



Reformation in the Church of Science

Andrea Saltelli
JRC Science Summit, Ispra,
June 13, 2022



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

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NUMBER 68 — SPRING 2022 — \$10.00

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.'

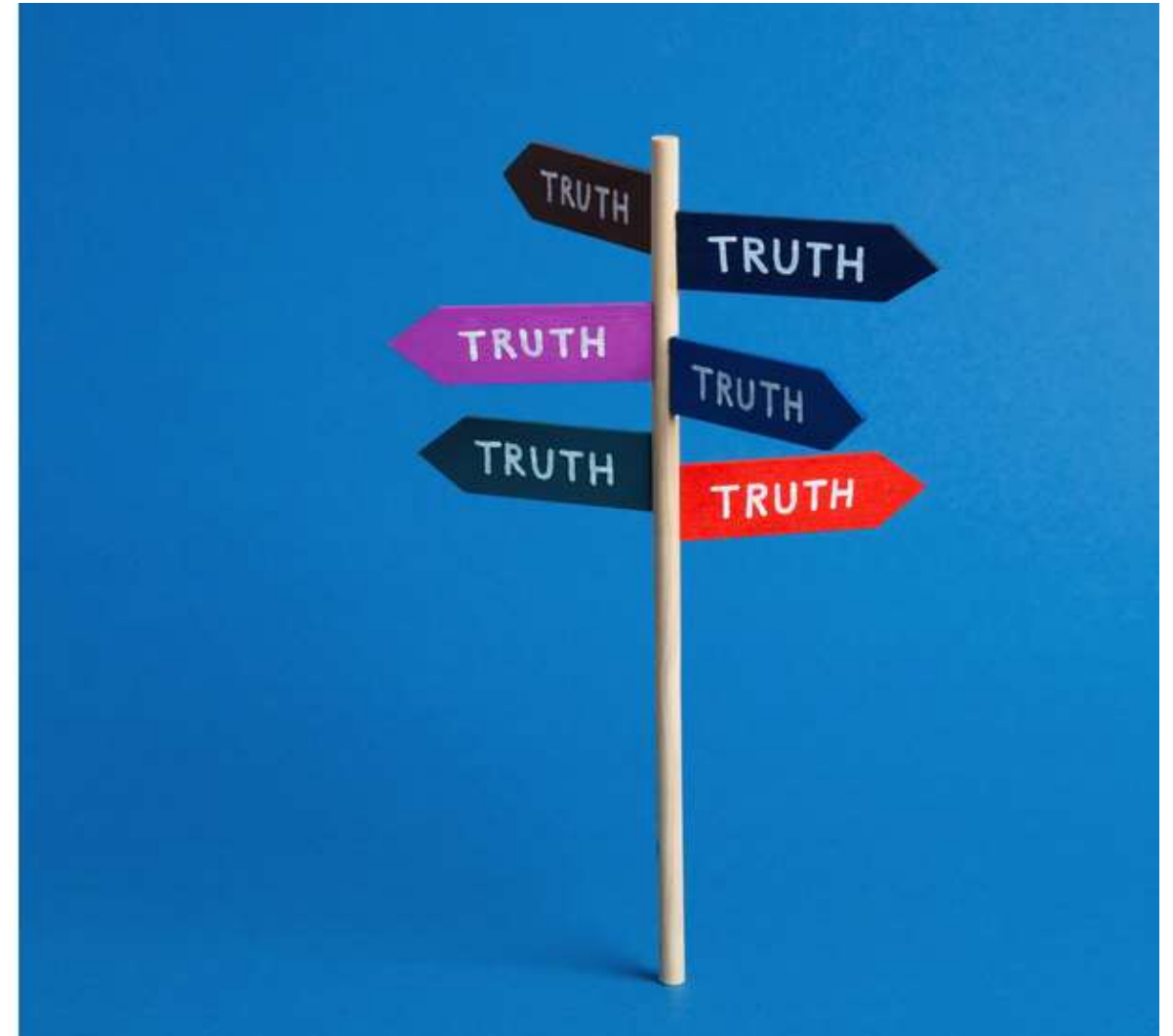


By Kevin Roose

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: the nemesis of the
information society?



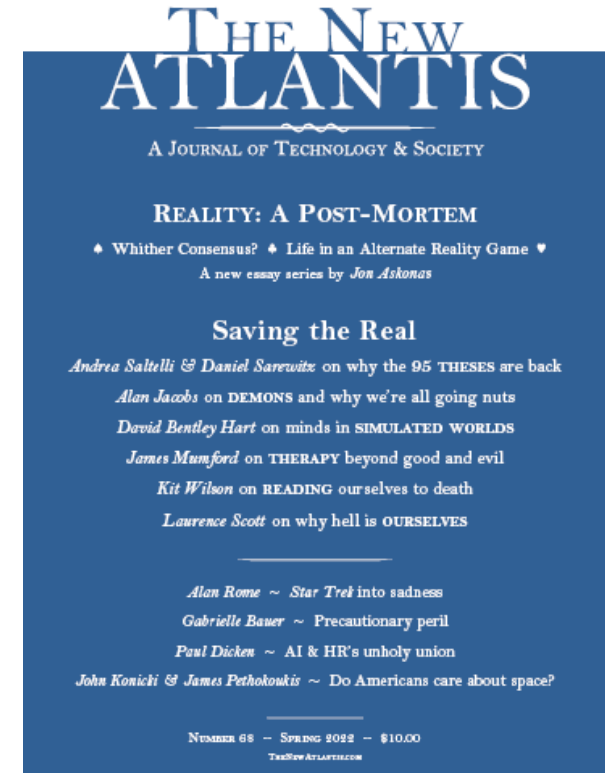
Source: Dr. Jekyll and Mr Hyde, cover Penguin

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.

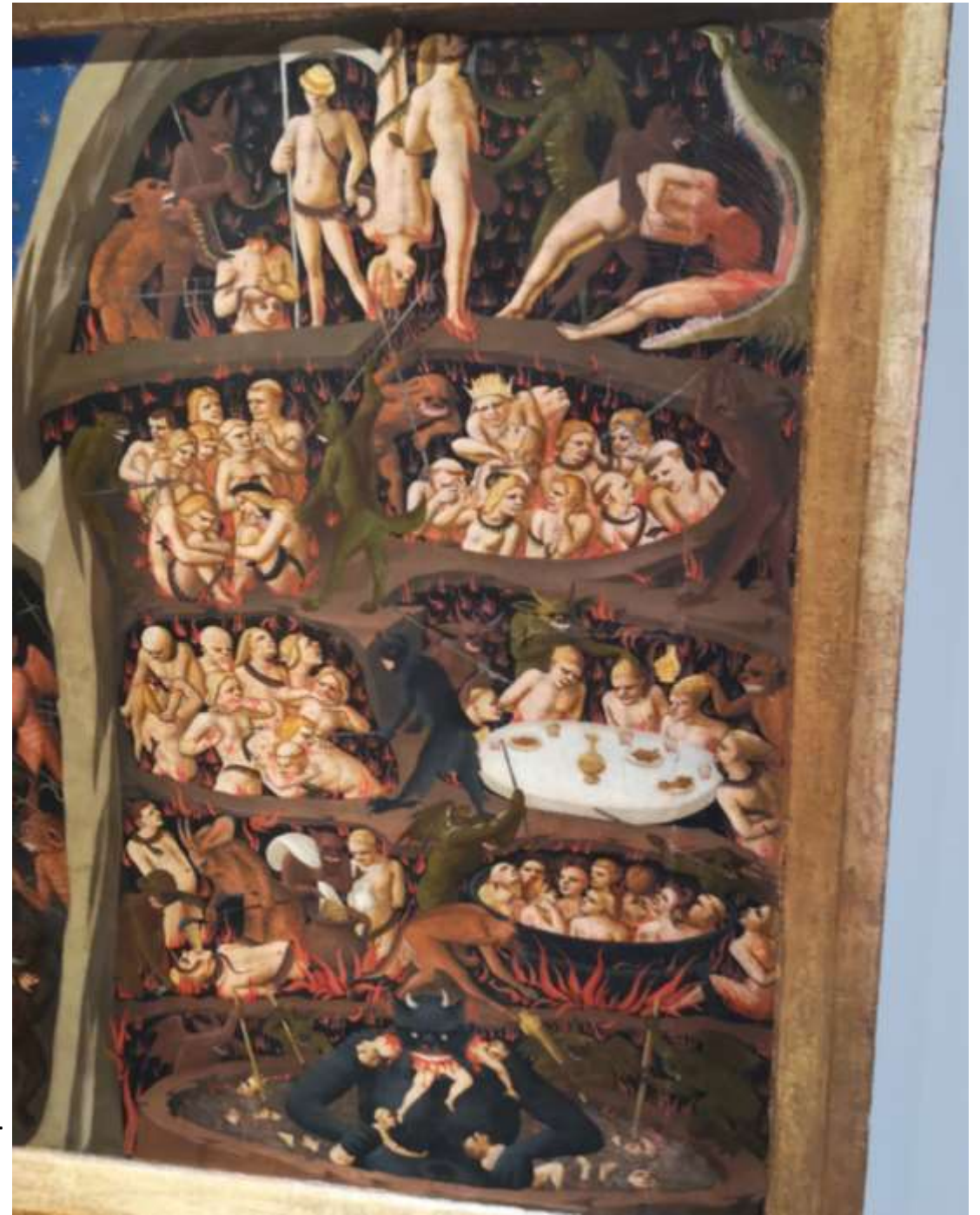


Source: Encyclopædia Britannica, Inc./Patrick O'Neill Riley

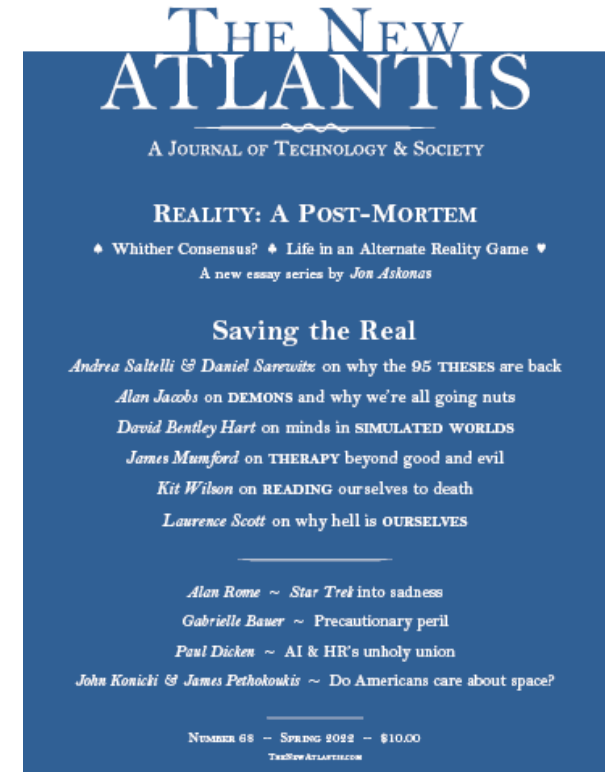


We know from history that what seemed to be stable regimes of truth may collapse, and be replaced

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



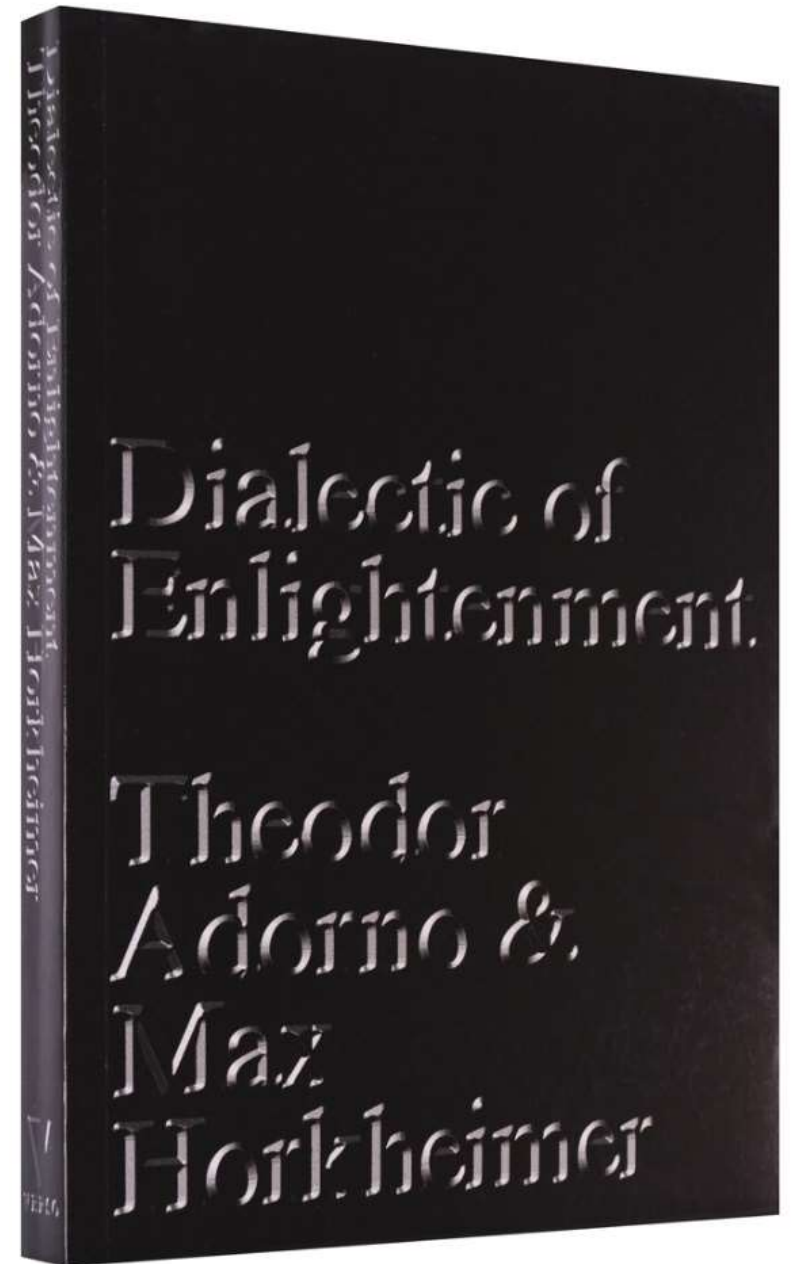
If that is what is happening now, then the challenge is to manage the transition, not to cling to the old order as it dissolves around us



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)

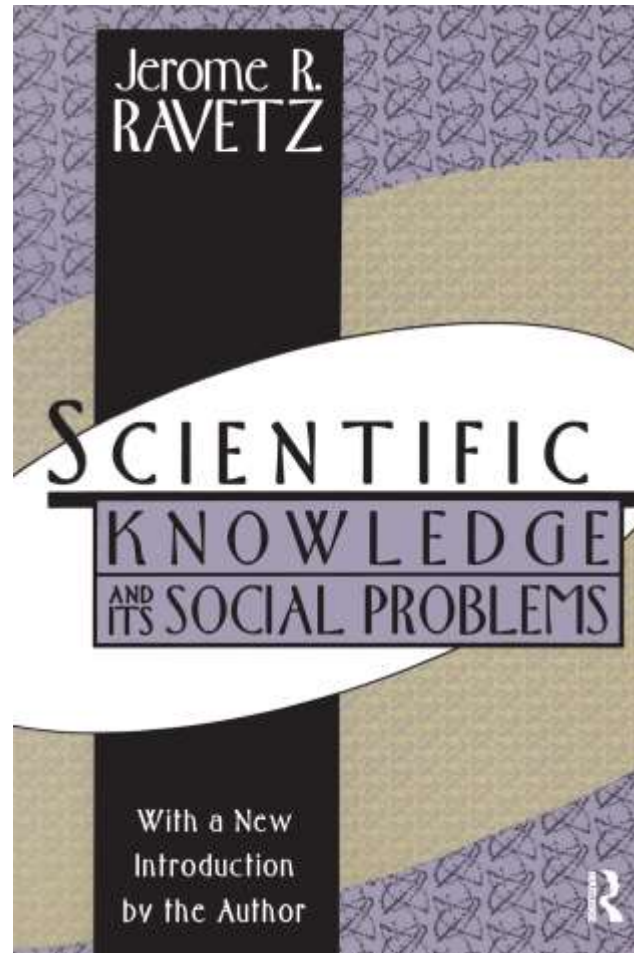


Linus Pauling debating
Edward Teller on the topic of
nuclear fallout in a televised
broadcast, February 1958

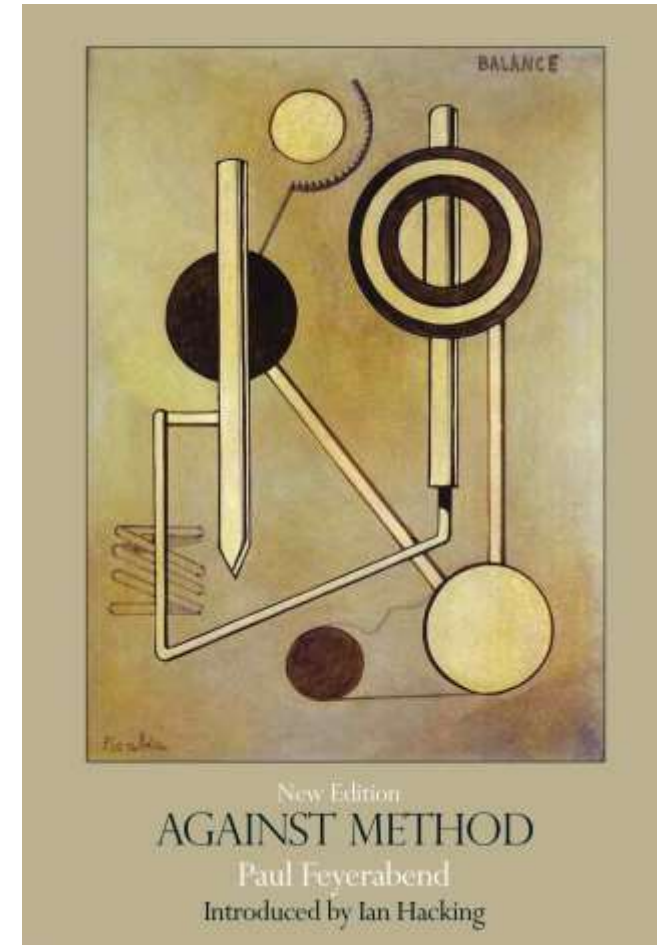
Source: The Pauling blog

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

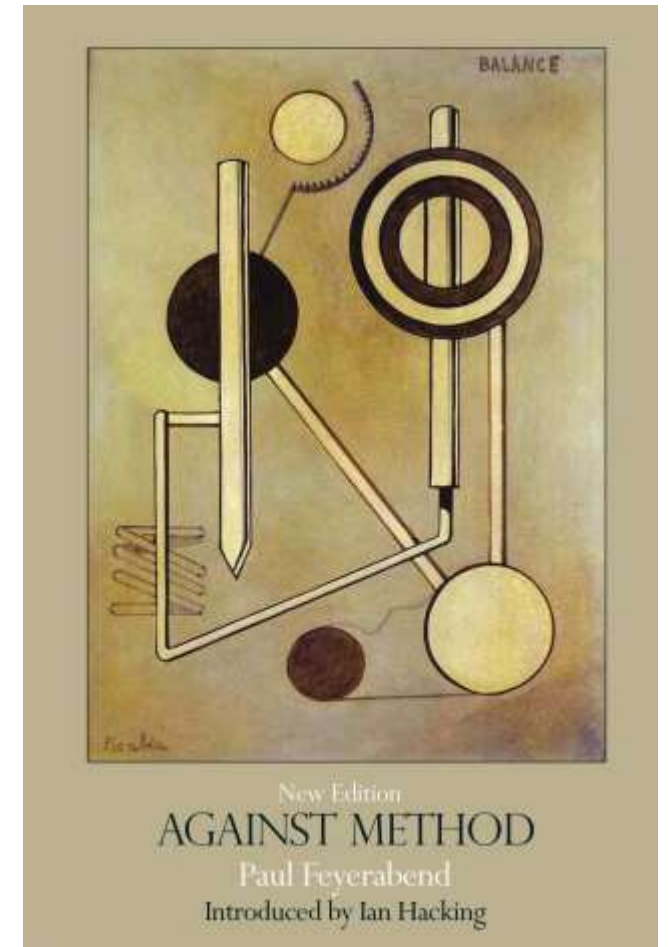
1971



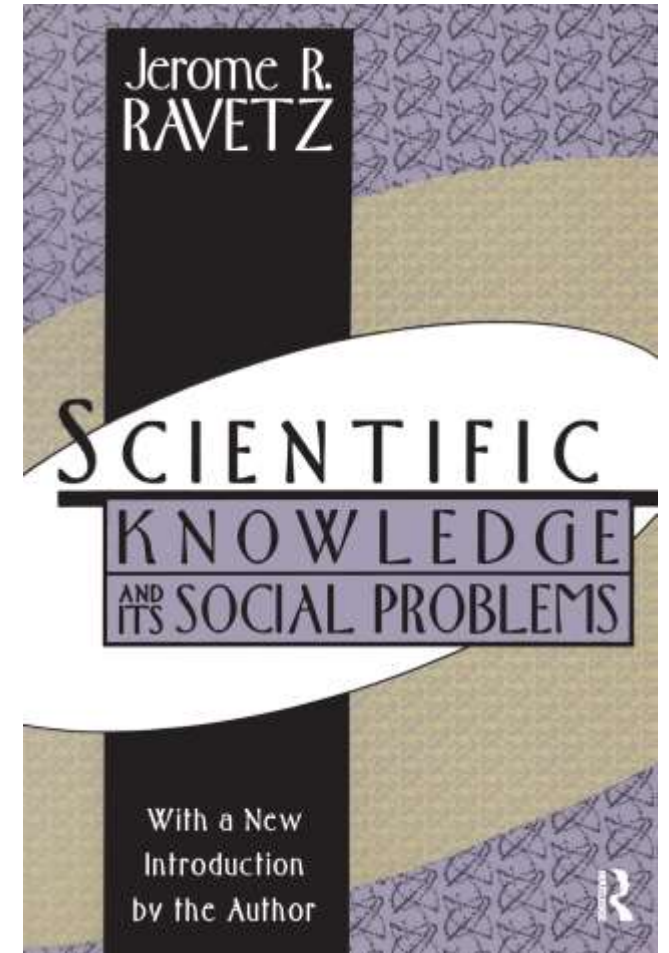
1975



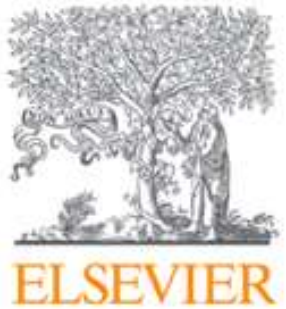
The social authority of science has now become so overpowering that political interference is necessary to restore a balanced development (p. 164)



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



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

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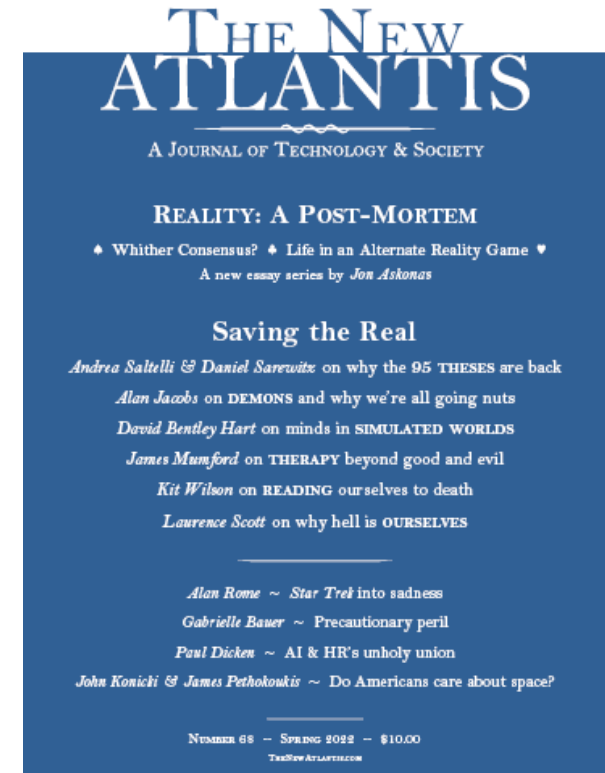
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Jerome Ravetz and
Silvio Funtowicz,
circa 1988, at Sheffield

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






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Volume 115, January 2020, 102491



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

Andrea Saltelli ^{a, b}  , Paul-Marie Boulanger ^c 



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Volume 91, August 2017, Pages 5-11



What is science's crisis really about?

Andrea Saltelli ^{a, b, c, d}, Silvio Funtowicz ^a

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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 ^{a, b, c, d}, Lorenzo Benini ^e, Silvio Funtowicz ^a, Mario Giampietro ^{d, e}, Matthias Kaiser ^a, Erik Reinert ^{a, f}, Jeroen P. van der Sluijs ^{a, g, h}



Futures

Volume 104, December 2018, Pages 85-90



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

Andrea Saltelli ^d



Futures

Volume 115, January 2020, 102491



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Andrea Saltelli ^{a, b, c, d}, Paul-Marie Boulanger ^{e, f}

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 ^a, Isabelle Vernos ^b, Stephan Kuster ^c, Helga Nowotny ^d, Andrea Saltelli ^e, Alina Mungiu-Pippidi ^f, Jan Wouter Vastbinder ^g, Daniel B. Brooks ^h & Patrick Cunningham ⁱ



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Volume 135, January 2022, 102860



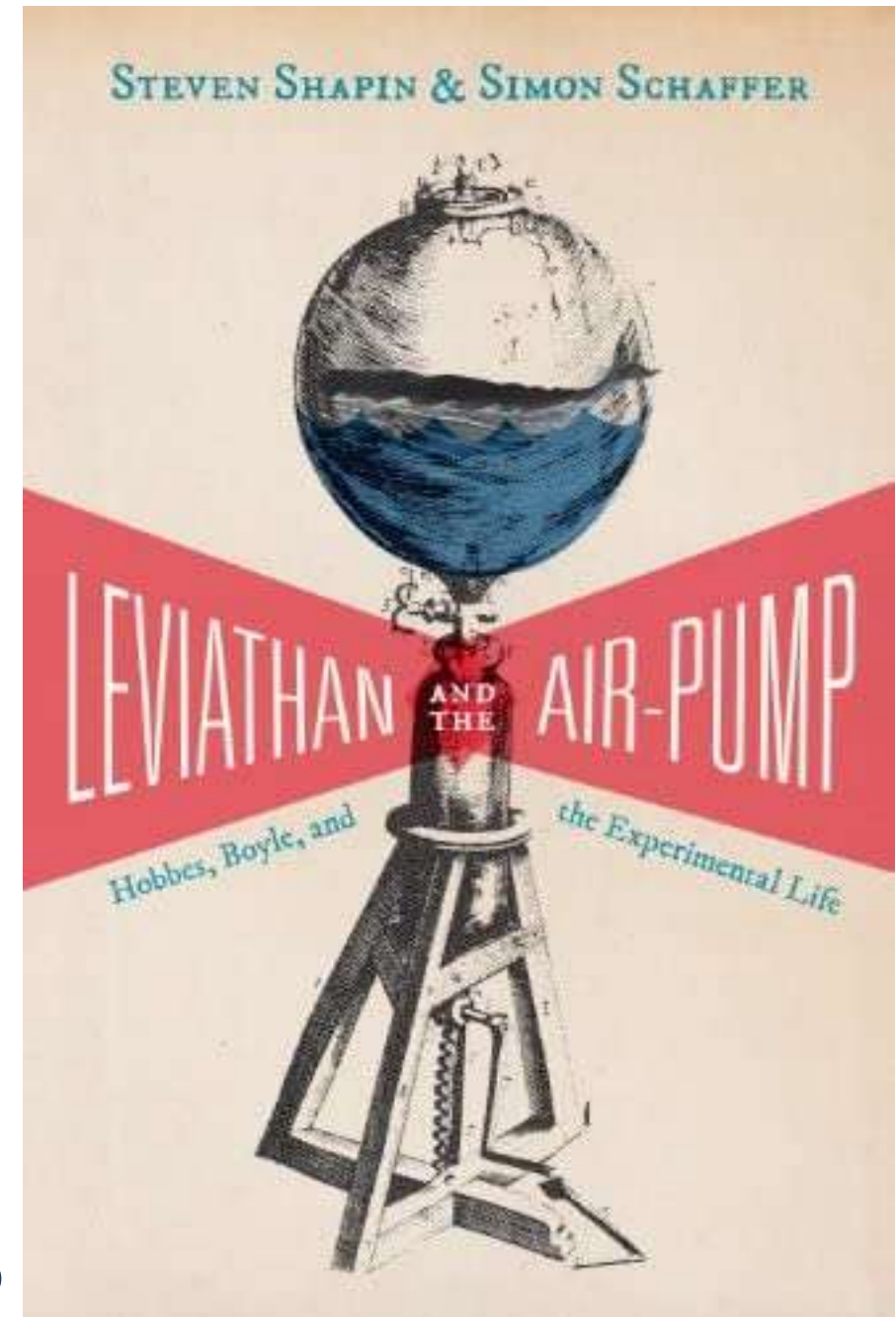
Science, the endless frontier of regulatory capture

Andrea Saltelli ^{a, b, c, d}, Dorothy J. Dankel ^{b, e}, Monica Di Fiore ^d, Nina Holland ^e, Martin Pigeon ^e

Where to start?

“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



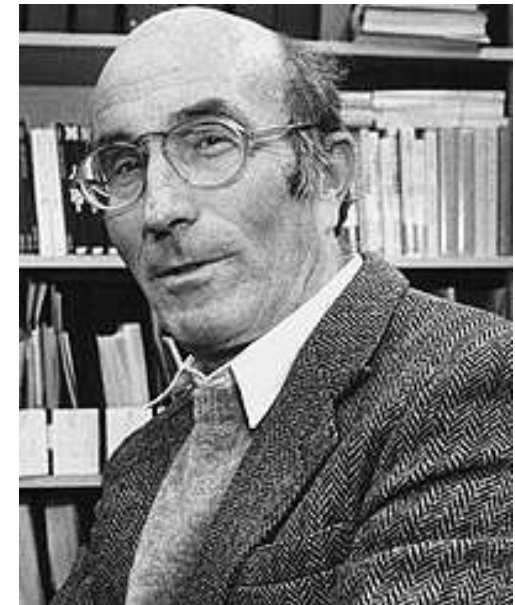
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Niklas Luhmann, 1927–1998
social systems theory

Irreflexive confidence is replaced by conditional trust



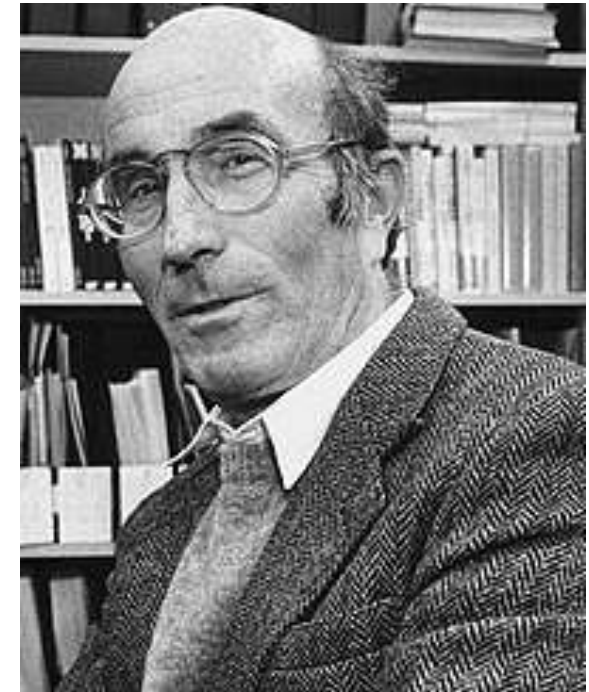
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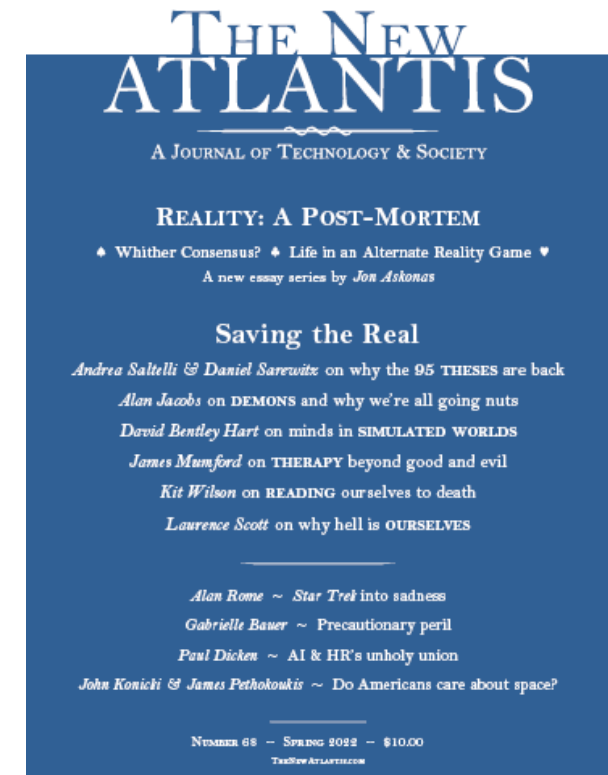
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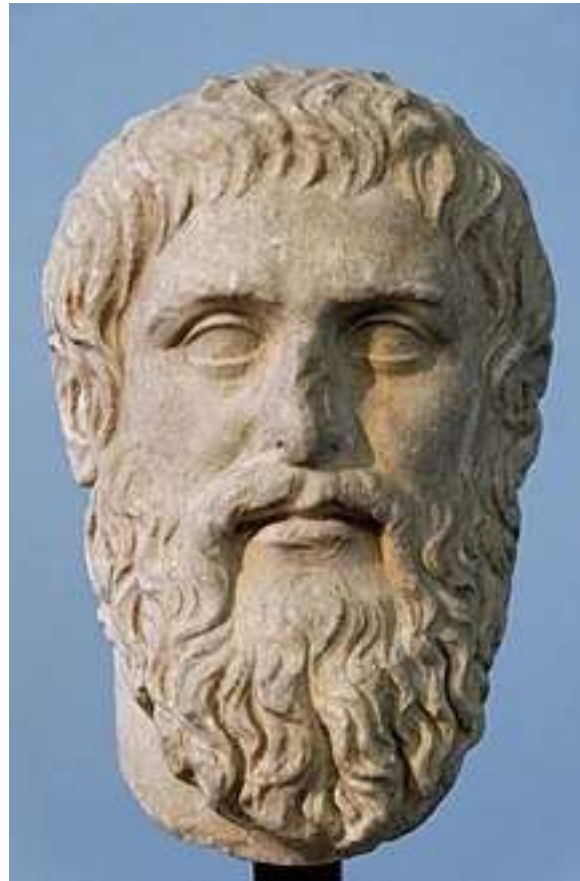
Niklas Luhmann, 1927–1998
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A nearly inexhaustible supply of competing and contradictory claims made by credentialed experts has become available, as can be seen on the case of COVID

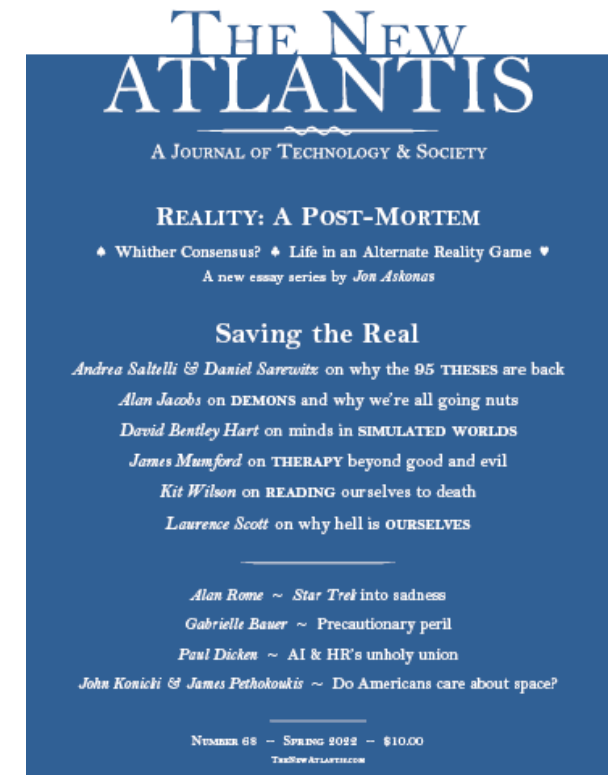


Source:
<https://www.medicalnewstoday.com/articles/anti-vaxxer>

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

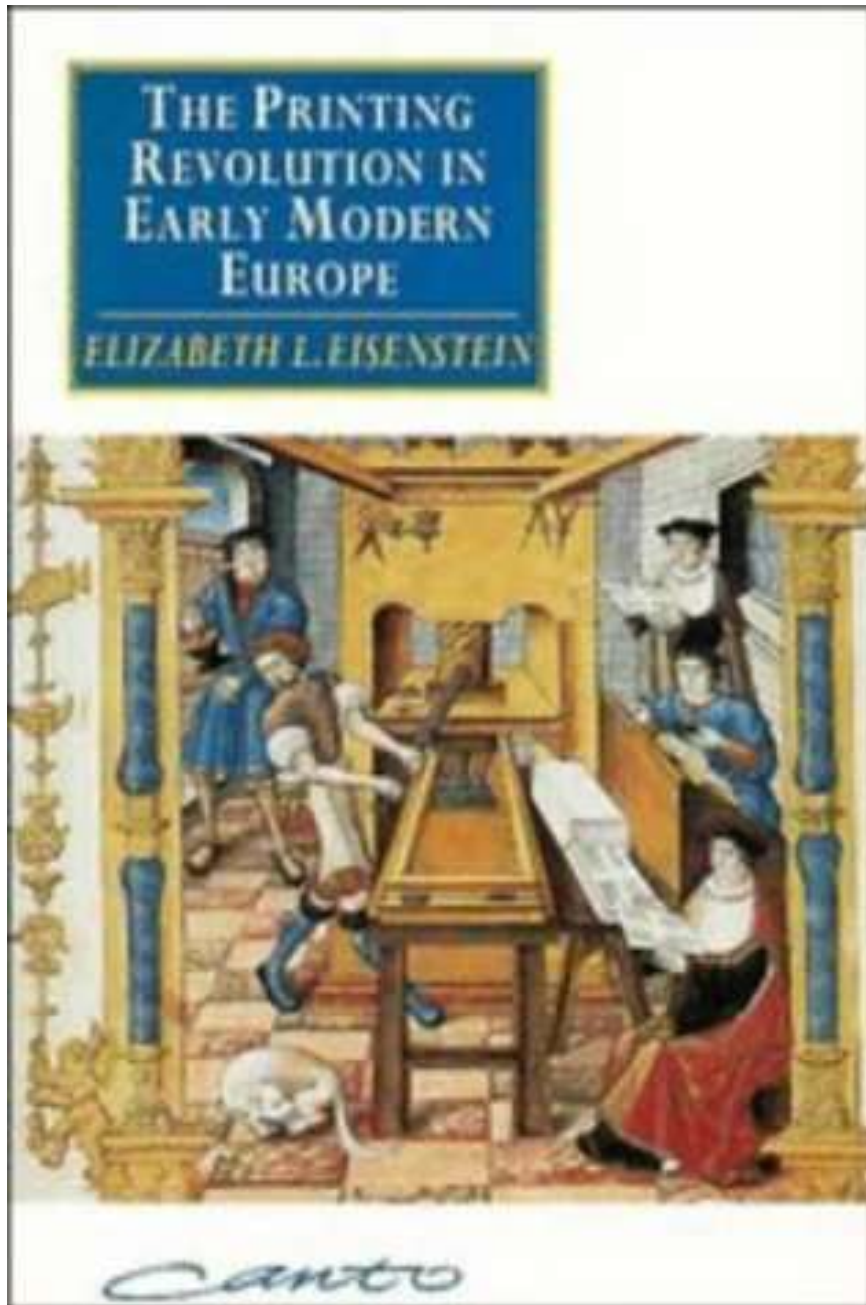


The end of “Noble lies”



Source: Wikipedia
Commons

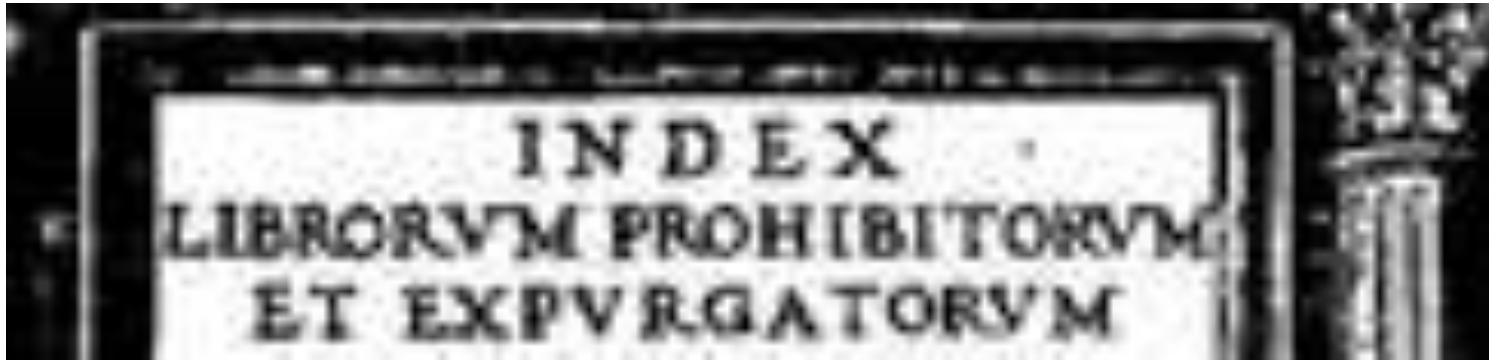
Can we learn from history?



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



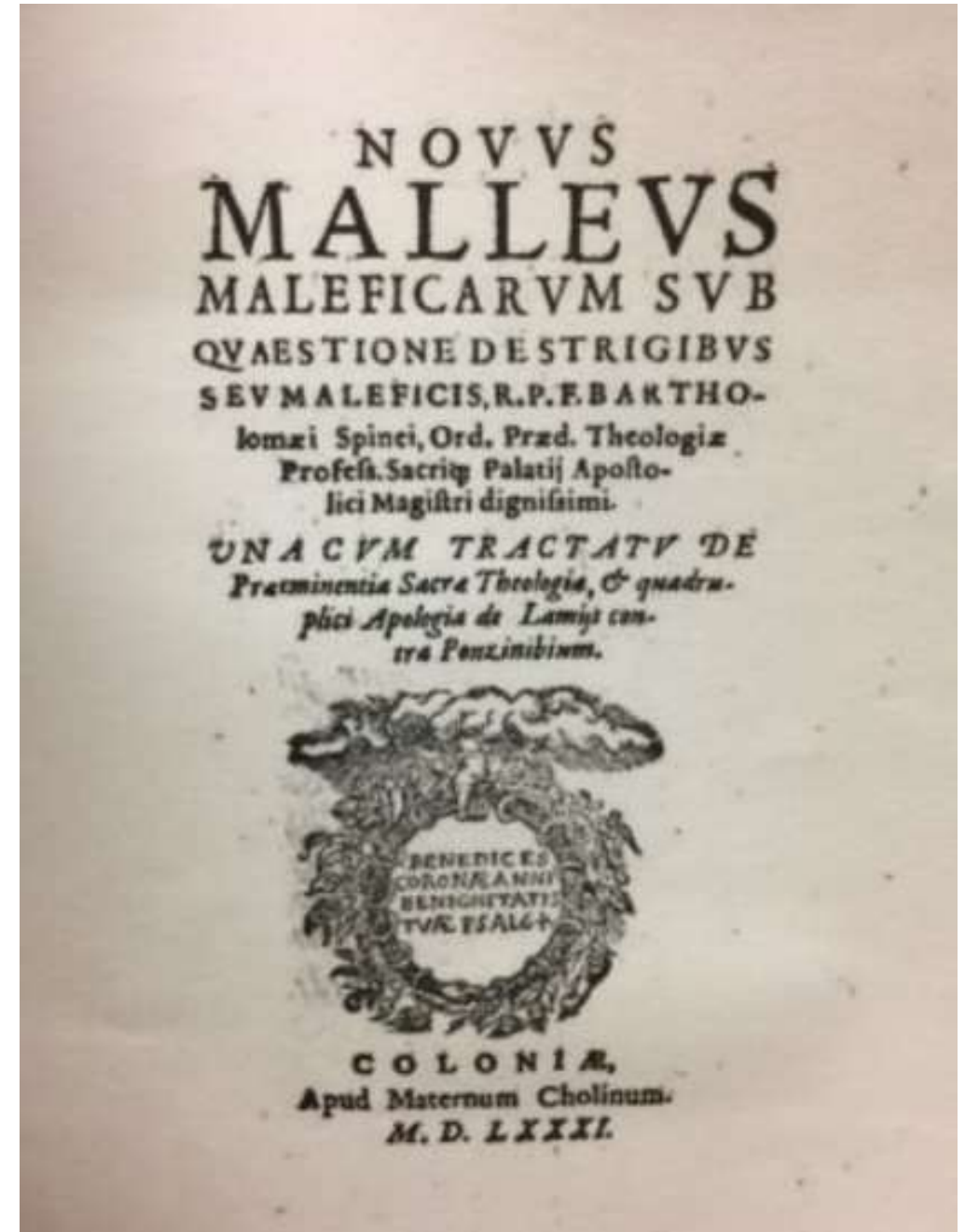
Source:
Panda Edizioni



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?

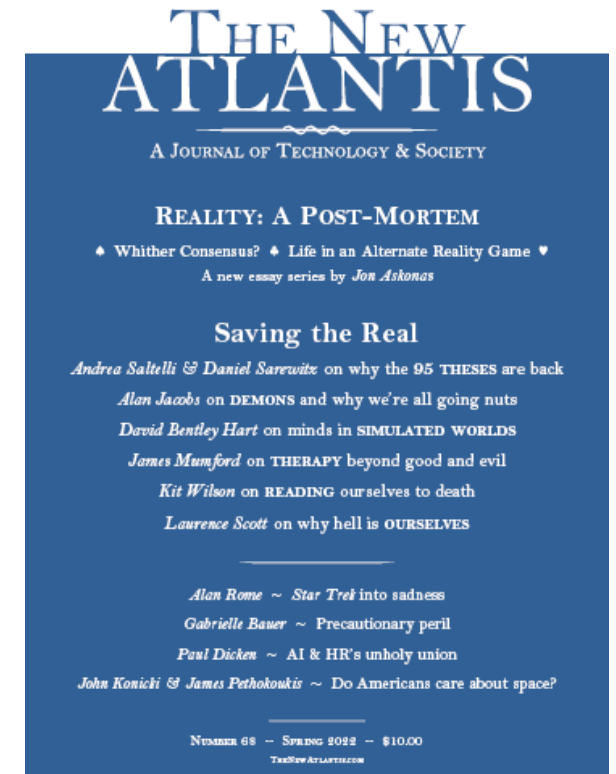
MALLEVS
MALEFICARVM SVB
QVAESTIONE DESTRIGIBVS

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





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

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

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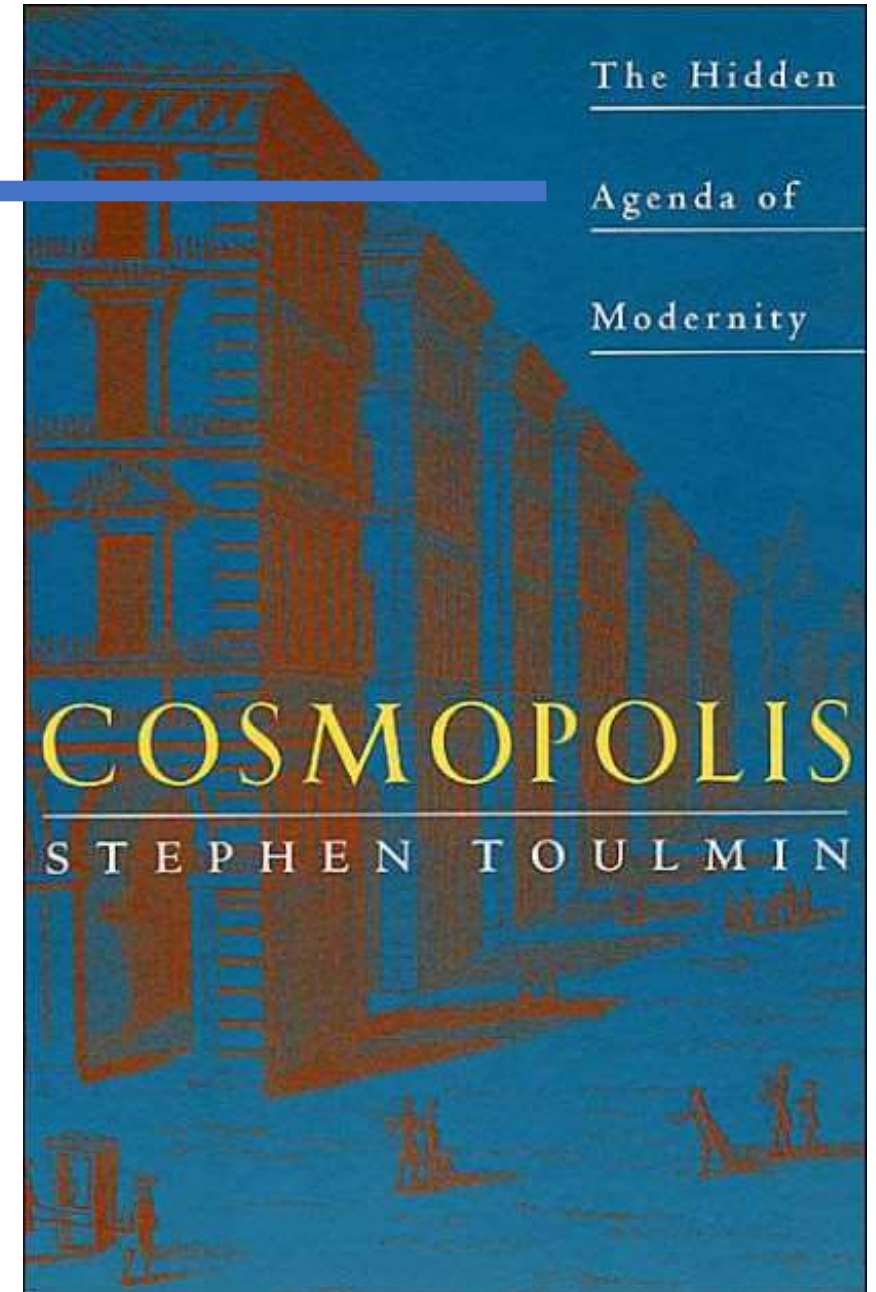
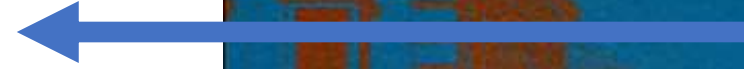
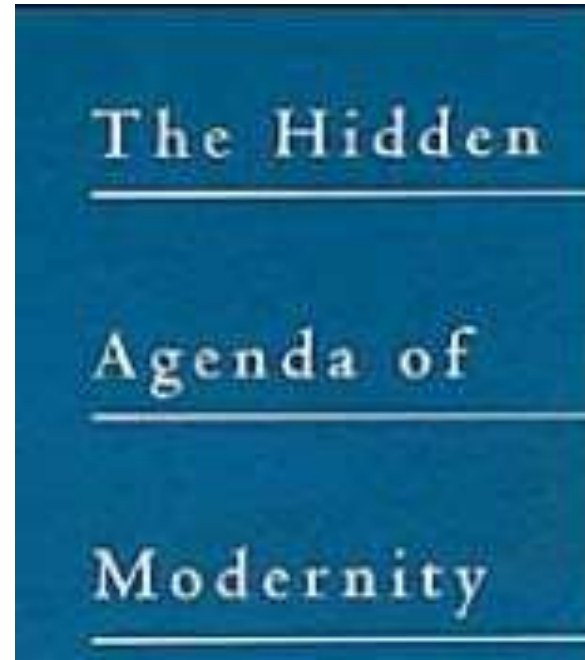
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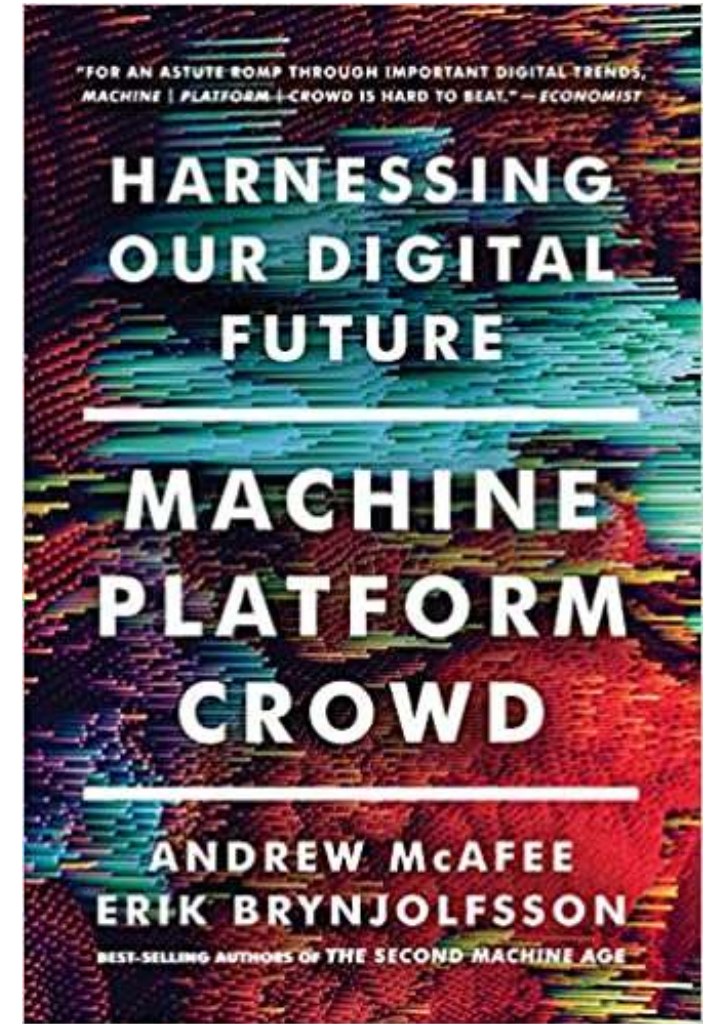
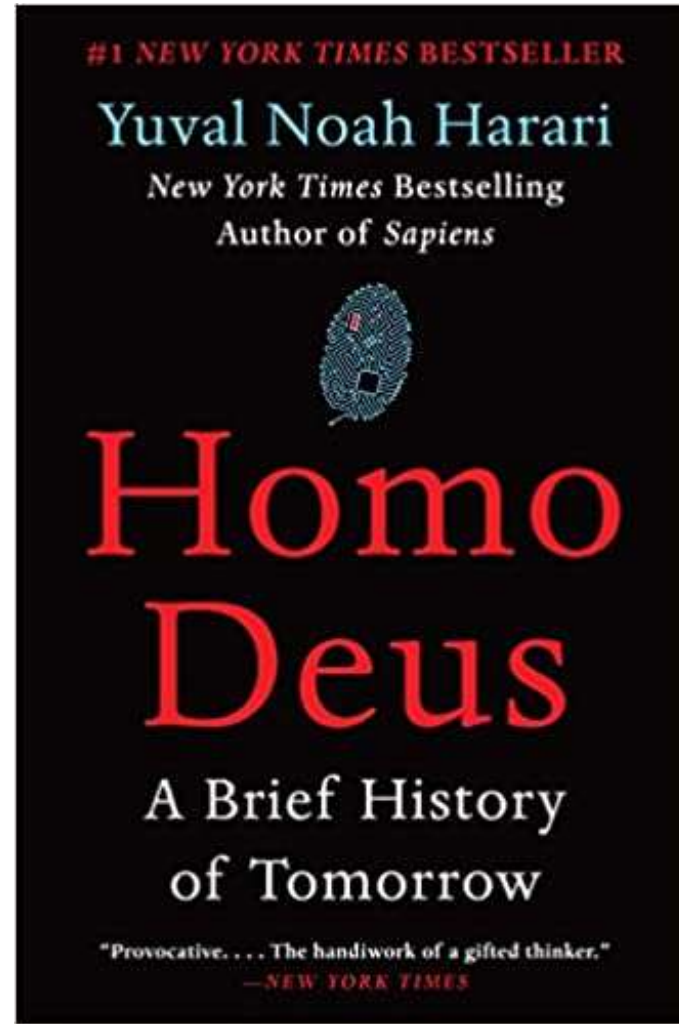
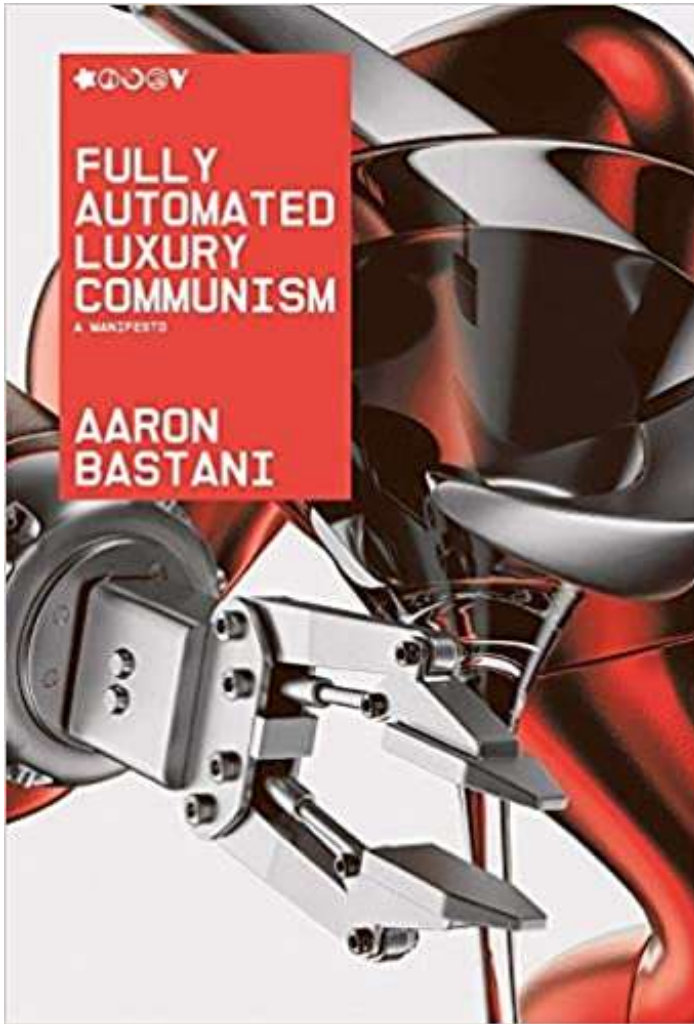
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Has the vision of 'Cosmopolis', a society as rationally ordered as the Newtonian view of nature run its course?

1990



Many hang to a cherished vision of the future

The End



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