



Lecture 19: Scientific Anarchism and Democracy



What's so special about science?

We have seen philosophers of science struggle to pin down exactly what it is that distinguishes science from non-science. Paul Feyerabend (1924-1994) sees the failed attempts to define science as a clear indication that there is actually nothing special about science that separates it from non-science.

Against Method: anything goes

According to Feyerabend, all the proposed theories by philosophers of science are inconsistent with the actual history of science. These theories give an inaccurate description of how scientific discoveries are actually made. They also fail to provide guiding rules for scientists of how to choose one scientific theory over another.

What history of science shows, he argues, is that *there are no clear rules or methods in science*. Scientific activity is messy and unsystematic, and many great discoveries were pure accidents or by-products of entirely different research programmes (as we heard in Samantha Copeland's lecture on serendipity).

In the book, *Against Method*, Feyerabend instead argues for an anarchist approach to knowledge: *anything goes*. He proposes *methodological pluralism*: the scientist is free to choose her own methodological approach. There is nothing about scientific methods and theories that makes them objectively superior to unscientific ones. Astrology, tarot cards, magic: if we believe in the framework, we will always be able to find empirical confirmation of the theory.

This is why we say that Feyerabend is a *scientific anarchist*. Anarchism is the idea that no government or control is necessary for a system to function well. Freedom from authority is thus an important part of anarchist ideology.

Science is the new religion

Science is often contrasted with religion. History typically tells us that science saved us from the authority and superstition of religion and brought enlightenment instead. While religion is dogmatic and unquestioned, science is a systematic, self-critical and objective search for truth. Feyerabend rejects this distinction between science and religion. Instead, he argues that science has become the new religion.

In his 1975 lecture, "How to defend society against science", he argues that science does not deserve the privileged status it holds in society as a generator of truth. Today, scientific facts are taught in schools in the same way that religious facts used to be taught only a century ago: as undeniable truths. University education has become more about theoretical indoctrination than critical reflection.

Alternatives to science are systematically dismissed only and precisely because they are not scientific. This shows what authority science has become in society. "Science has now become as oppressive as the ideologies it had once to fight".

Science and money

Is the comparison between science and religion too strong? After all, people used to be beheaded for religious blasphemy,

something that could not happen in our civilised society. But, Feyerabend argues, although no one gets killed for opposing science, heretics of science still suffer the most severe punishment available. This is related to the high stakes of modern science: not truth, not religion, but money.

Research is increasingly funded by parties with financial interests in the results: genetic research is funded by the food industry, geological research by the oil industry, and medical research by the pharmaceutical industry. If an institution is in danger of losing research funding because of unwanted results, it is easy to get rid of researchers and data.

Another financial interest in research lies in the patent laws. Unlike resources that exist naturally (food or plants), artificially produced chemicals can be patented and made into big business. If we follow the money and see who benefits from the results, we might find that there are heavy interests swaying the scientific debate on what is safe or harmful.

Intellectual freedom, democracy and power

Feyerabend promotes intellectual freedom and argues that modern science inhibits freedom of thought. It doesn't help that science claims to discover truth. Freedom is more important than truth. Without intellectual freedom to challenge existing truths, science becomes stupid and dogmatic. We need a *battle of ideas*:

Any ideology that makes man question inherited beliefs is an aid to enlightenment. A truth that reigns without checks and balances is a tyrant who must be overthrown, and any falsehood that can aid us in the overthrow of this tyrant is to be welcomed. (Feyerabend 1975)

Scientific progress cannot happen if we remove any opposition. We should instead welcome alternative viewpoints. Is this something we do? Consider the public views on alternative medicine or alternative explanations to evolution. Do we welcome opposition or silence it? How about in research? To silence the opponents, all we have to say is that they are non-scientific. But is this critical thinking? What counts as *scientific* will at any point be decided by the dominating paradigm.

Whose science, Whose knowledge?

Since feminist philosophy of science started questioning the male domination in science, the idea that science and research are neutral, objective or value-free has been challenged. In *Whose Science? Whose Knowledge?* Sandra Harding argues that we cannot 'understand or explain the world we live in or the real choices we have, as long as the sciences describe and explain the world primarily from the perspectives of the lives of the dominant groups.' If the dominant groups in society also dominate science, and science dominates society, this is a democratic problem.

There is now an increasing awareness of the way research is not only dominated by a certain minority perspective. Also the empirical data, for instance in psychology, has been on WEIRD populations: Western, Educated, Industrialised, Rich and Democratic.

Kimberlé Crenshaw coined the term 'intersectionality' to explain how many people, such as black women, are multiply marginalized and thus get excluded from a single-axis focus on discrimination: gender, sexual orientation, class, religion, (dis)ability, etc.

Discussion questions

What is Feyerabend's main concerns about science, and why do you think he compares science with religion?

What do you think about Harding's idea that science is politics?

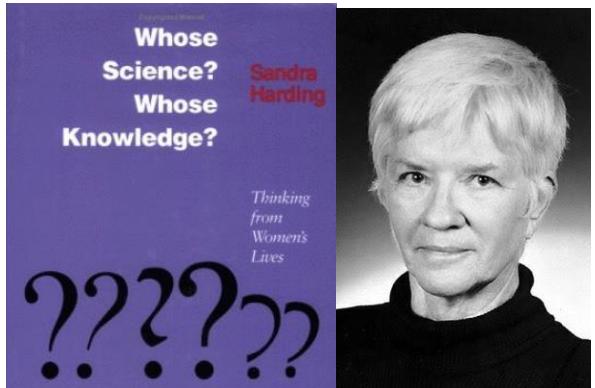
Can you think of any areas in research where there are various interests in producing the "right" type of scientific results?

What do you think is meant by "the battle of ideas"? How does it increase democracy in science if it welcomes a plurality of ideas and perspectives?

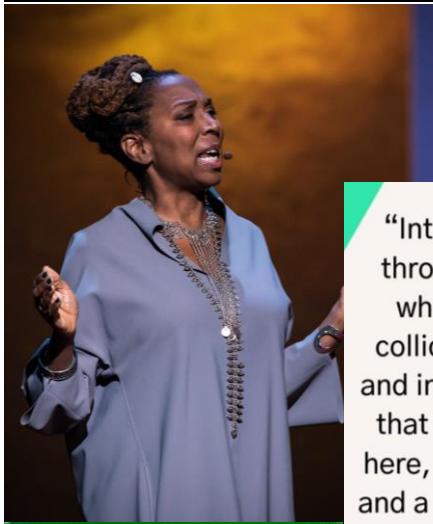
Harding argues that science has a democratic problem. *If dominant groups in society also dominate science and technology, which again dominates science: how does this influence the way science and technology is developed?*

In light of the book title All the Women are White, All the Blacks are Men, discuss Crenshaw's concept of intersectionality.

Who defines knowledge and science?



Sandra Harding: "Science is politics by other means..."



"Intersectionality is a lens through which you can see where power comes and collides, where it interlocks and intersects. It's not simply that there's a race problem here, a gender problem here, and a class or LGBTQ problem there. Many times that framework erases what happens to people who are subject to all of these things."

KIMBERLÉ WILLIAMS CRENSHAW

**All the Women Are White,
All the Blacks Are Men,
But Some of Us
Are Brave**
Black Women's Studies
Edited by Gloria T. Hull,
Patricia Bell Scott, and Barbara Smith

Nasa cancels all-female spacewalk, citing lack of spacesuit in right size

Space agency blames shortage of outerwear after first-of-its-kind mission falls through



▲ Christina Koch was one of the astronauts due to take part. Only 11% of people who have been to space are women. Photograph: Kirill Kudryavtsev/AFP/Getty Images

The first woman to perform a spacewalk was the Soviet cosmonaut Svetlana Savitskaya, 35 years ago. More than 500 people have been into space, but only 11% have been women. But Koch and McClain were both part of Nasa's 2013 class, which was 50% female.

The deadly truth about a world built for men - from stab vests to car crashes

Crash-test dummies based on the 'average' male are just one example of design that forgets about women - and puts lives at risk

Every year, 8,000 people in the UK die from work-related cancers. And although most research in this area has been done on men, it's far from clear that men are the most affected. Over the past 50 years, breast cancer rates in the industrialised world have risen significantly - but a failure to research female bodies, occupations and environments means that the data for exactly what is behind this rise is lacking. "We know everything about dust disease in miners," Rory O'Neill, professor of occupational and environmental policy research at the University of Stirling, tells me. "You can't say the same for exposures, physical or chemical, in 'women's work'."

Cancer is a long-latency disease, O'Neill says, so even if we started the studies now, it would take a working generation before we had any usable data. But we aren't starting the studies now. Instead, we continue to rely on data from studies done on men as if they apply to women. Specifically, Caucasian men aged 25 to 30, who weigh 70kg. This is "Reference Man" and his superpower is being able to represent humanity as a whole. Of course, he does not.

"A female police officer had to have breast-reduction surgery because of the health effects of wearing her body armour"

"One woman found her car's voice-command system only listened to her husband, even though he was in the passenger seat"

HP computers are racist

