

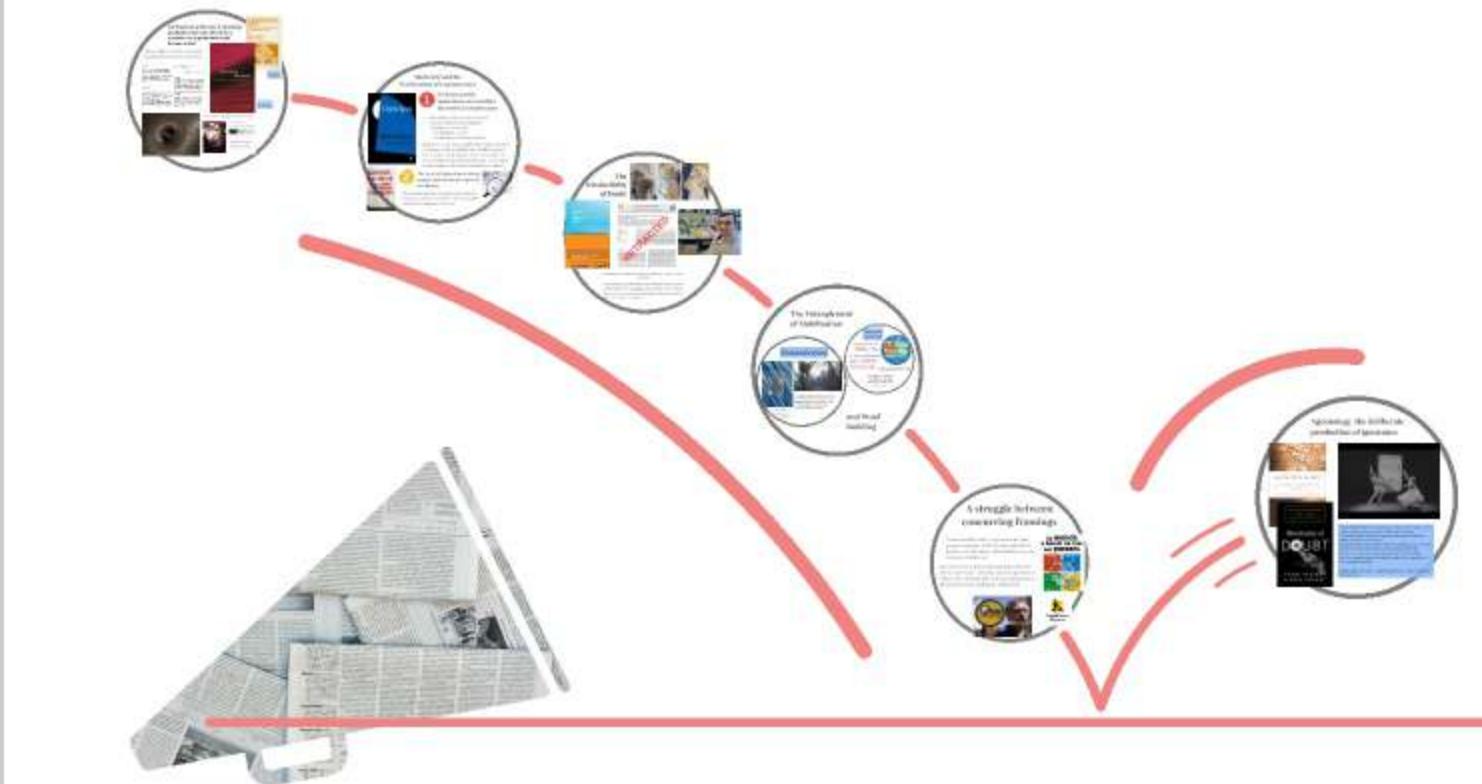
# Rethinking Expertise (UNK)

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

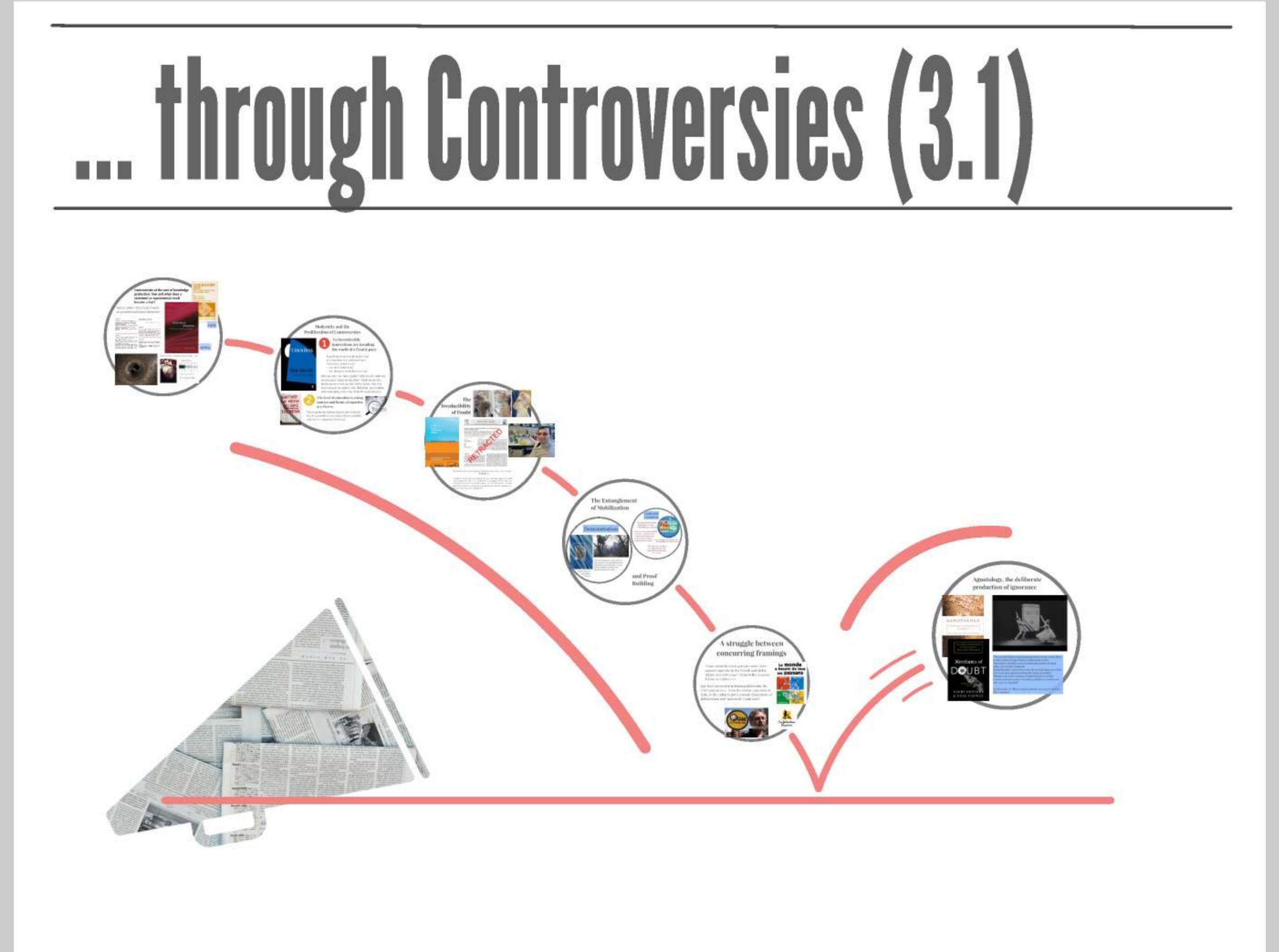
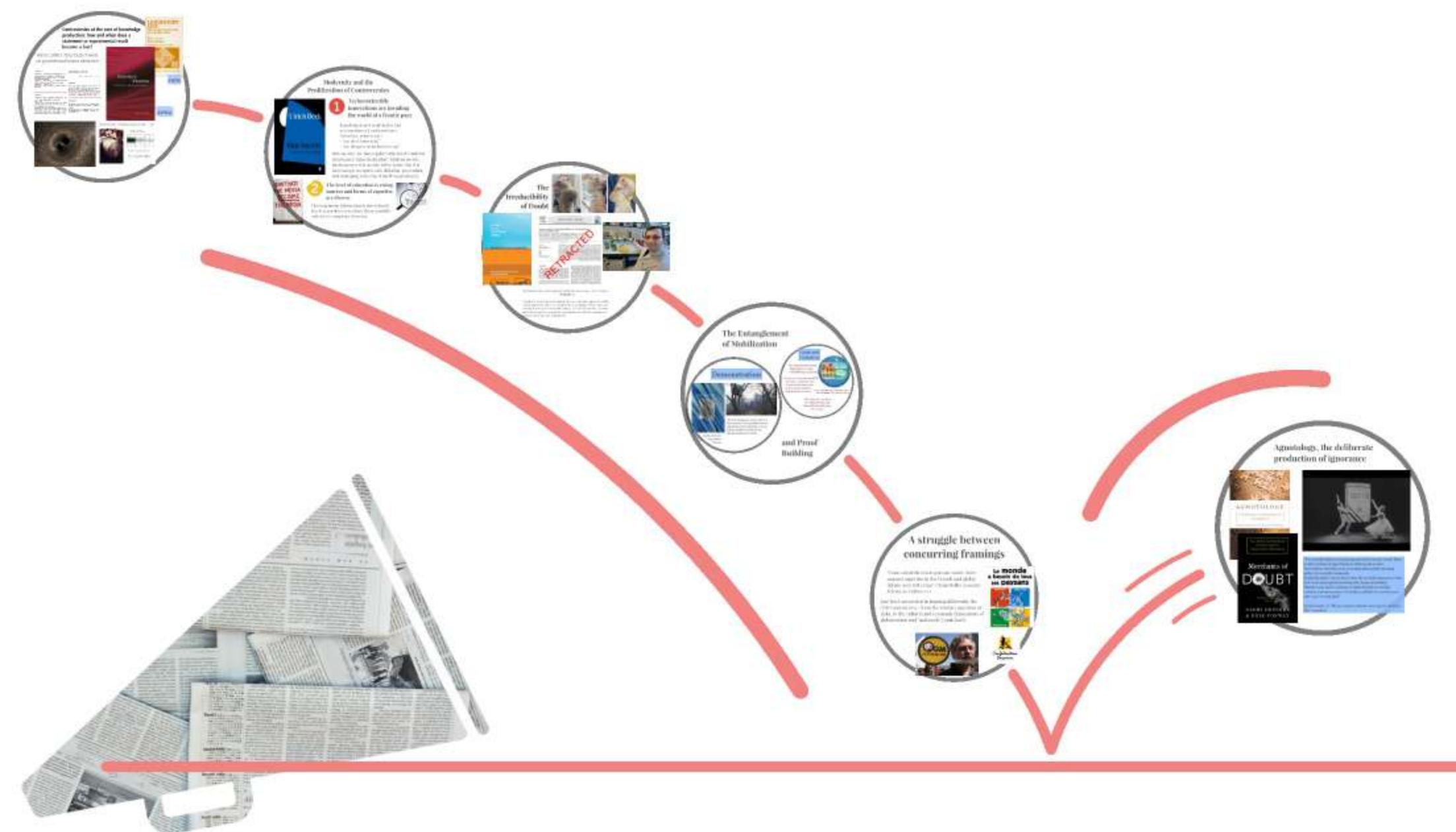
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## 3.3 The Blurred Boundaries of Expertise



# ...through Controversies (3.1)



## 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...  
Scientist (b) - They hope to get very high sensitivity but I don't believe them frankly. There are more subtle ways round it than brute force....  
Scientist (c) - I think that the group at W are just out of their minds.

### Experiment Y

Scientist (1) - Y's results do seem quite impressive. They are sort of very business-like and look quite authoritative...  
Scientist (2) - My best estimate of his sensitivity, and he and I are good friends is [low] and he has just got no chance [of detecting gravity waves].  
Scientist (3) - If you do as Y has done and you just give your figures to some girls and ask them to work that out, well, you don't know anything. You don't know whether those girls were talking to their boyfriends at the time.

Controversies constitute the core of scientific production

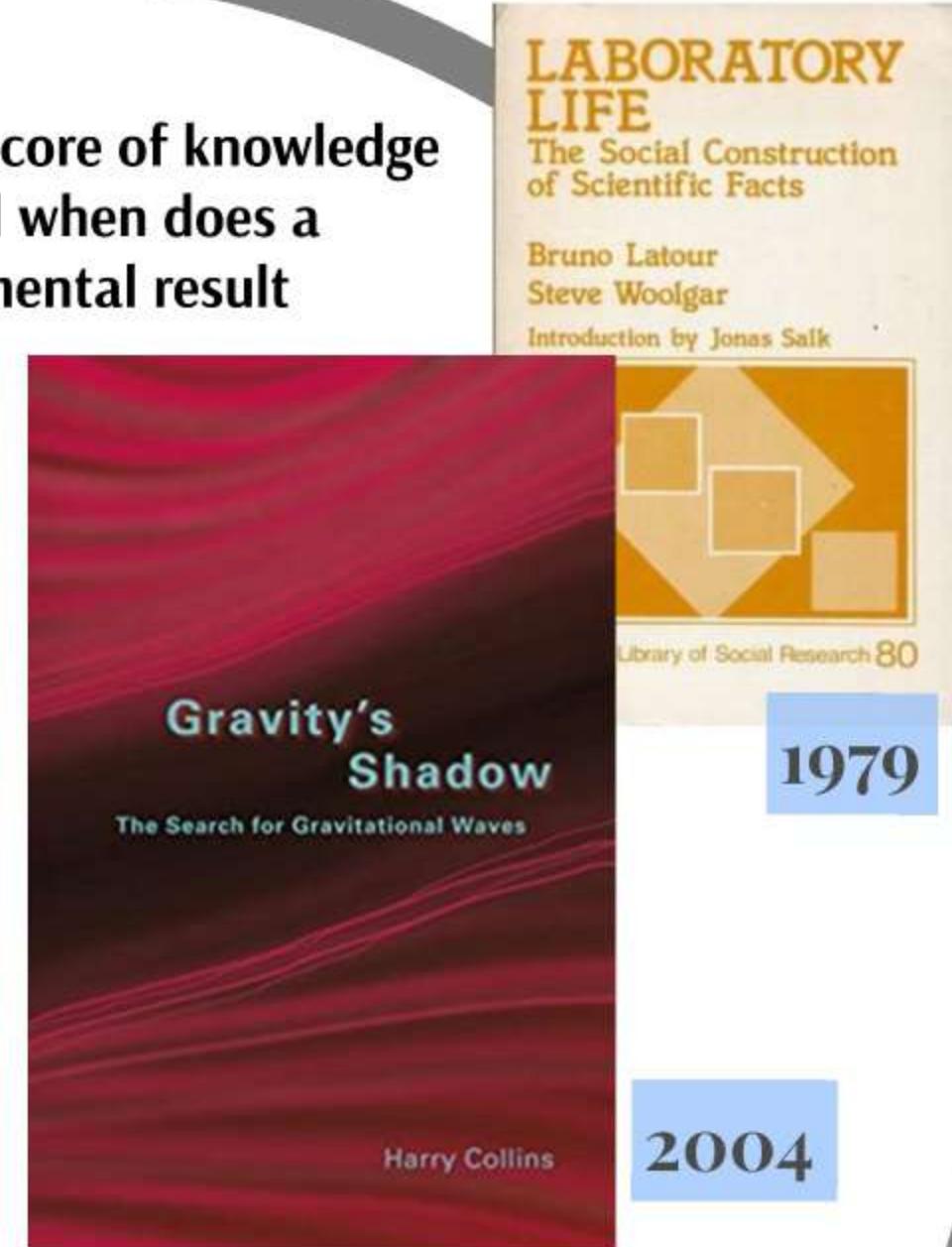
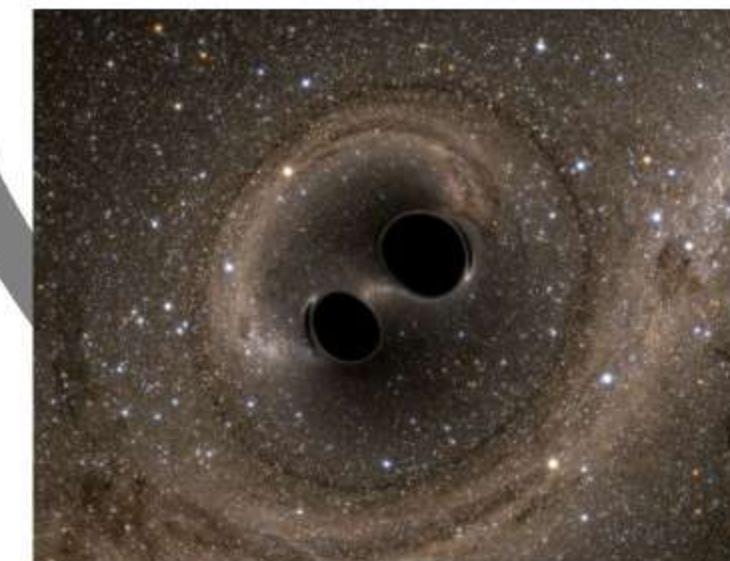
Which experts should one trust?

### Experiment X

Scientist (i) - he is at a very small place ; I have looked at his data, and he certainly has some interesting data.  
Scientist (ii) - I am not really impressed with his experimental capabilities so I would question anything he has done more than I would question other people's.  
Scientist (iii) - That experiment is a bunch of shit!

### Experiment Z

Scientist (1) - Z's experiment is quite interesting, and shouldn't be ruled out just because the . . group can't repeat it.  
Scientist (II) - I am very unimpressed with the Z affair.  
Scientist (III) - Then there's Z. Now the Z thing is an out and out fraud!



2004

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



the notion of "experimental regression"

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

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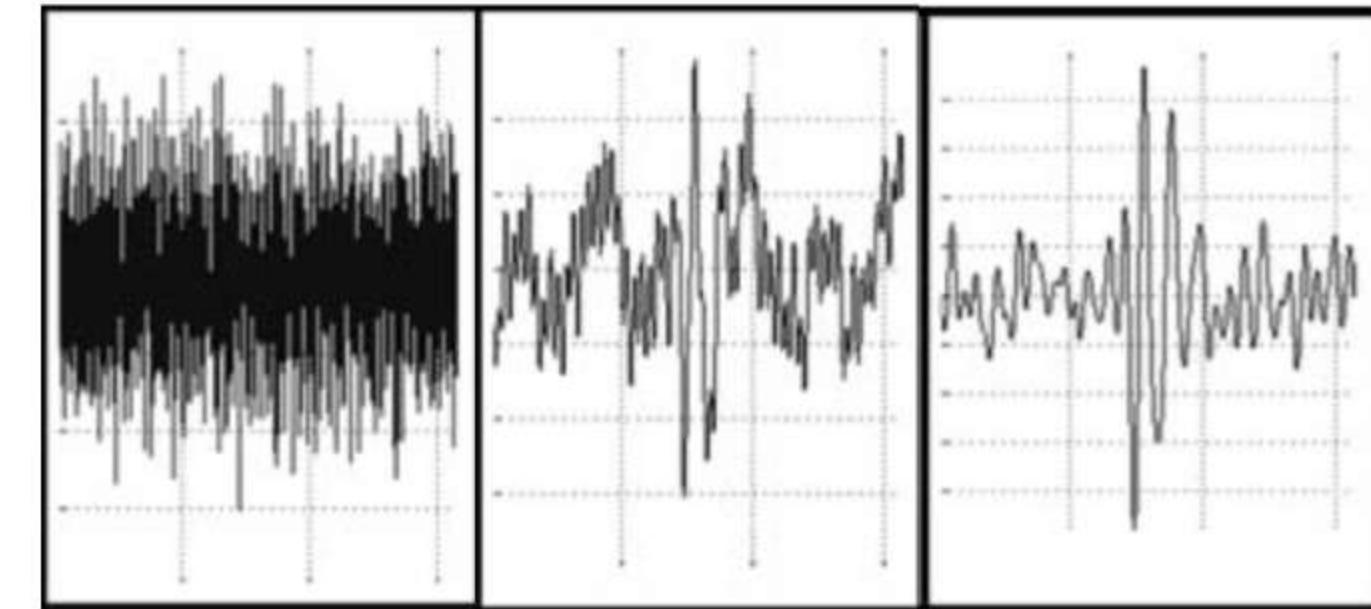
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# The 'first detection' of gravitational waves by Weber in 1969



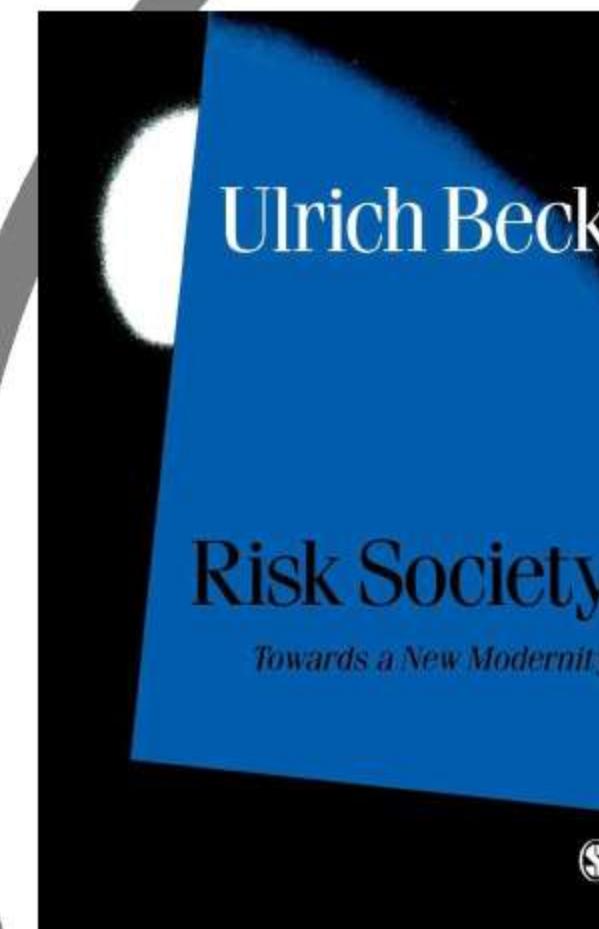
*how the theory and the  
experiment are intertwined*



*the notion of "experimental regression"*

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

# 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

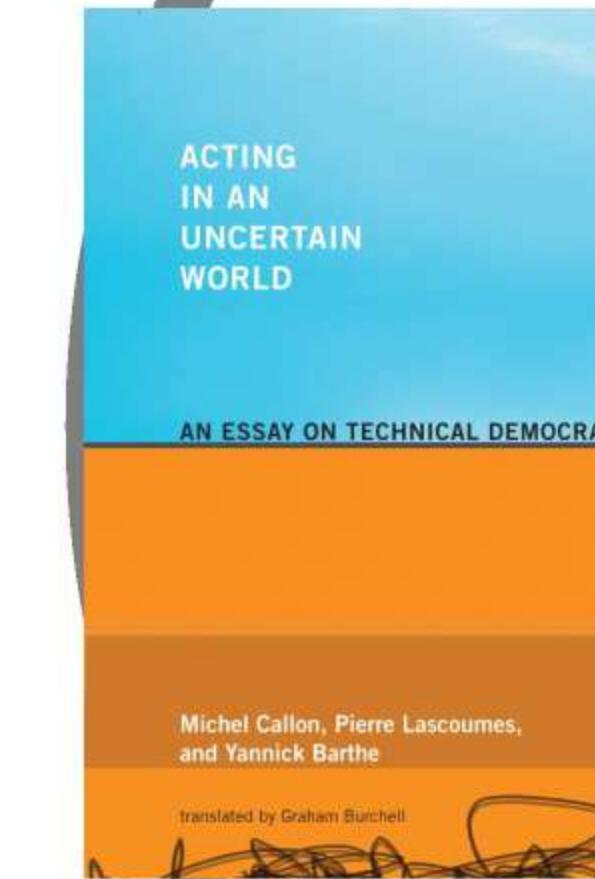
Heterogeneous information is now (almost) freely accessible everywhere (from scientific articles to conspiracy theories).



society  
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duced.



# The Irreducibility of Doubt



**Food and Chemical Toxicology**  
journal homepage: [www.elsevier.com/locate/foodchem](http://www.elsevier.com/locate/foodchem)

**Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize**

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<sup>b</sup>University of Orleans, Department of Neurosciences, Neuropsychopharmacology, Morphological and Molecular Sciences, Villejean, France  
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**ARTICLE INFO**

Article history:  
Received 11 April 2011  
Accepted 2 August 2011  
Available online 10 September 2011

**Keywords:** GM food; Roundup; maize; herbicide; GM; Glycine-based herbicides; biocide-disrupting effects

**ABSTRACT**

The health effects of a Roundup-tolerant genetically modified maize (from 11% in the diet), untreated with or without Roundup, and control diets (from 100% in water), were studied 2 years in rats. In literates, all treated groups died 2–3 times more than control, and more rapidly. This difference was significant in 3 main groups fed GM. All results were biomarker and sex dependent, and the pathologic processes observed were similar to those induced by Roundup alone. A few differences between controls, the articulate we observed in the treated groups, the sex hormonal factor was modified by GM and Roundup treatment. In treated males, liver composition and necrosis were 2.5–5.5 times higher. This difference was confirmed by optic and transmission electron microscopy. Marked and severe kidney lesions were observed in rats which occurred up to 100 days earlier. Biochemistry data confirmed very significant statistical differences for all parameters and both sexes. 70% of the altered parameters were statistically altered. These results can be explained by the non-target biocide-disrupting effects of Roundup on the metabolism of the transgene at the GM and its metabolites.

<sup>c</sup> 2012 Elsevier Ltd. [10.1016/j.foodchem.2011.08.031](http://dx.doi.org/10.1016/j.foodchem.2011.08.031)

**1. Introduction**

There is an ongoing controversy about as to the necessary length of examination time in studies in relation to the consumption of genetically modified (GM) plants including regular metabolic analyses (Séralini et al., 2011). Currently, no regulatory authority requires mandatory 2-year animal feeding studies to be performed after GM and transgenic pesticides. However, several trials consisting of 90 day rat feeding trials have been conducted by the biotech industry. These investigations mainly concern GM maize that are rendered either herbi-

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Abbreviations: GM, genetically modified; R, Roundup; MRL, maximal residue levels (MRL); GM, genetically modified organism; OECD, Organization for Economic Co-operation and Development; CC, glycinic compound; PCB, principal component.

**RETRACTED**



## 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

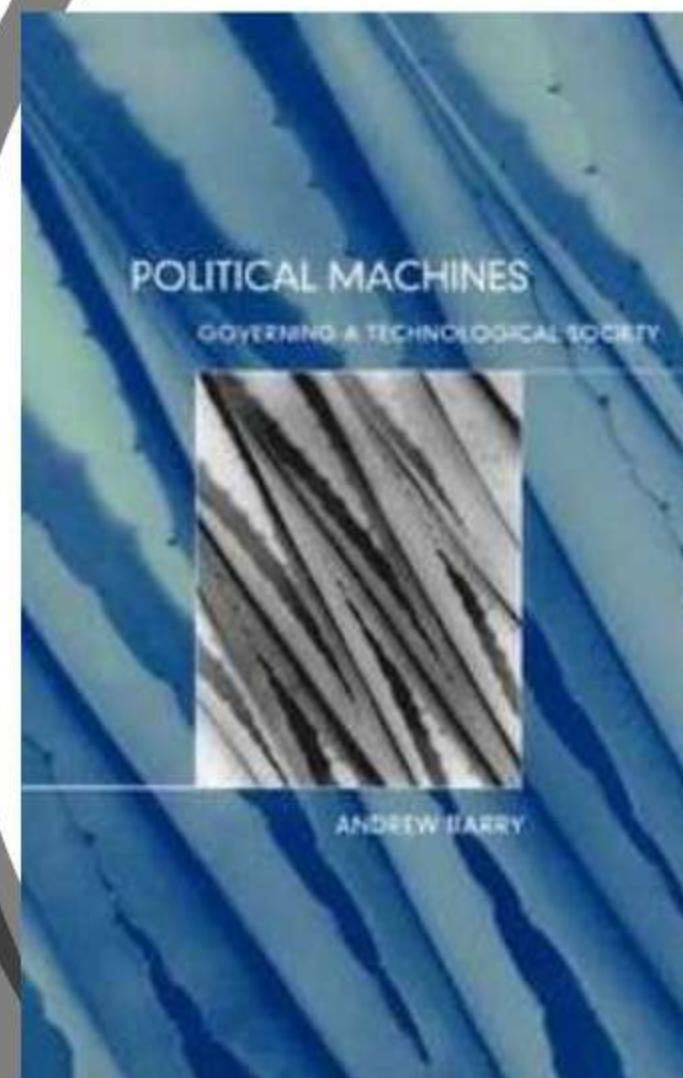
"Cause politique et politique des causes"  
Yannick Barthe, Politix, 2010, vol3/91



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

## and Proof Building

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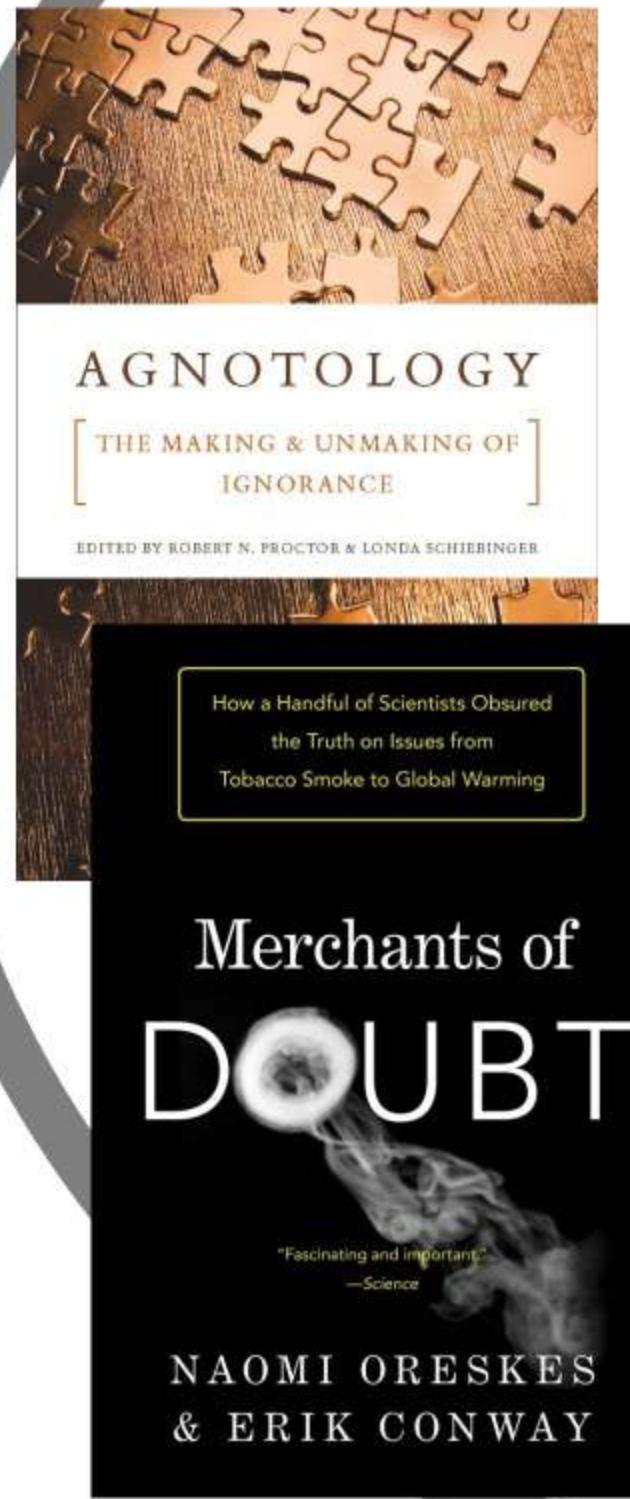
# A struggle between concurring framings

"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).



# Agnostology, the deliberate production of ignorance

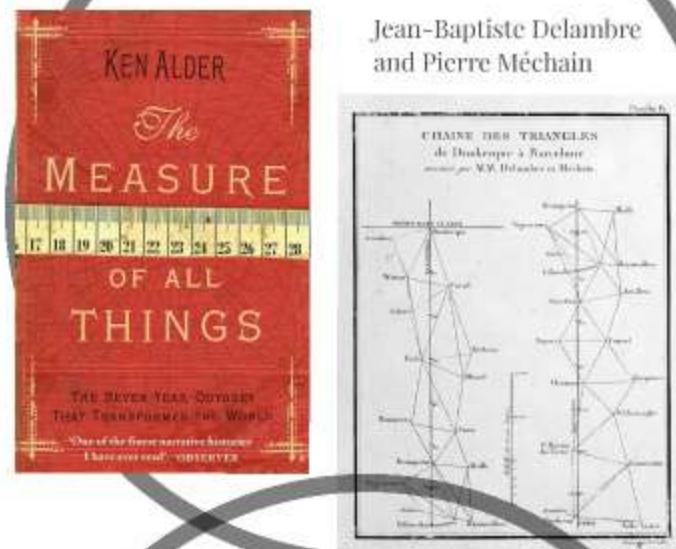


*"The scientific debate is closing [against us] but not yet closed. There is still a window of opportunity to challenge the science... Voters believe that there is no consensus about global warming within the scientific community. Should the public come to believe that the scientific issues are settled, 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



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



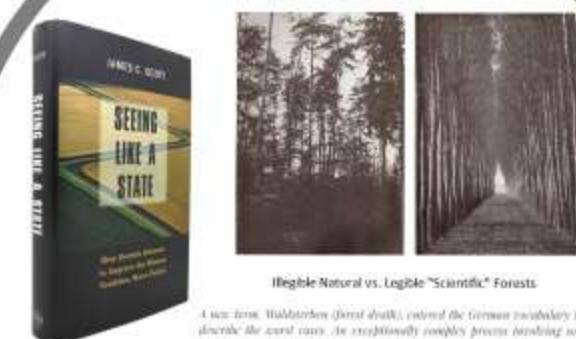
How old is the century?

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



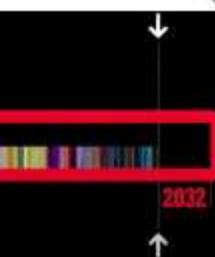
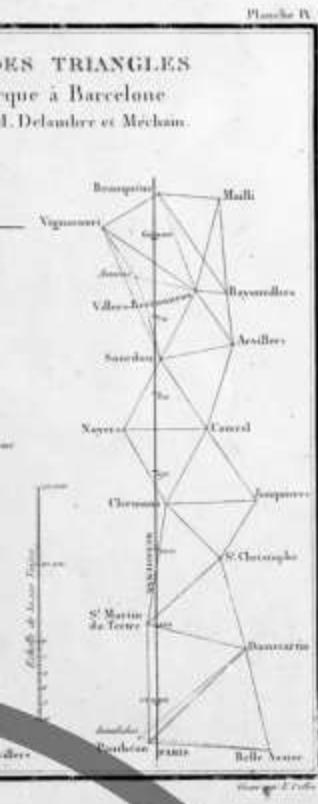
A view from Waldkirchen (Forest school), entered the German vocabulary to describe the world view. An exceptionally complex process involving soil, building, extract, spatial, and symbolic relations among trees, insects, mammals, and flora—which were, and still are, not entirely understood—was apparently simplified with serious consequences. Most of these consequences can be traced to the radical simplifying of the scientific forest.

Society must be reduced before it can be the object of quantification. Categories of people and things must be defined; measures must be interchangeable. Food and commodity must be converted at a constant rate. There is much of what Weber called rationalization in this, and also a good deal of rationalization.

— Theodore M. Porter, "Objectivity or Quantification"

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ste Delambre  
Méchain



# The overwhelming appeal of quantification

## Trust in Numbers

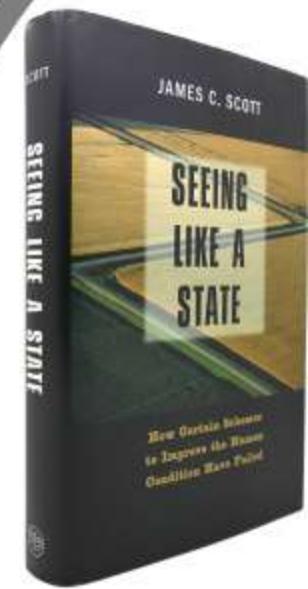
The Pursuit of  
Objectivity in Science  
and Public Life

Theodore  
M. Porter

NEW EDITION

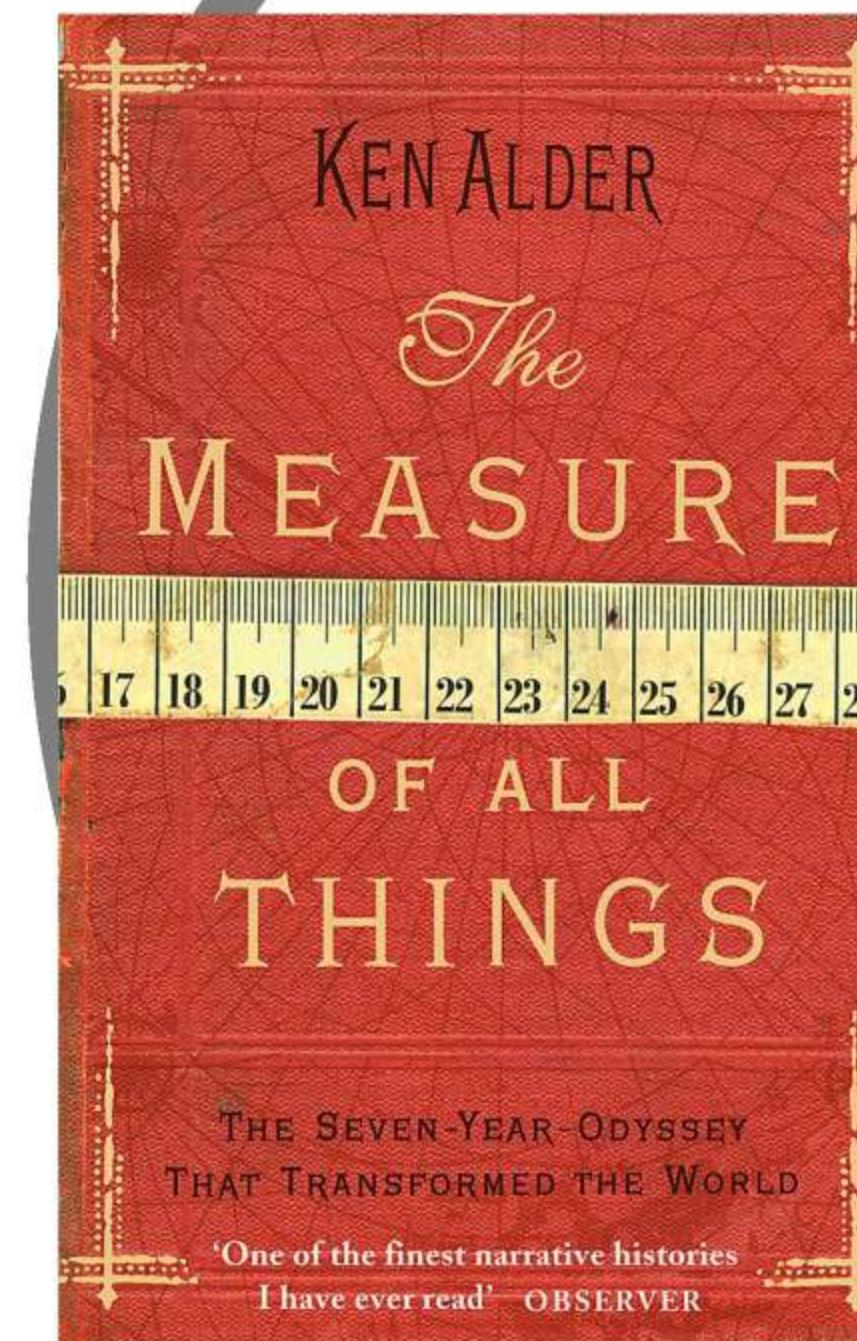
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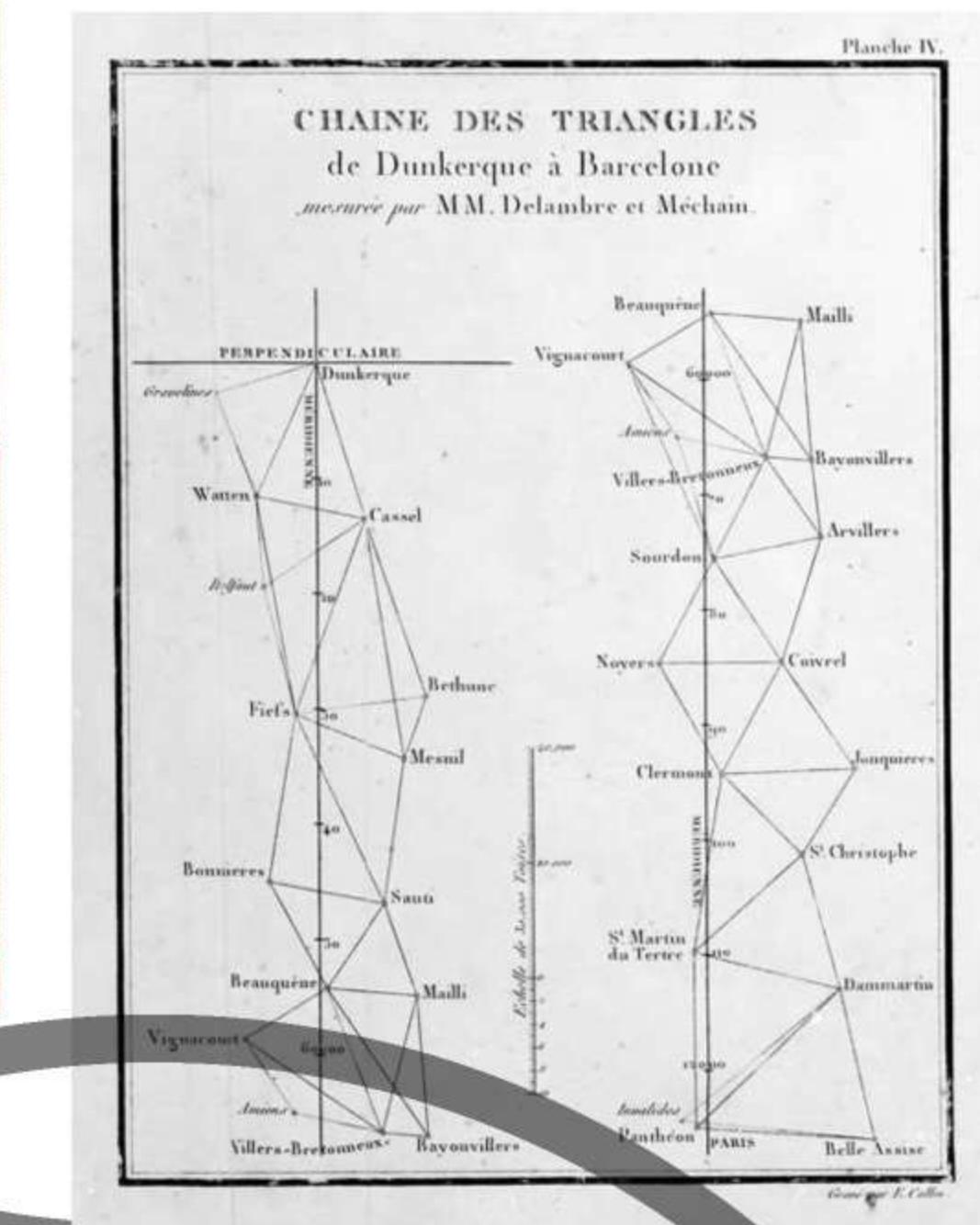


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# No double standards



Jean-Baptiste Delambre  
and Pierre Méchain



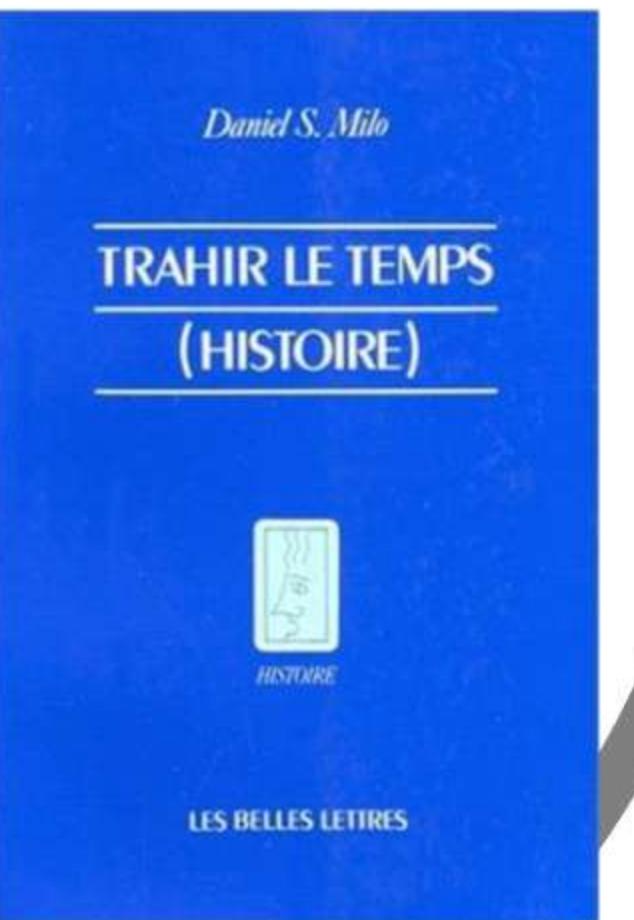
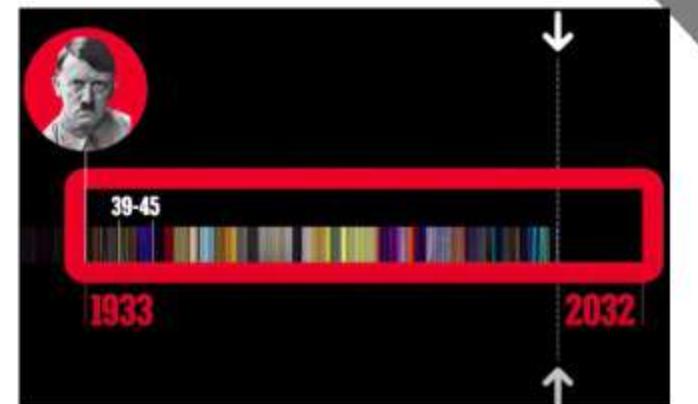


## Experimental history: the B.C. / A.D. timeline

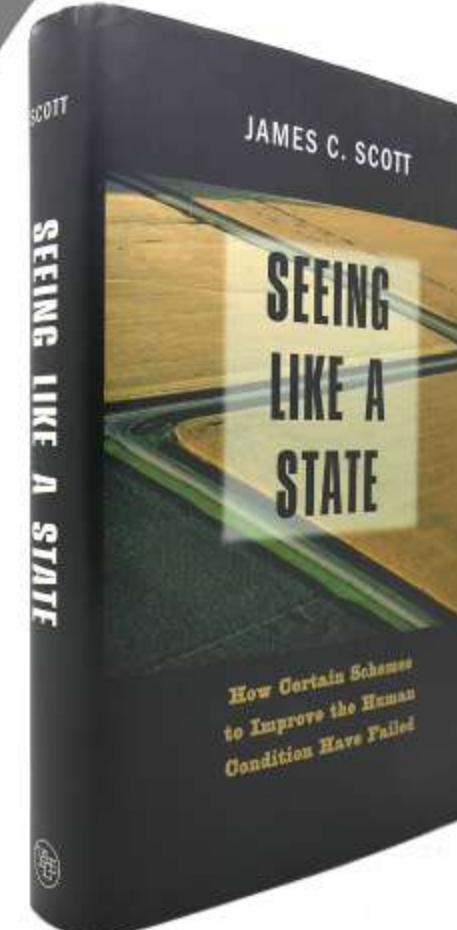
*'The Revolution, through the metric reform, has made the number 100, always present in the numerologies of human civilizations, infinitely more visible than before. But for the century to spring up, it was necessary to have the happy coincidence of the End of the World and the End of a Century; and 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 neutrality. The constitutive aberration of the century, namely its nonreferentiality, 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?



# Legibility and simplification



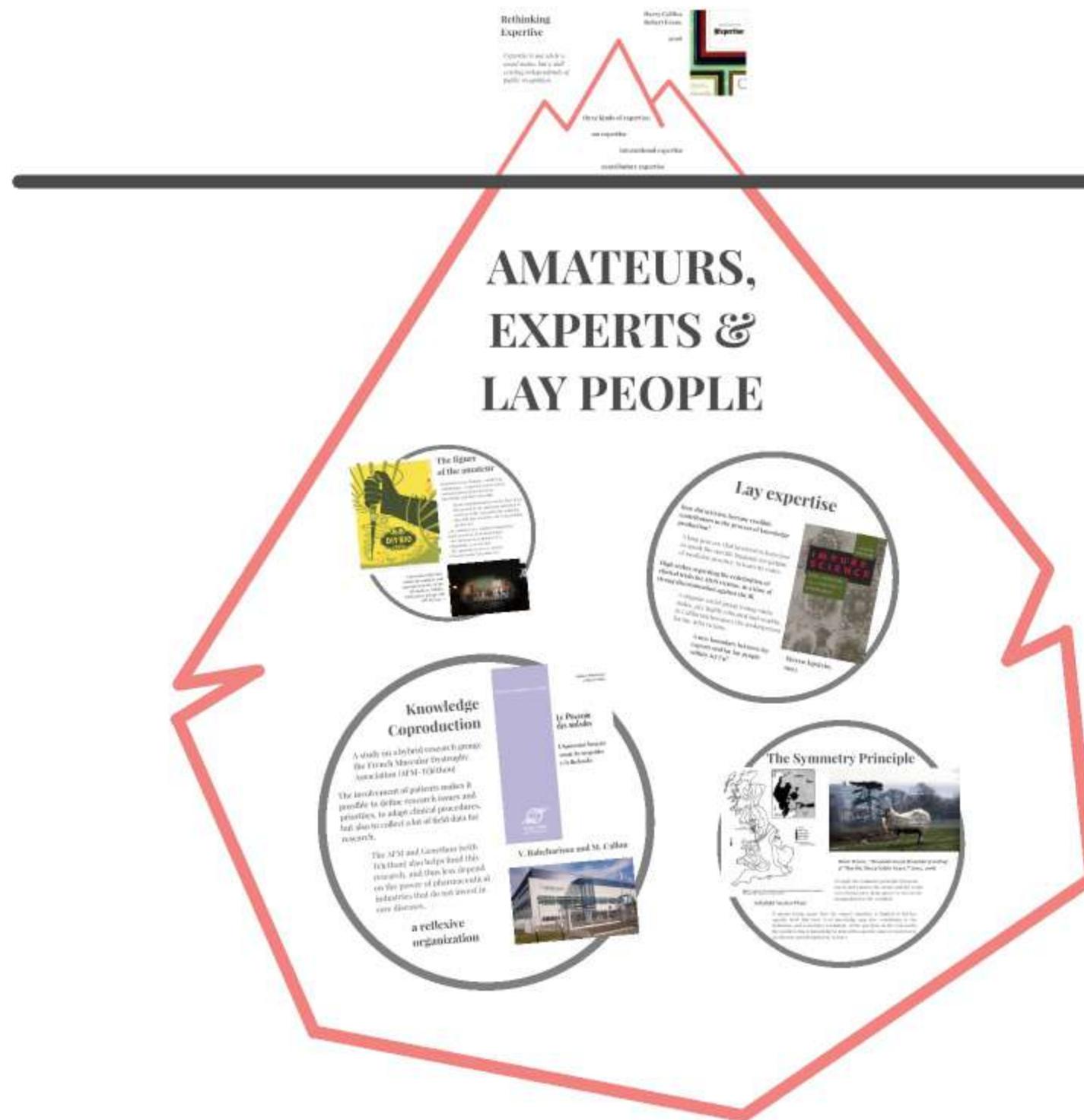
Illegible Natural vs. Legible "Scientific" Forests

A new term, *Waldsterben* (forest death), entered the German vocabulary to describe the worst 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 conceived as 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"

# 3.3 The Blurred Boundaries of Expertise



# Rethinking Expertise

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

Harry Collins  
Robert Evans

2008

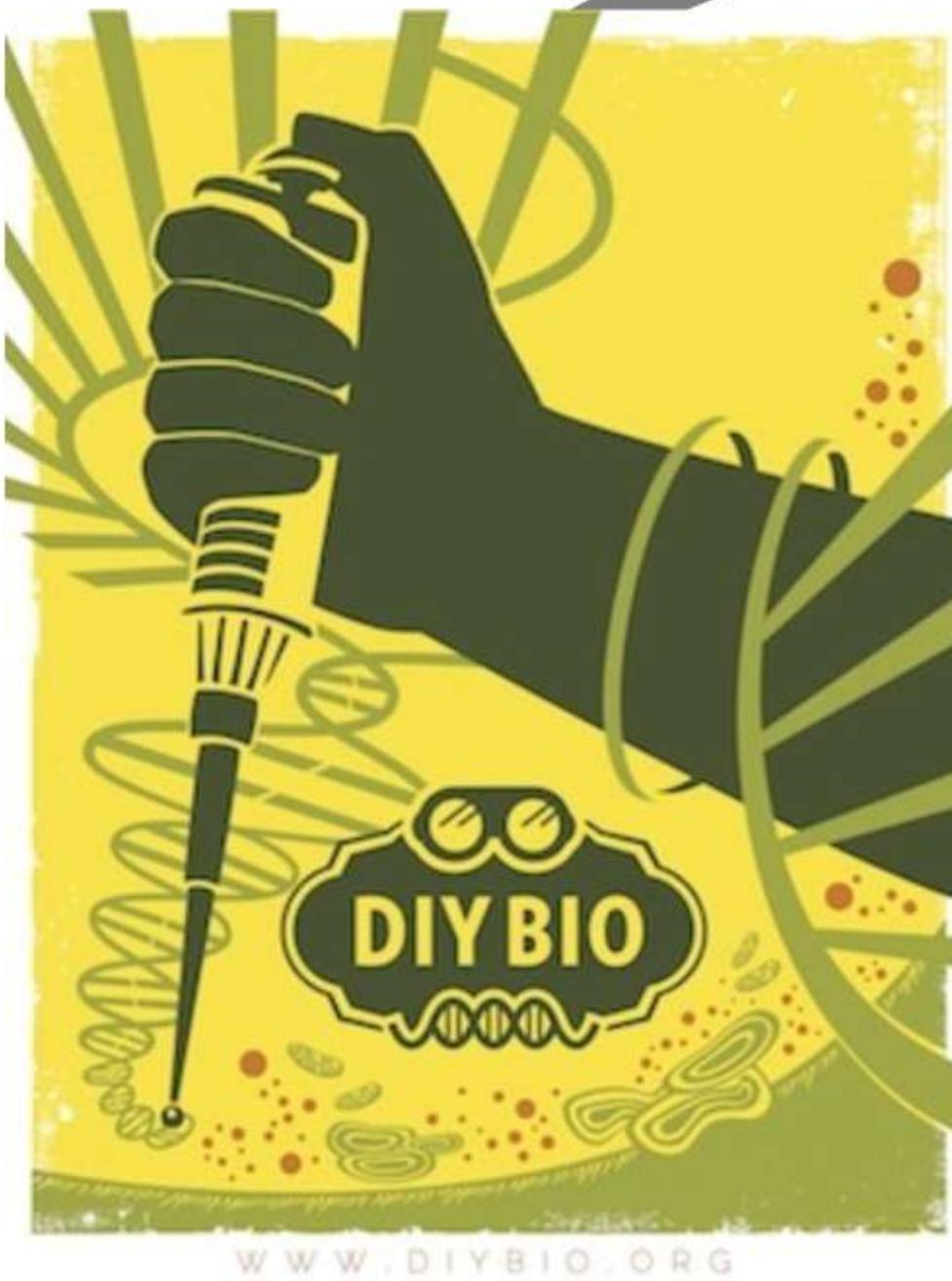


three kinds of expertise:

no expertise

interactional expertise

contributory expertise



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

## 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.)



# Lay expertise

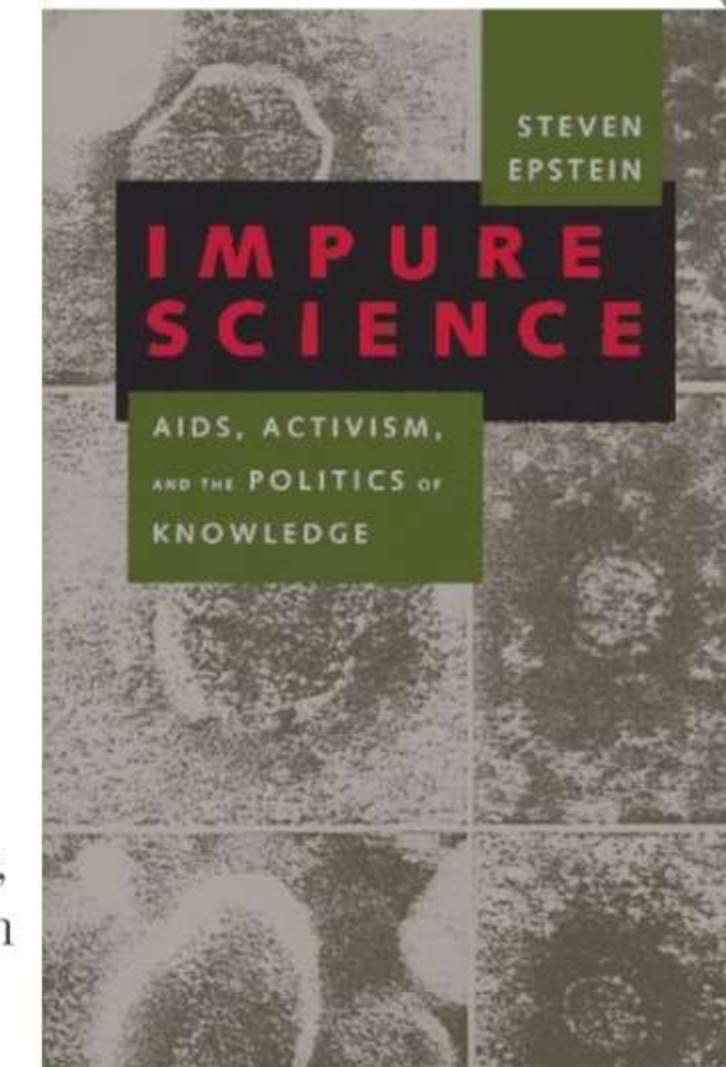
**How did activists became credible contributors in the process of knowledge production?**

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 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 people within Act Up?

The



Figure 2. Contours of UK radioactive caesium contamination in June-July 1986. The data are in units of  $\text{Bq m}^{-2}$ .

Sellafield Nuclear Plant

It means being specific field, the definition, and the useful forms are diverse and n

# The Symmetry Principle



## Sellafield Nuclear Plant

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".



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.