Lecture 1:

Introduction

Course: Science, Technology and Society Studies

Science seems to be either all good or all bad. For some, science is a crusading knight beset by simple-minded mystics while more sinister figures wait to found a new fascism on the victory of ignorance. For others it is science which is the enemy; our gentle planet, our feel for the just, the poetic and the beautiful, are assailed by a technological bureaucracy – the antithesis of culture – controlled by capitalists with no concern but profit. For some, science gives us agricultural self-sufficiency, cures for the crippled, and a global network of communication; for others it gives us weapons of war, a school teacher's fiery death as the space shuttle falls from grace, and the silent, deceiving, bone-poisoning, Chernobyl.

Both these ideas of science are wrong and dangerous. The personality of science is neither that of a chivalrous knight nor that of a pitiless juggernaut. What, then, is science? Science is a golem.

The Golem: What You Should Know About Science, Collins and Pinch

What is STS?

- Interdisciplinary field.
- Understanding the relationship between scientific knowledge, technological systems and society.
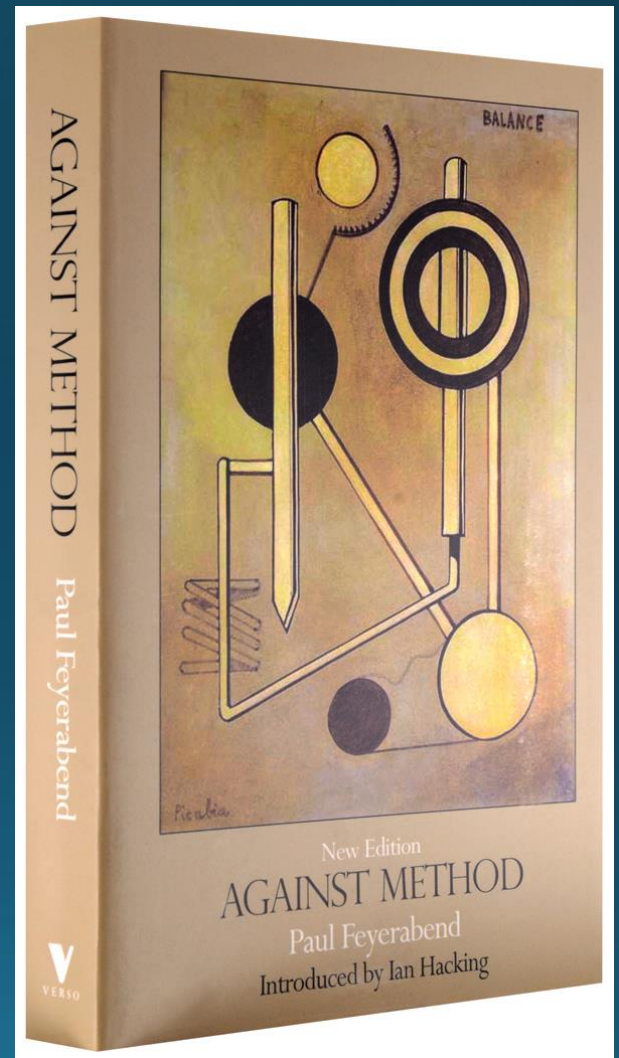
Broad Streams within STS

Research on the *nature and practices* of science and technology. Approaches S&T as *social institutions* possessing distinctive structures, commitments, practices, and discourses that *vary* across cultures and change over time.

https://www.livemint.com/science/news/could-einstein-get-published-today-11601014633853.html

Questions:

- Is there a scientific method? Famous Paul Feyerabend thesis "everything goes".

- What makes scientific facts credible? How do controversies get resolved?

- How do new disciplines emerge?

- How does science relate to religion?

"*It is clear, then, that the idea of a fixed method, or of a fixed theory or rationality, rests on too naive a view of man and his social surroundings. To those who look at the rich material provided by history, and who are not intent on impoverishing it in order to please their lower instincts, their craving for intellectual security in the form of clarity, precision, "objectivity", "truth", it will become clear that there is only one principle that can be defended under all circumstances and in all stages of human development. It is the principle:* **anything goes**. The only principle that does not inhibit progress is: **anything goes".**

BALANCE

AGAINST METHOD

Paul Feyerabend

New Edition
AGAINST METHOD
Paul Feyerabend
Introduced by Ian Hacking

VERSO

Broad Streams within STS

Research on the impacts and control of science and technology.

NOT JUST understanding the social nature of science, but equally promoting socially responsible science and technology (e.g. Science for the People, Radical Science Movement).

Questions:

- How should states set priorities for research funding?

- Who should participate, and how, in technological decision-making?

- How should experts communicate the reasons for their judgments to the public?

- Navigating ethical concerns (say on patenting life forms). How should societies measure risks and set safety standards?

Countering TWO intellectual positions/narratives:

- Good vs Bad Science, Science vs Tech:
- Social Construction vs Technological Determinism

What it is NOT?

- It is not a critique of science *per se*. Science as a social process, with its norms, values, rules (and deviance).

- In the domain of technology: Moving beyond the "misuse of technology" by the "bad guys" narrative. Asking: What is the fundamental nature of technological systems?

The Trajectory of STS: Prehistory of STS

Logical Positivism. Empirical evidence (OBSERVATIONS are the KEY), logical conclusions -> Verification/Falsification)

LIMITATIONS:

❑ Same observations, different hypothesis and results.

❑ The problem of abstract ideas/theories.

Falsificationism (Scientific theories CAN and WILL be falsified, at some point. PREDICTIONS and their verification/falsification is the KEY)

Difference from Positivism?

❑ NO METHOD to create a theory (through observations etc.). But there is a method to evaluate a theory.

❑ Better theories (refuting previous ones) -> More explanations of more and more facts. Limitations: scientists explain away the lack of prediction in certain cases, logically, without giving up on the theory.

The Trajectory of STS

STS: "Science and Technology are SOCIAL activities"

QUESTIONS: How are scientific "norms" (of enquiry/verification/evaluation) set? Who sets them? Who works on them?

- SOCIAL CONSTRUCTION: Central premise of STS is that scientists and engineers *use* the material world in their work; it is not *merely* translated into knowledge and objects by a *mechanical* process.
  - S&T is social
  - S&T is active, and in the process of being made and unmade
  - S&T does *not* imply a direct transition from nature to ideas about nature
- Social divisions spill into the scientific realm (race/caste/class/gender/nationality etc.)
- Various trajectories/sources of "scientific knowledge"

Grading pattern

Type of Evaluation	Weightage (in %)
Quizzes (2x7.5%)	**15%**
Project (Group)	**30%**
Mid Sem	**20%**
End Sem	**35%**