

HPSC 1001/1901/2101/2901

***WHAT IS THIS THING CALLED SCIENCE?***

Semester 2, 2020

## **Lecture 16: Sociology of Science, 2**

First phase: Merton. The role of credit in driving scientific behavior. Norms of scientific communities. Scientific theories are generalizations supported by data.

Second phase: "strong program" (Edinburgh, 1970s). The content of science can be explained in sociological terms.

"Symmetry principle" endorsed.

How is the content of specific scientific ideas to be explained?

A central role for the interests of people within the scientific community, and also outside (those handling funding and influencing the social standing of different kinds of work).

Example: the influence of the eugenics movement in Great Britain on C19 statistics and biology, especially evolutionary biology and research on populations. See Donald McKenzie *Statistics in Britain*, 1981.

Research into change in biological populations, and how to measure those changes with statistics, suited the interests of those hoping to shape human society for political purposes.

How the "strong program" came to look deficient: it wanted to get rid of explanations of scientific belief in which nature stamps itself on the minds of the scientific community.

But perhaps the strong program was replacing this with an equally simple picture, in which social and political “interests” stamp themselves on the scientific community.

"Symmetry principle" -- this had lasting influence. But the explanations given of scientific beliefs changed.

Third stage: especially via Latour and Woolgar, *Laboratory Life* (1979).

Unusual method – "ethnography" of science.

What this amounted to (and what was often interesting) in practice: A detailed description of how *support* and *evidence* work as social phenomena. How do scientists use talk of "data" and "facts" (etc.) as a resource in debates? How, in social terms, does an idea go from being

a conjecture to something established? What are the typical moves made?

Important moves: building networks of support around a claim you want to defend. Try to make it hard to question the claim -- "if I question *this*, then I'll have question all these *other* things too, and I am not sure I want to do that..."

Once a claim has been accepted (by building networks of support around it), that claim can be used to support others.

"The data" are a resource used in these negotiations.  
In the local community of scientists, I can make some headway by saying "Here is what the data was like.." etc.

Once I say this, disagreement with me will require particular kinds of moves, and these might be unappealing ones to make, given the local norms of my community. (I will have to do a stack of a particular kind of work, or no one will take me seriously.)

\* A question discussed in a tute yesterday: how does this story relate to a Merton-style view of credit? Hard to say. Not clear from *Lab. Life*.

Suppose a description of this kind is given. What does it amount to?

Latour: this is the *manufacture of facts*.

Scientists, through their decisions, build networks of support around some claims, making it harder to question them and easier to accept them.

This work includes hiding the human choices involved; to turn something into a fact is to make it look like it was just 'given' by nature.

Once this process is complete, a new fact has been manufactured.

A reply: something has been made or manufactured, yes.  
But not a fact.

Better: "fact" is an unhelpful word in this context. Can mean something like *a bit of the world*, or something like *a true sentence*.

In the second sense, the sentence is "manufactured," and so is the collection of beliefs around it. Its role in social life is a product of human action and choices. But how it relates to the world at large is a further question. (Last week of course.) In many cases (not all) a "fact" in the

first sense (bit of the world itself) is not manufactured by us, certainly not by mere scientific debate.

How a kind of empiricism relates to the Latour project:

Consider their own case. Work on hormones in mammals in a lab in San Diego. Conversations, decisions, marshalling of support, networking... There are raw materials as well – paper, chemicals, mice. All these, in the L-W story, are *resources* used in the network of negotiation (etc.) that scientists engage in.

The experimental data are "resources" in one sense, yes, but also more than that. They can be a source of *constraint*. If people choose to treat them this way.

The mice look small, the chemicals look relatively powerless, but they can *constrain what happens*. The behaviors of scientists can be guided by the details of what is found to be inside them (as revealed in assays, tests, etc).

Objection: those things can't tell scientists what to do, control them. It is *always a choice*. You choose to use these things in your discussions and writings, or you don't. And for any particular result, you choose how to handle it. You can

decide to question it. If it's too hard to question, that is a result of other human choices, made by other scientists.

Reply: Choice is present, yes. But you can choose to be constrained by what you see in the tests.

You can decide: If I see X, I will say and do this; if I see Y, I will say and do that.

You might change your mind when you see Y -- but you might not.

The world (inside the mice) then gets us some way. What we learn about the world outside the mice is a further scientific question.

**\* Latour more recently:**

<https://www.sciencemag.org/news/2017/10/bruno-latour-veteran-science-wars-has-new-mission>

"I certainly was not antiscience, although I must admit it felt good to put scientists down a little. There was some juvenile enthusiasm in my style.

We're in a totally different situation now. We are indeed at war. This war is run by a mix of big corporations and some scientists who deny climate change. They have a strong interest in the issue and a large influence on the population."