HPSC 1001/1901/2101/2901

WHAT IS THIS THING CALLED SCIENCE?

Semester 2, 2020

Lecture 15: Sociology of Science, 1

Sociology of Science, 1:

From Merton to the Strong Program

Sociology – general study of human social patterns and institutions. The “sociology of science” developed in the middle of the C20.
For a while it had little interaction with philosophy of science, and certainly did not challenge it. (Sometimes basic log. emp. view was endorsed.)
Later it came to *challenge* philosophy of science – sociology as a "successor discipline" to philosophy.

Central figure in early years: **Robert Merton.**

Three famous sets of ideas.
1. 1940s: “norms” of science — basic values that govern scientific communities. *Universalism, communism, disinterestedness, organized skepticism.*

Universalism: personal attributes and social background of a person are irrelevant to the scientific value of the person’s ideas.
Communism: common ownership of scientific ideas and results. Anyone can make use of any scientific idea in his or her work.

Disinterestedness: scientists are supposed to act for the benefit of a common scientific enterprise, rather than personal gain (but see below...).
Organized skepticism: challenge and test ideas rather than taking them on trust (sounds good, but remember Kuhn on normal science).

2. Especially in the 1957 paper on Canvas: the *reward* system in science. Merton claimed that the basic currency for scientific reward is *recognition,* especially recognition for being the *first* person to come up with an idea.

This is the only property right recognized in science. Once an idea is published, it becomes common property (norm of communism).

* I think this is really a replacement for the idea of a "norm of disinterestedness." It does not seem to always be seen that way.

See also Kuhn on this. The psychological appeal, for some people, of the special kinds of recognition found within normal science.

* K must have drawn on Merton? Did not cite him in SSR. Might be that the less fundamental (I think) ideas of "norms of science" dominated image of Merton?

The power of recognition. At one time, it looked like a peculiar side of human motivation? Did so to me. It is rare for scientists to steal grant money to buy (eg.) fancy cars or even overpriced lunches. Compare many other professions... Scientific misdeeds tend to be more 'internal' -- fudging data, stealing ideas, accusing others of stealing their ideas....

It looks less peculiar now! Look at the power of 'likes' on social media, the practice of buying views on YouTube, etc.

Paying money and working very hard for local esteem. The scientific obsession with credit looks a lot less unusual now.

Merton's best evidence:
Competition for credit. An obvious – for some onlookers embarrassing – feature of the history.
Galileo, Newton, Hooke, Lavoisier.... These are not second-tier resentful people.

Newton had to be reminded by his servant to eat. Did not have to be reminded to engage in priority disputes.

See also George Price, as described in Oren Harman's book *The Price of Altruism*.

Price, American biologist working in UK, mid C20, was very eccentric and isolated. Eventually seriously mentally ill and committed suicide. Around issues of credit, he looked completely normal.

Inventor of the "Price equation" in biology – just what Merton saw as the ideal outcome.

In relation to credit, another aspect of the great importance of the early scientific societies, esp. the Royal Society of

London. Set up (in stages) in 1660s.
Boyle, Hooke.... Newton later.

Aftermath of English Civil War (1642–1651). Boyle, according to Steven Shapin (*A Social History of Truth*), aimed to set up an arena for organized debate about empirically solvable problems. No metaphysical wrangling or pointless speculation.

R. Soc. also developed skillful handling of problems of credit. Henry Oldenburg (first secretary of R. Soc.) set some of this up: Anonymous refereeing, rapid publication, so you would get the credit you deserved.

Initially other countries had different models, but the R. Society approach took over internationally.

Shapin also: R. Society allowed social class to play an important role. It was mostly (not entirely, after a while) a discussion between *Gentlemen*. People whose word could be trusted.

I said: "Three famous sets of ideas..." 3. Merton also argued that Puritanism, an English protestant Christian movement important in the C17, played an important role in establishing norms and habits of modern science.

Merton talked about scientific theories in a way that (at least sometimes) resembles LE. Networks of generalizations, supported by observational data.

So at this first stage, sociology is mostly telling us about the communities that generate scientific behaviors – their norms, their organization. It is mostly a level 2 story (though note Merton's work on puritanism and science – that is a science/religion interaction, level 3).

Then: sociology of science changed after Kuhn.

Next stage: a sociology not of scientific *institutions*, but sociology of scientific *knowledge*.

Once the institutions are explained, the content of science does *not* just follow from the existence of human inquirers within those institutions and the way the world is.

The "Strong Program," 1970s. Especially people based in Edinburgh. Barry Barnes, David Bloor, Donald McKenzie.

If you want to read more, Bloor, *Knowledge and Social Imagery* (1976), Shapin "History of Science and Its Sociological Reconstructions," *History of Science* 20 (1982):157–211.

Symmetry principle: all forms of belief and behavior should be approached using the *same kinds* of explanations. We should not give totally different kinds of explanations for people holding beliefs that we think are true and beliefs that we think are false.

People of all kinds live in communities that have *socially established local norms* for regulating belief. Scientific beliefs are products of the same general kinds of forces as other kinds of belief. The communities and the norms are different, but the general kinds of factors operating are not.

We should not give the *Real World* a special role in the explanation of scientific belief that it does not have in the explanation of other beliefs that pass local community norms.

Same general form of explanation for: scientific belief that DNA has four bases, and a tribal community's belief that a drought was due to the ill will of a local deity. In both cases the beliefs are established and maintained in the community by appeal to local norms of argument and justification.

Compare Steven Pinker, *The Better Angels of Our Nature* (2011, p. 180):

> we don't have to explain why molecular biologists discovered that DNA has four bases – given that they were doing their biology properly, and given that DNA really does have four bases, in the long run they could hardly have discovered anything else....

* Full passage:

> When a large enough community of free, rational agents confers on how society should run its affairs, steered by logical consistency and feedback from the world, their consensus will veer in certain directions. Just as we don't have to explain why molecular biologists discovered that DNA has four bases – given that they were doing their biology properly, and given that DNA really does have four bases, in the long run they could hardly have discovered anything else – we may not have to explain why enlightened thinkers would eventually argue against African slavery, cruel punishments, despotic monarchs, and the execution of witches and heretics. With enough scrutiny by disinterested, rational, and informed thinkers, these practices cannot be justified indefinitely. The universe of ideas, in which one idea entails others, is itself an exogenous force, and once a community of thinkers enters that universe, they will be forced in certain directions regardless of their material surroundings.

Compare possible responses: (i) the cases of science and politics are similar, and symmetry applies both times or neither time, versus: (ii) the cases are dissimilar.

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

Strong program: a 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.