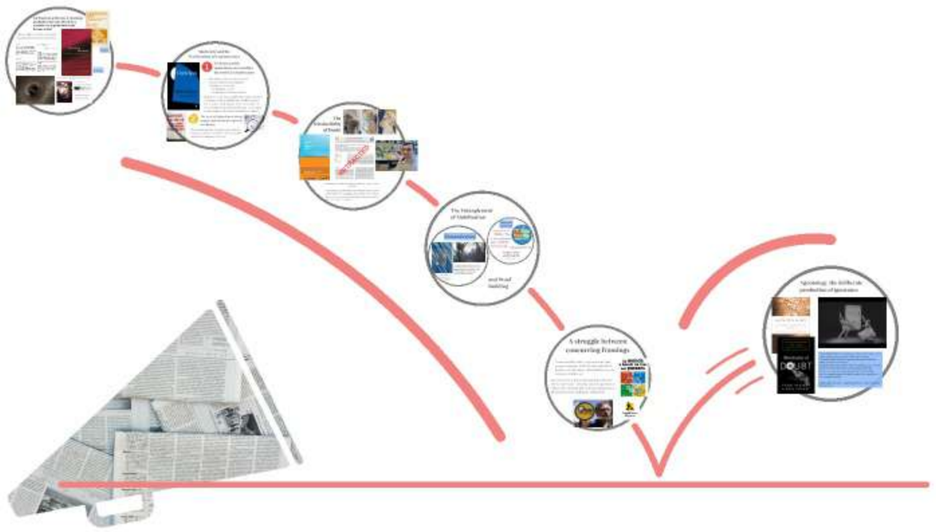
Rethinking Expertise

Thomas Tari

January 21, 2026

Science and Society

... through Controversies (3.1)



3.2 Trust in Numbers

3.3 The Blurred Boundaries of Expertise

thomas.tari@sciencespo.fr

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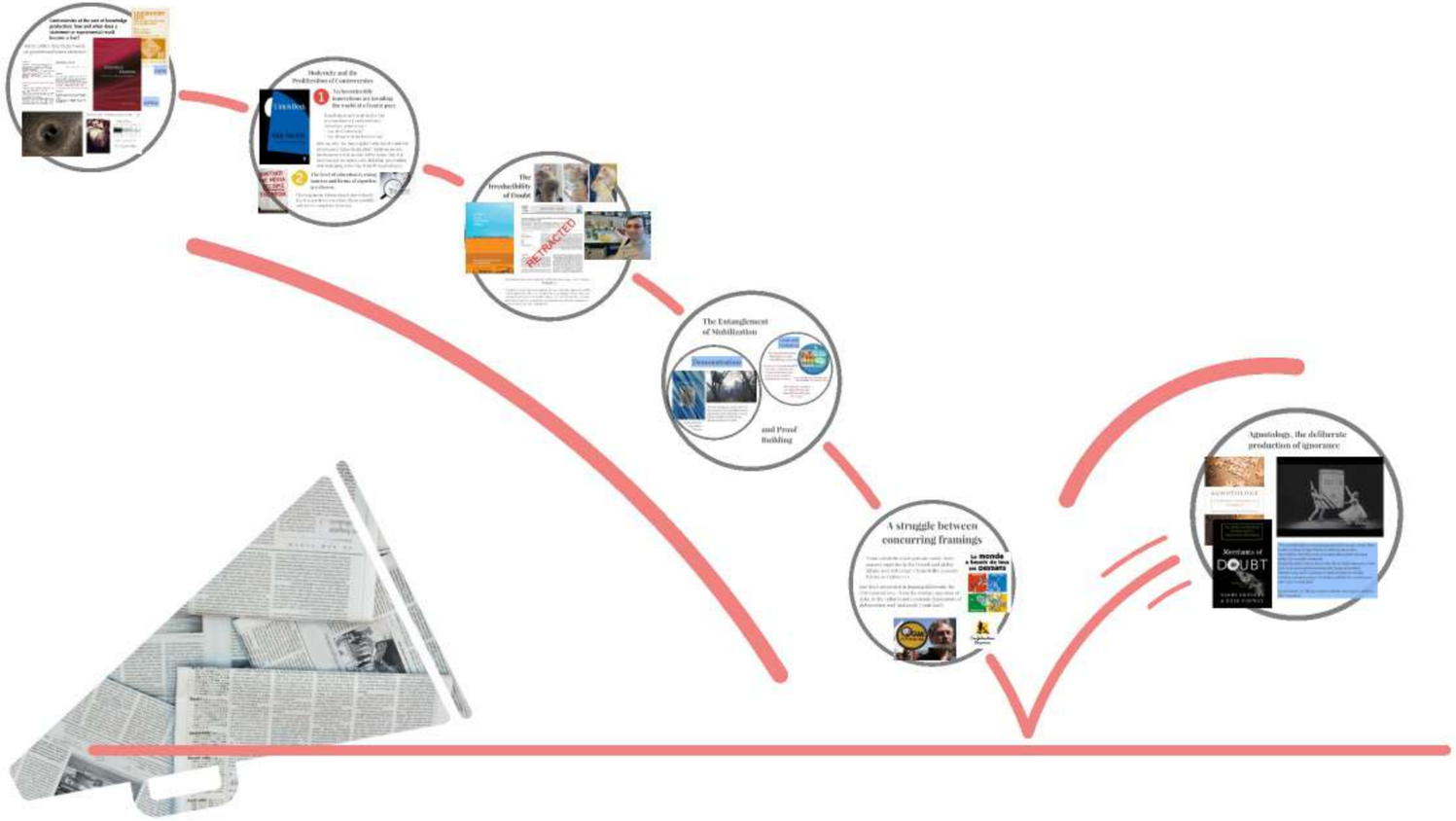

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Controversies at the core of knowledge production: how and when does a statement or experimental result become a fact?

Harry Collins' 1972 to 2017-work on gravitational waves detection

Experiment W

Scientist (a) - That's why the W thing though it's very complicated has certain attributes so that if they see something, it's a little more believable. They've really put some thought into it...
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Controversies constitute the core of scientific production

Which experts should one trust?

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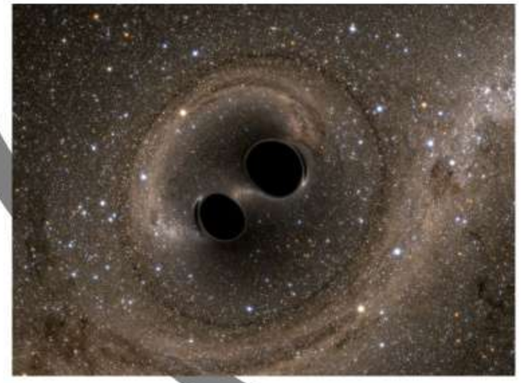

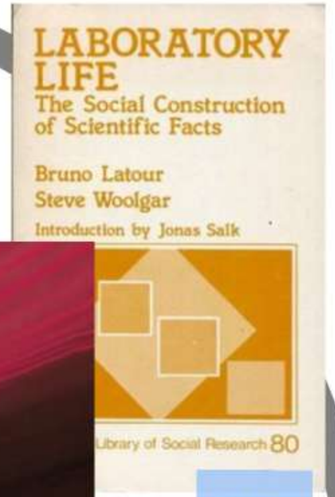

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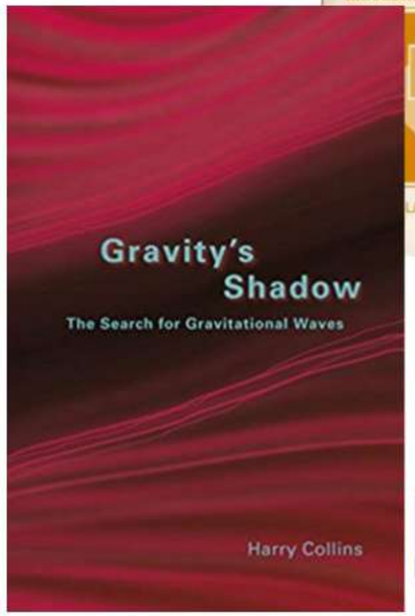
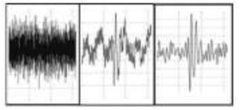


2004

The 'first detection' of gravitational waves by Weber in 1969

how the theory and the experiment are intertwined



the notion of "experimental regression"

Garwin charismatic paper establishes a (social) consensus on the non detection

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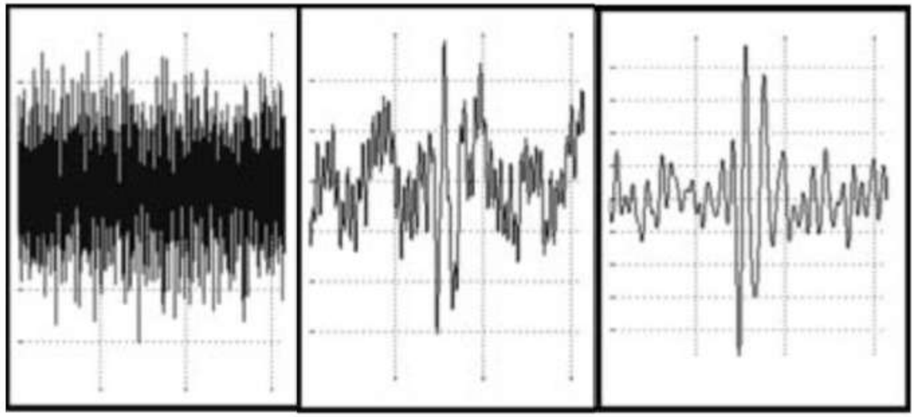

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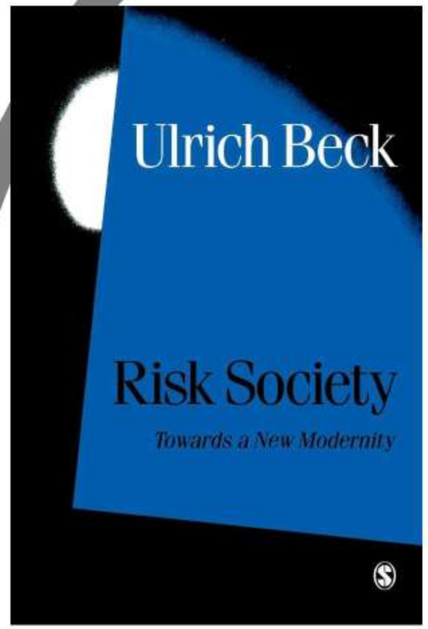
Modernity and the Proliferation of Controversies



1 Technoscientific innovations are invading the world at a frantic pace

Knowledge is not produced as fast as innovation (cf. epidemiology)
Nowadays, experts say :
- “we don't know (yet)”
- “we disagree (even between us)”

Risk Society: an "inescapable structural condition of advanced industrialization”. Modern society has become a risk society in the sense that it is increasingly occupied with debating, preventing and managing risks that it itself has produced.

2 The level of education is rising, sources and forms of expertise are diverse

Heterogeneous information is now (almost) freely accessible everywhere (from scientific articles to conspiracy theories).

ACTING IN AN UNCERTAIN WORLD

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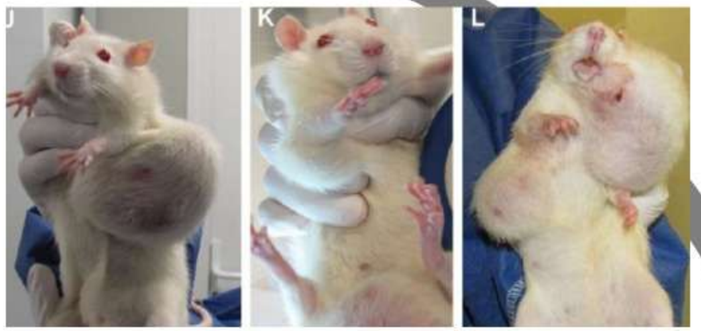
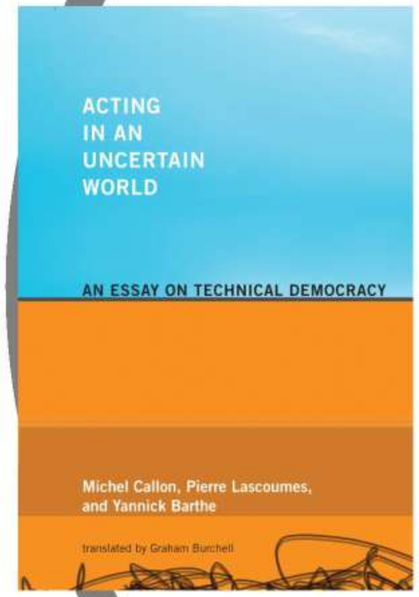
IKIPEDIA
Free Encyclopedia

The Irreducibility of Doubt





Rio Declaration on Environment and Development 1992, United Nations

Principle 15

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

The Entanglement of Mobilization

Demonstration

Andrew Barry on A30 protests (Devon)

"For by developing an inventive form of demonstration, it was possible, however imperfectly and momentarily, to reveal something which would have been otherwise unknown to others"

Cause and Causation

The symmetry between:
- fighting for a cause
- establishing a causality

Diversity of groups enrolled:
- veterans of nuclear tests
- victims of nuclear tests
- anti-nuclear pacifists
- anti-nuclear activists

"Cause politique et politique des causes"
Yannick Barthe, Politix, 2010, vol3/91

The chain of causation is redefined through the (self)-identification of victims.

and Proof Building

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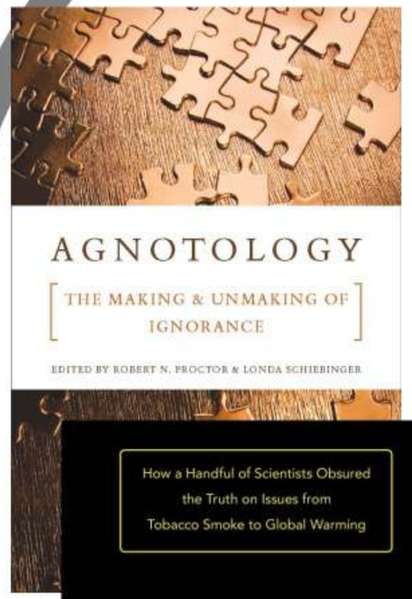
A struggle between concurring framings

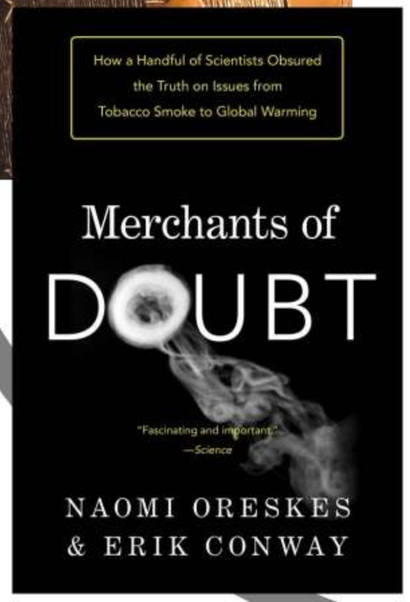
"From scientific risk to paysan savoir-faire: peasant expertise in the French and global debate over GM crops", Chaia Heller (2002) in *Science as Culture* 11.1

José Bové succeeded in framing differently the GMO controversy : from the sanitary question of risks, to the cultural and economic dimensions of globalization and "malbouffe" (junk food).

Confédération Paysanne

Agnotology, the deliberate production of ignorance





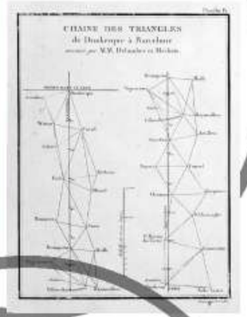
"The scientific debate is closing [against us] but not yet closed. There is still a window of opportunity to challenge the science…
Voters believe that there is no consensus about global warming within the scientific community.
Should the public come to believe that the scientific issues are settled, their views about global warming will change accordingly.
Therefore, you need to continue to make the lack of scientific certainty a primary issue in the debate, and defer to scientists and other experts in the field."

Frank Luntz, in "Memo exposes Bush's new green strategy" The Guardian

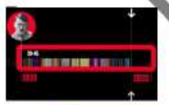
3.2 Trust in Numbers

No double standards

Jean-Baptiste Delambre and Pierre Méchain



Experimental history: the B.C. / A.D. timeline

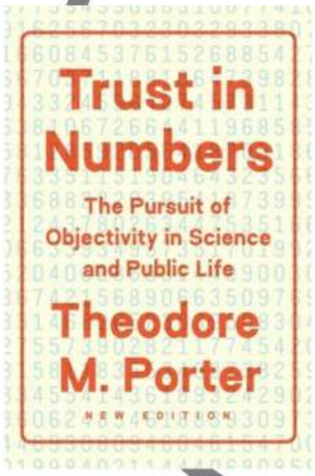


The Revolution, through the metric reform, has made the number 100, always present in the numerologies of human civilizations, infinitely more visible than before. But for the century to spring up, it was necessary to have the happy coincidence of the End of the World and the End of a Century; and the deep conviction of living a unique rupture in History, between two coherent and incompatible entities.

This brings us back to one of the major characteristics of the century: its mentality. The constitutive aberration of the century, namely its unreferentiality, thus becomes its main asset. Of all the systems of periodization, the secular system is the least marked – by reality, by historiography. It is, therefore, the most open to what has been little or not studied in history: economy, demography, mentalities.

How old is the century?

The overwhelming appeal of quantification



Porter shows that it is "exactly wrong" to interpret the drive for quantitative rigor as inherent somehow in the activity of science except where political and social pressures force compromise.

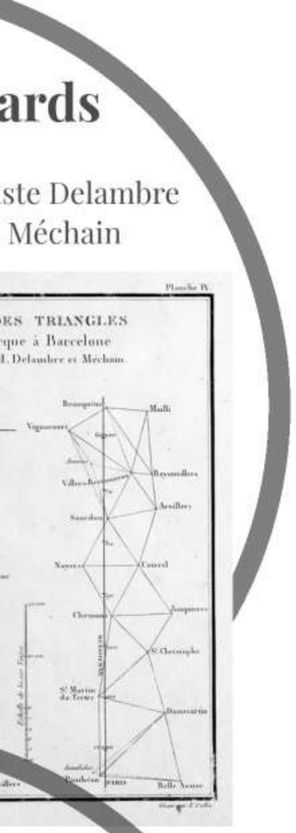
Instead, quantification grows from attempts to develop a strategy of impersonality in response to pressures from outside. Objectivity derives its impetus from cultural contexts, quantification becoming most important where elites are weak, where private negotiation is suspect, and where trust is in short supply.

Legibility and simplification

Illegible Natural vs. Legible "Scientific" Forests

A new term, Waldsterben (forest death), entered the German vocabulary to describe the word cases. An exceptionally complex process involving soil building, nutrient uptake, and symbiotic relations among fungi, insects, mammals, and flora – which were, and still are, not entirely understood – was apparently disrupted, with serious consequences. Most of these consequences can be traced to the radical simplicity of the scientific forest.

Society must be remade before it can be the object of quantification. Categories of people and things must be defined, measures must be interchangeable, land and commodities must be converted or represented by an equivalent in money. There is much of what Weber called rationalization in this, and also a good deal of centralization.
— Theodore M. Porter, "Objectivity as Standardization"



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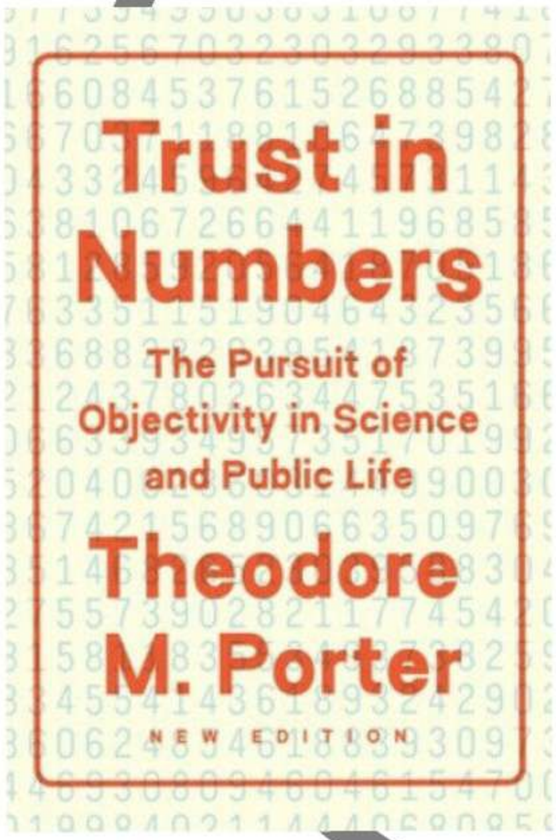

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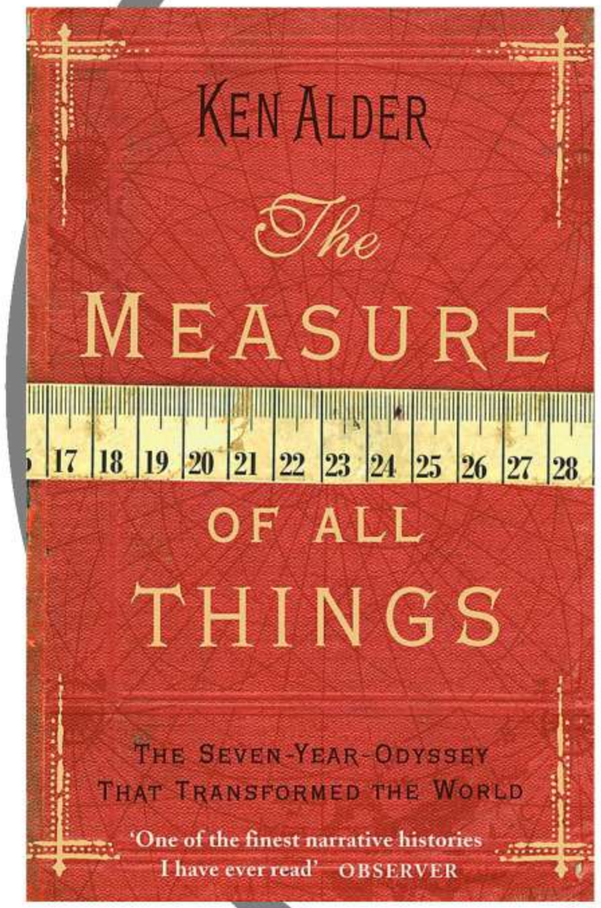

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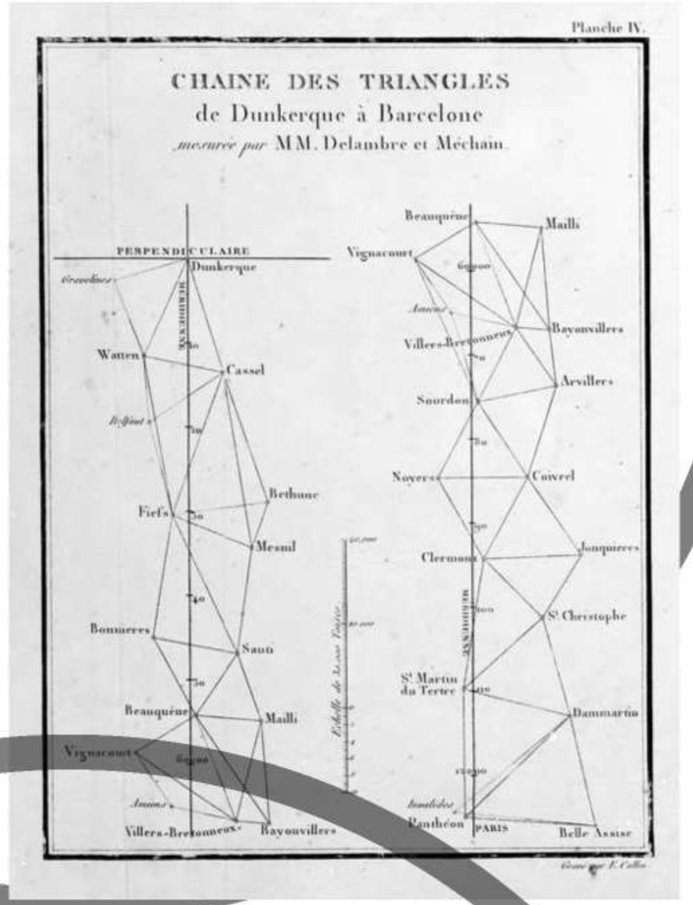

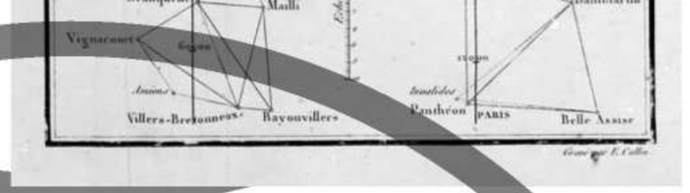

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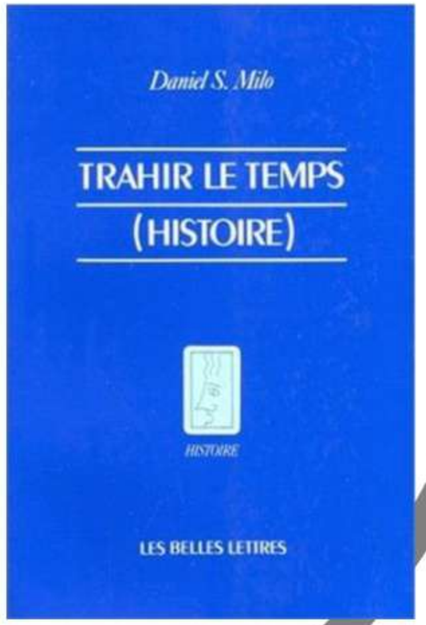

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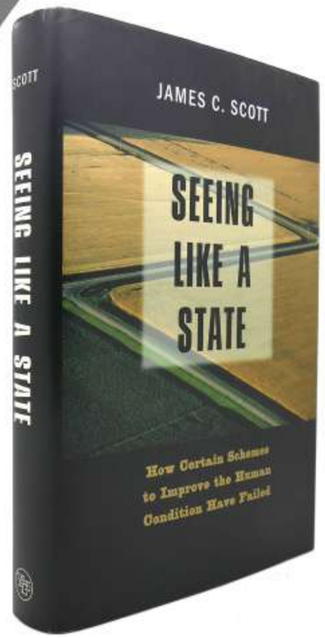
Legibility and simplification



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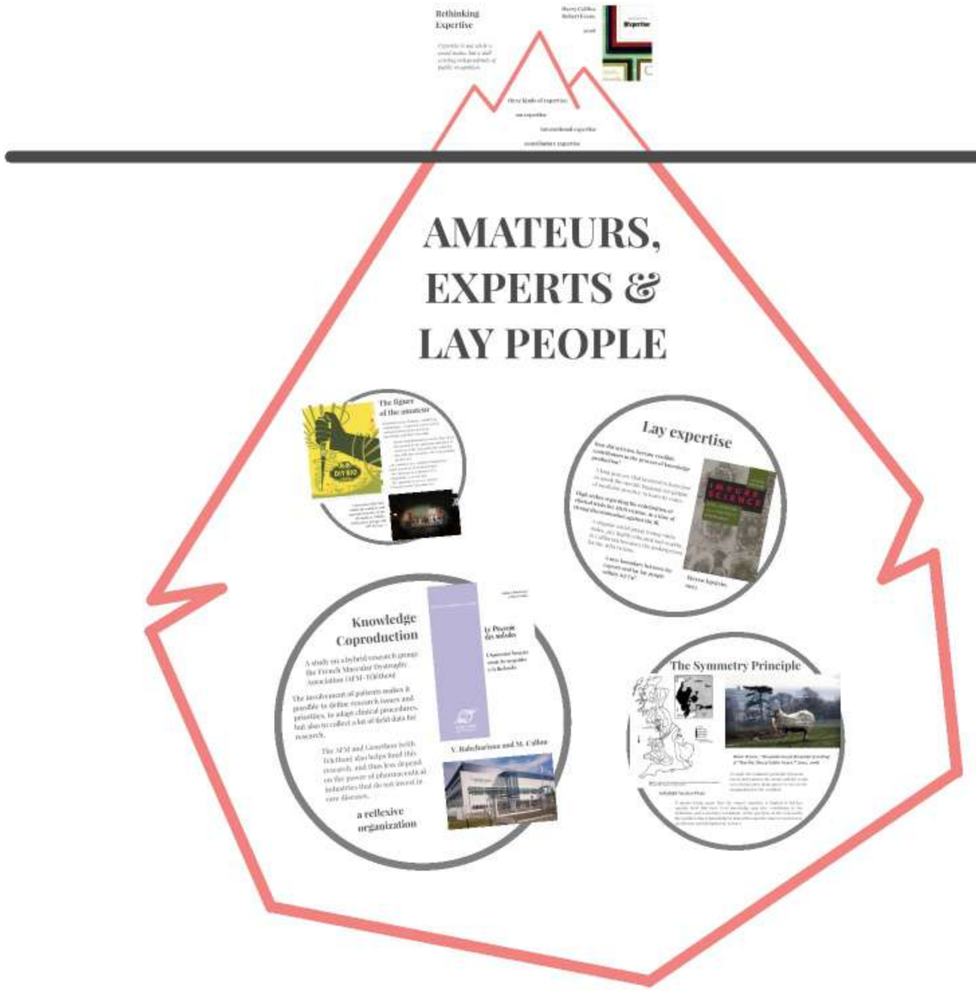
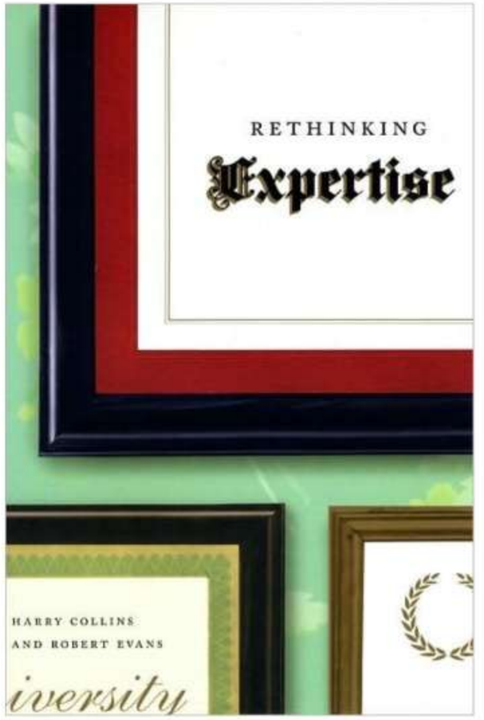


Rethinking Expertise

Harry Collins
Robert Evans

2008



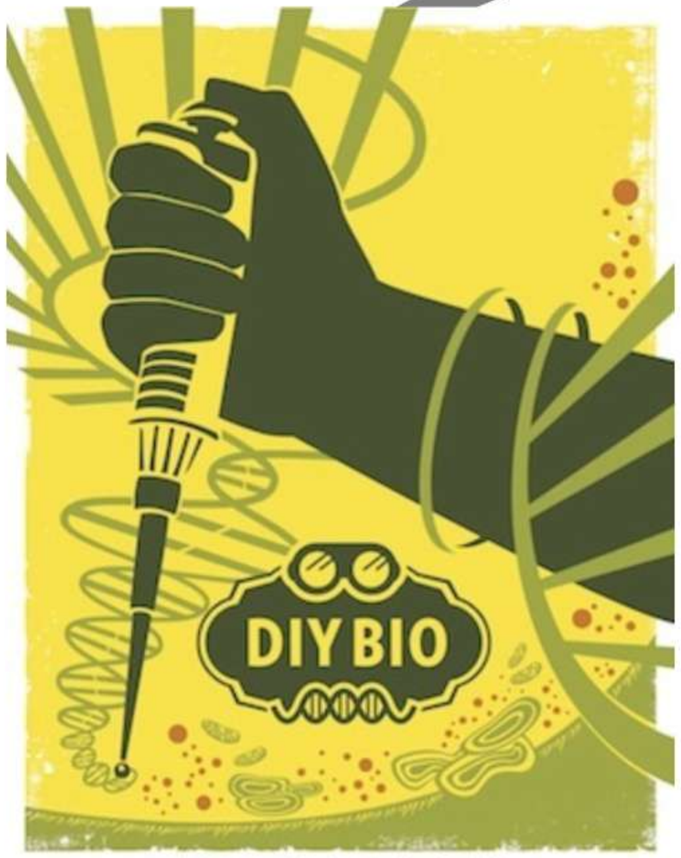
Expertise is not solely a social status, but a skill existing independently of public recognition.

three kinds of expertise:

no expertise

interactional expertise

contributory expertise



The figure of the amateur

In field sciences (botany, ornithology, entomology...) amateurs watch, gather and sometimes structure local knowledge and their networks.

These contributions to science have been threatened by the professionalization of sciences in the 19th and 20th centuries, they still play an active role in knowledge production.

- the amateur as a sensible living being (tacit, practical, local knowledge)
- the amateur as a member of a community, a social club
- the amateur as an eco-citizen, (Peasant Seeds Networks etc.)

A movement that now claims the symbolic and material structure of the lab (makers, fablabs, biohackers, garage and DIY biology...)

Lay expertise

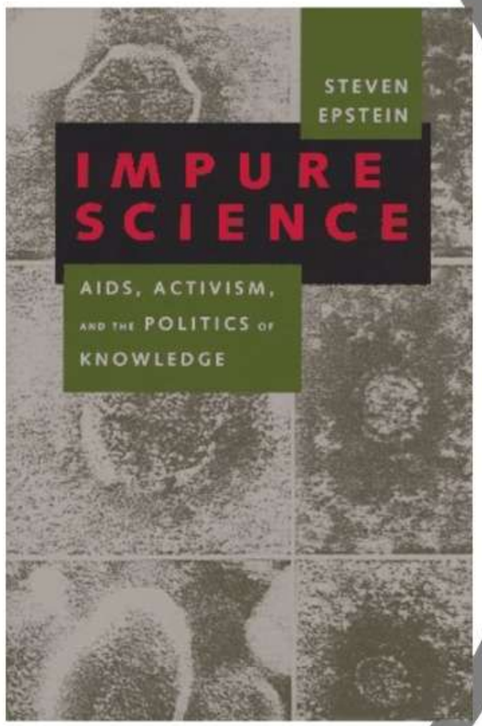
How did activists became credible contributors in the process of knowledge production?

A long process, that involved to learn how to speak the specific language (or pidgin) of medicine practice, to learn its codes.

High stakes regarding the redefinition of clinical trials for AIDS victims, in a time of strong discrimination against the ill.

A singular social group (young white males, gay, highly educated and wealthy, in California) becomes the spokesperson for the AIDS victims.

A new boundary between lay experts and lay lay people within Act Up?



Steven Epstein, 1993

Knowledge Coproduction

A study on a hybrid research group: the French Muscular Dystrophy Association (AFM-Téléthon)

The involvement of patients makes it possible to define research issues and priorities, to adapt clinical procedures, but also to collect a lot of field data for research.

The AFM and Genethon (with Telethon) also helps fund this research, and thus less depend on the power of pharmaceutical industries that do not invest in rare diseases.

a reflexive organization

V. Rabeharisoa and M. Callon

A new boundary between lay experts and lay lay people within Act Up?

The

Figure 2. Contours of UK radioactive caesium contamination
June–July 1986. The data are in units of Bq m⁻²

Sellafield Nuclear Plan

It means being
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are diverse and n

The Symmetry Principle

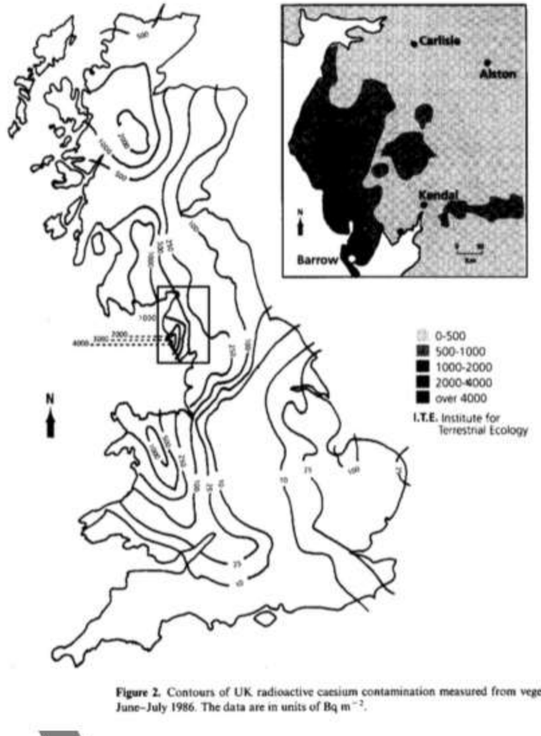

Figure 2. Contours of UK radioactive caesium contamination measured from vegetation, June–July 1986. The data are in units of Bq m^{-2}.

Sellafield Nuclear Plant

Brian Wynne, "Misunderstood Misunderstanding" & "May the Sheep Safely Graze?" (1992; 1996)

To apply the symmetry principle (between losers and winners, the strong and the weak) is not being naive about power or nice to the marginalized or the excluded.

It means being aware that the expert expertise is limited to his/her specific field, that tacit, local knowledge may also contributes to the definition, and sometimes resolution, of the problem. In the real world, the useful forms of knowledge to deal with a specific issue or controversy are diverse and not limited to "science".