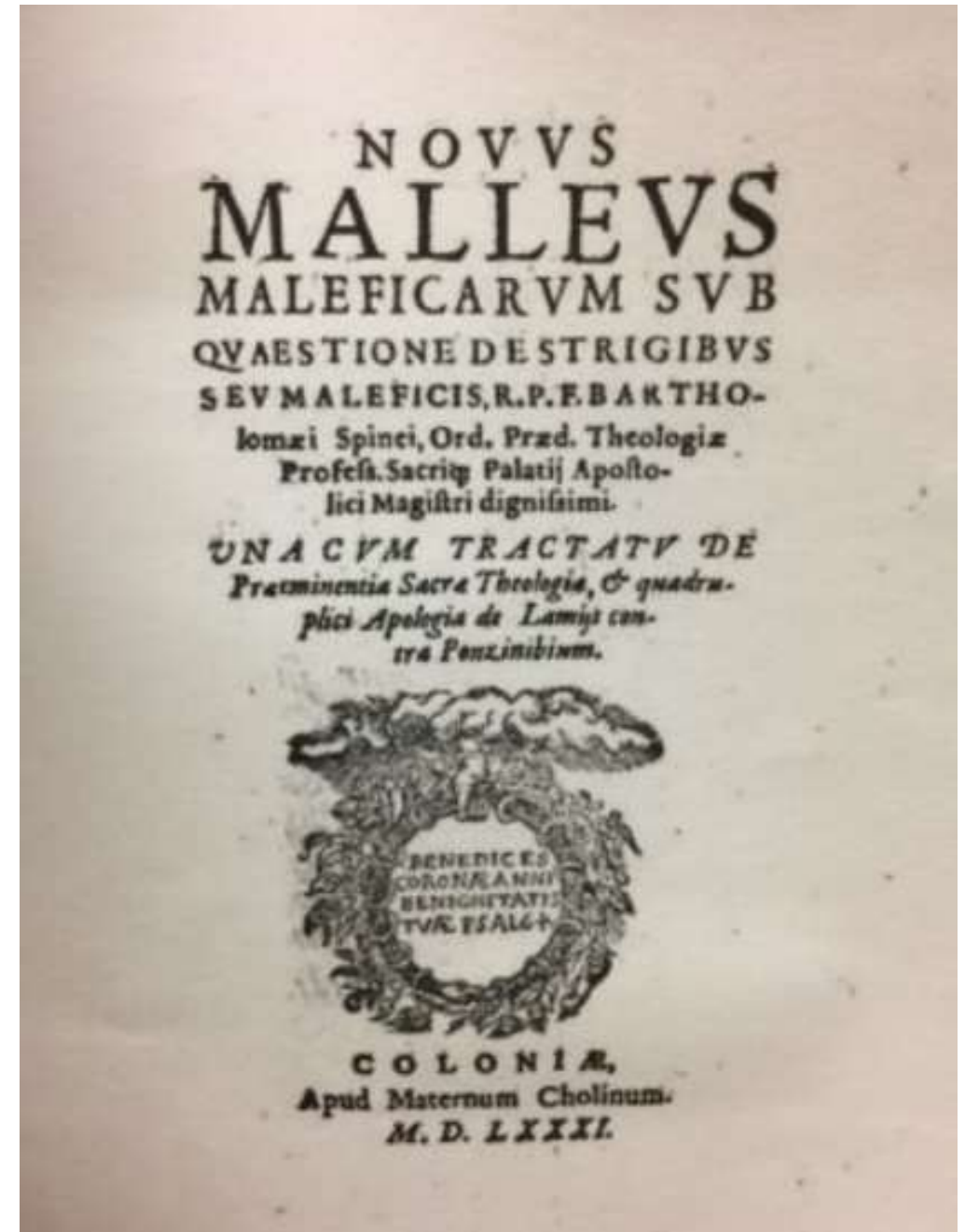


The path is open to Luther's theses (1517), to reformation, religious wars, eventually to the birth of the nation state





To a religious observer living through the beginning of the Reformation, all this might have appeared as the end of an era, and the beginning of a threatening period of heterodoxy, heresies, and confusion



# XV–XVI century: the beginning of fake news?

MALLEVS  
MALEFICARVM SVB  
QVAESTIONE DESTRIGIBVS

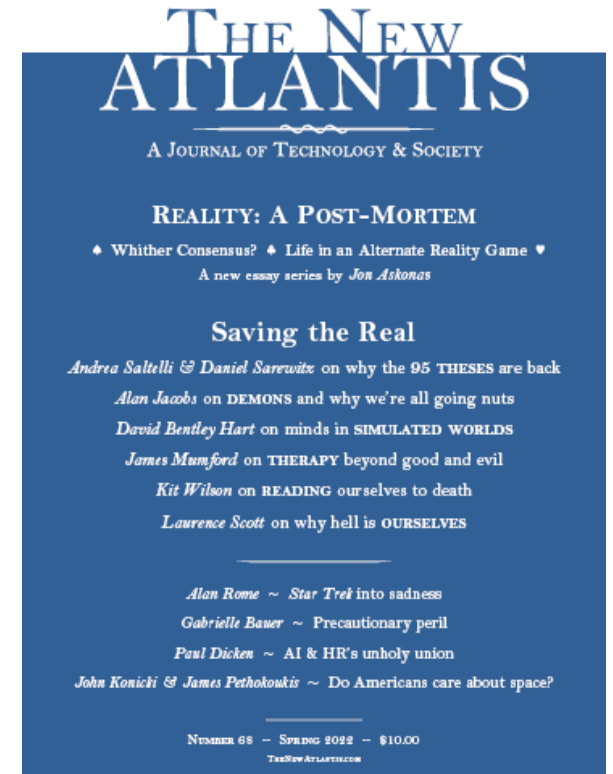
The public hanging of witches in Scotland.  
Coloured engraving, 1678. Illustration: The  
Granger Collection/Alamy



More witches were killed in this period  
than in any other in history

Many would say that it was the Reformation itself that did away with fake news, such as

- Indulgencies – paying to shorten stay in Purgatory
- Jews eating Christian children







Johann Tetzel – Source: Britannica



Mestre de Vallbona de les Monges, Retaule del corpus Christi (c. 1335), MNAC (National Museum of Catalan Arts)



The church's Index Librorum Proibitorum was defeated by the more liberal attitudes of printers in protestant countries



Elzevier bookshop side by side with the  
University of Leiden

Painting by Hendrick van der Burgh, source: [www.Elsevier.com](http://www.Elsevier.com)

Internet's bottom-up, distributed architecture appears to give a decisive advantage to dissenters and their diverse ideologies and perspectives against top down institutional scientific communication



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## Technoscience, policy and the new media. Nexus or vortex?

Andrea Saltelli <sup>a, b</sup>  , Paul-Marie Boulanger <sup>c</sup> 

Those who lament the death of truth  
should instead acknowledge the end of  
a monopoly system

Trump's false or misleading claims total  
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# The End



@andreasaltelli





Futures

Volume 91, August 2017, Pages 5-11



## What is science's crisis really about?

Andrea Saltelli <sup>a, b, c, d</sup>, Silvio Funtowicz <sup>a</sup>

Show more



Environmental Science & Policy

Volume 106, April 2020, Pages 87-98



## The technique is never neutral. How methodological choices condition the generation of narratives for sustainability

Andrea Saltelli <sup>a, b, c, d</sup>, Lorenzo Benini <sup>e</sup>, Silvio Funtowicz <sup>a</sup>, Mario Giampietro <sup>d, e</sup>, Matthias Kaiser <sup>a</sup>, Erik Reinert <sup>a, f</sup>, Jeroen P. van der Sluijs <sup>a, g, h</sup>



Futures

Volume 104, December 2018, Pages 85-90



## Why science's crisis should not become a political battling ground

Andrea Saltelli <sup>d</sup>



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## Technoscience, policy and the new media. Nexus or vortex?

Andrea Saltelli <sup>a, b, c, d</sup>, Paul-Marie Boulanger <sup>e</sup>



Environmental Science & Policy

Volume 142, April 2023, Pages 99-111



## Impact assessment culture in the European Union. Time for something new?

Andrea Saltelli <sup>a, b</sup>, Marta Kuc-Czarnicka <sup>c</sup>, Samuele Lo Piano <sup>d</sup>, Máté János Lőrincz <sup>e</sup>, Magdalena Olczyk <sup>e</sup>, Arnald Puy <sup>e</sup>, Erik Reinert <sup>f, g</sup>, Stefan Thor Smith <sup>d</sup>, Jeroen P. van der Sluijs <sup>b, h</sup>

nature

COMMENT | 21 May 2019

## Views from a continent in flux

Nature asked nine leading Europeans to pick their top priority for science at this pivotal point. Love, money, and trust got most votes.

Carlos Moedas <sup>a</sup>, Isabelle Vernos <sup>b</sup>, Stephan Kurster <sup>c</sup>, Helga Nowotny <sup>d</sup>, Andrea Saltelli <sup>e</sup>, Alina Mungiu-Pippidi <sup>f</sup>, Jan Wouter Vanbinder <sup>g</sup>, Daniel B. Brooks <sup>h</sup>, Patrick Cunningham <sup>i</sup>



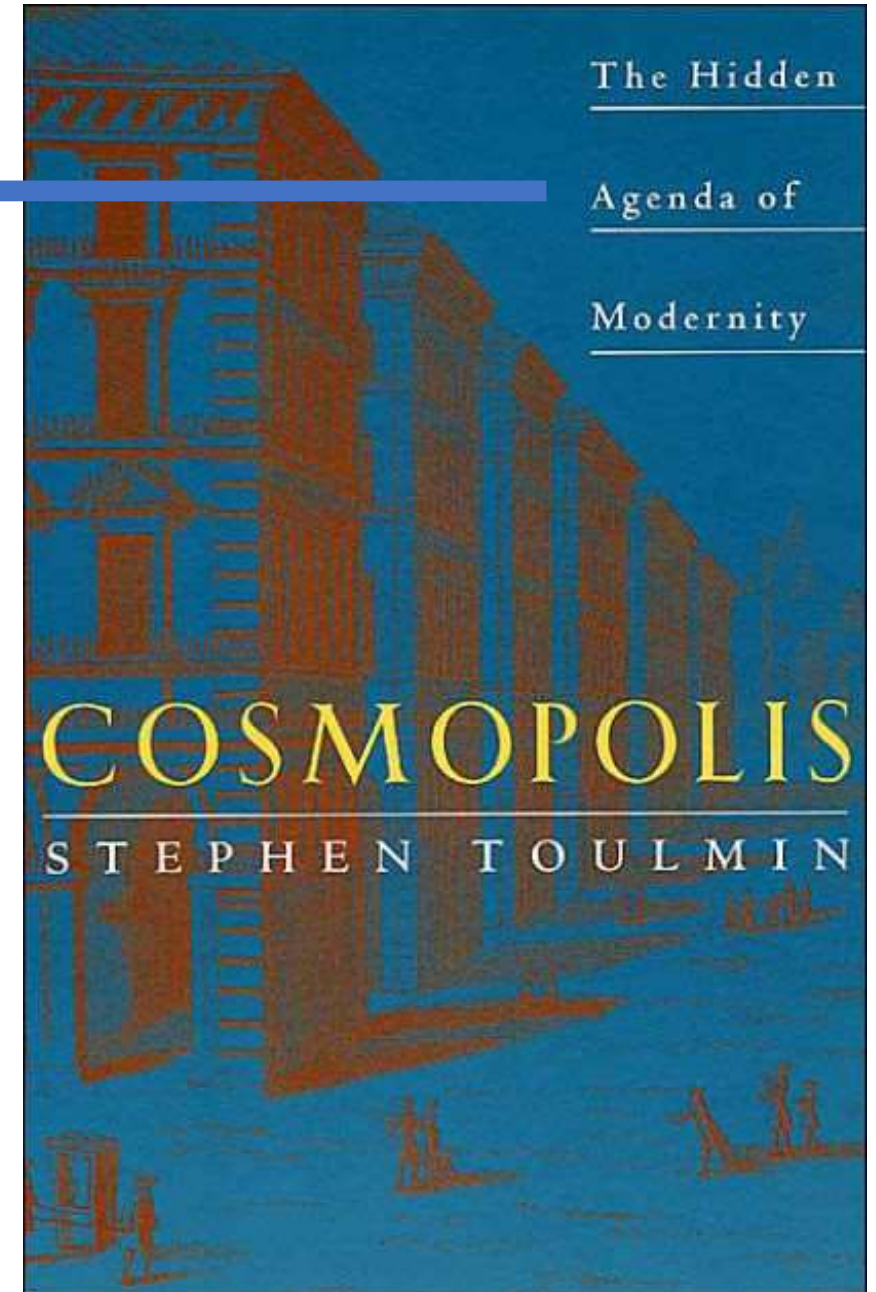
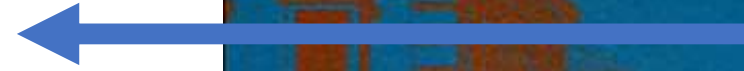
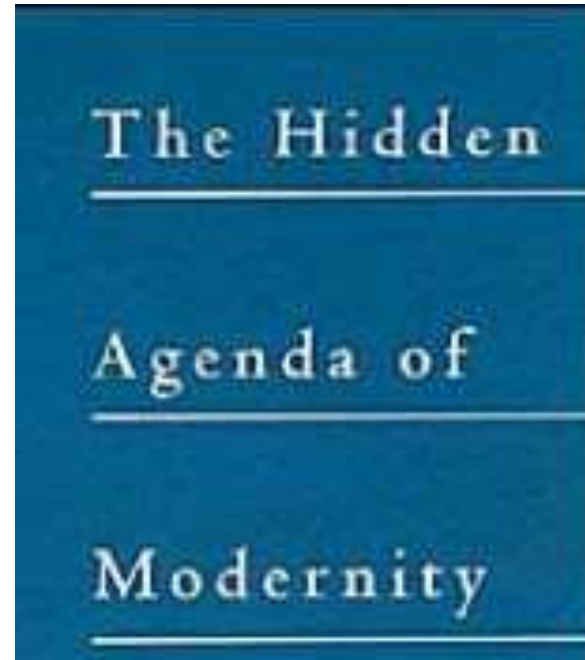
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Volume 135, January 2022, 102860



## Science, the endless frontier of regulatory capture

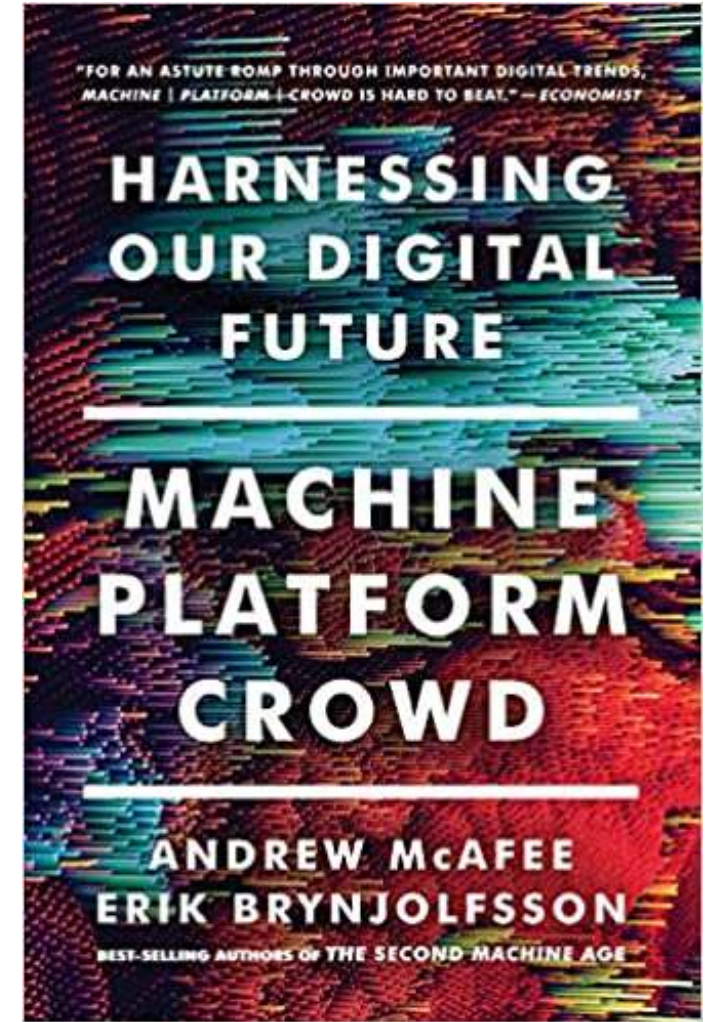
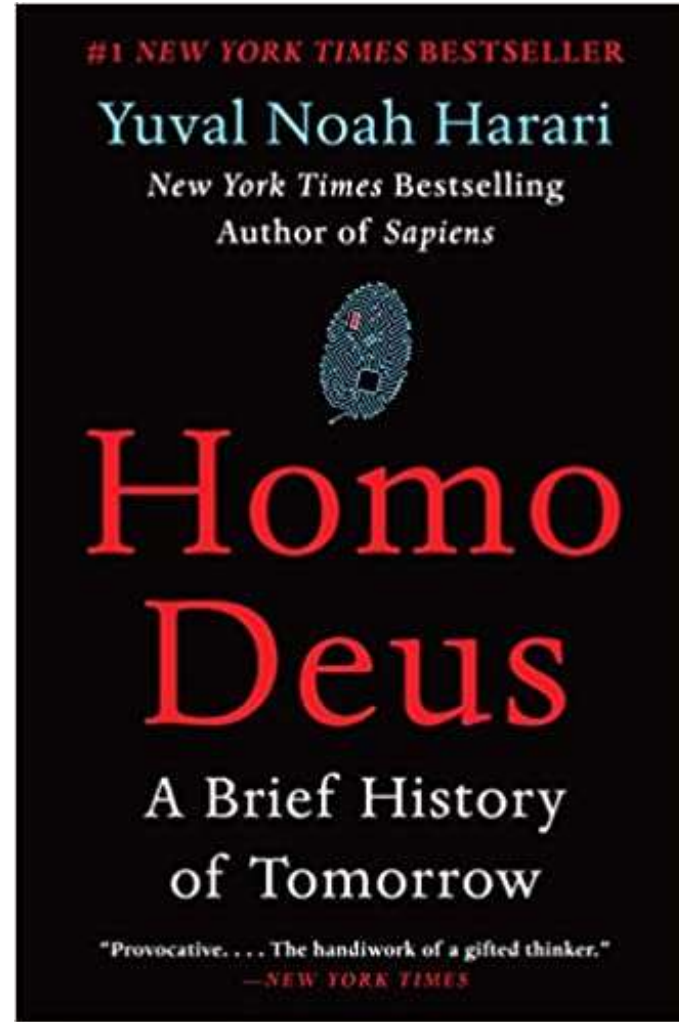
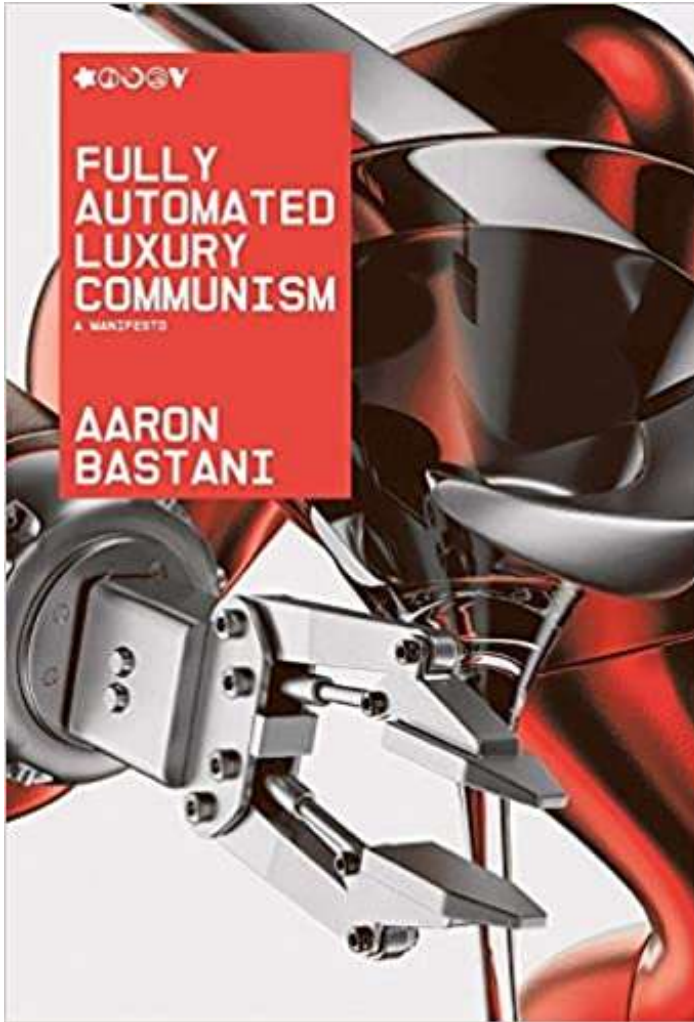
Andrea Saltelli <sup>a, b, c, d</sup>, Dorothy J. Dankel <sup>b, e</sup>, Monica Di Fiore <sup>d</sup>, Nina Holland <sup>e</sup>, Martin Pigeon <sup>e</sup>



Has the vision of 'Cosmopolis', a society as rationally ordered as the Newtonian view of nature run its course?

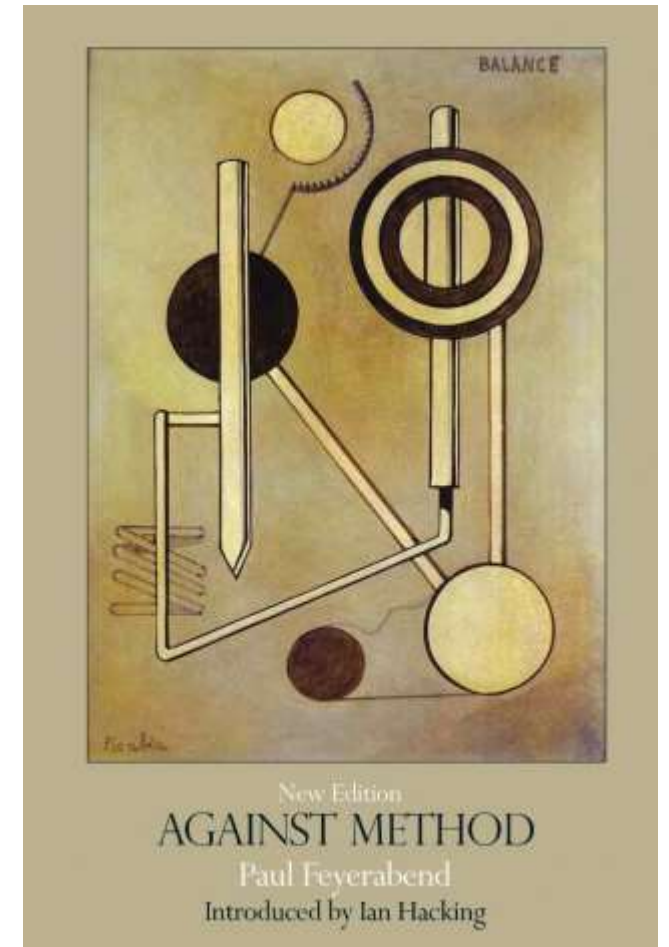
1990





Many hang to a cherished vision of the future

The social authority of science has now become so overpowering that political interference is necessary to restore a balanced development (p. 164)







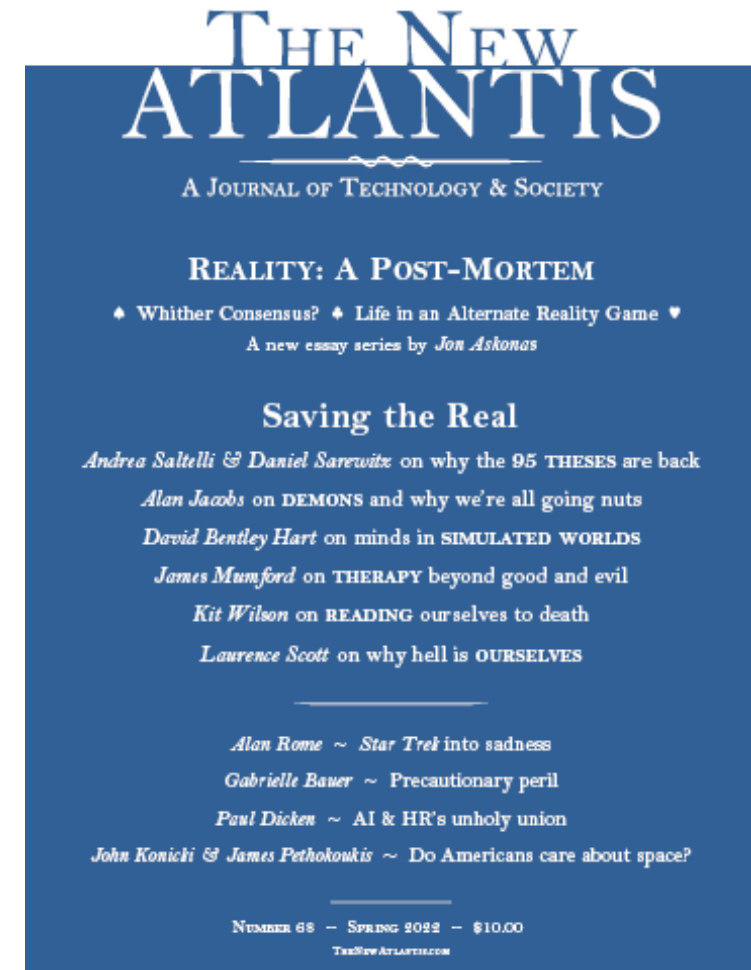
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# Technoscience, policy and the new media. Nexus or vortex?

Andrea Saltelli <sup>a, b</sup>  , Paul-Marie Boulanger <sup>c</sup> 



If that is what is happening now, then the challenge is to manage the transition, not to cling to the old order as it dissolves around us

