

## Lecture 11

### The Ethos of Science

Ethos of science: the “affectively toned complex of values and norms which is held to be binding on the man of science. The norms are expressed in the form of prescriptions, proscriptions, preferences, and permissions.” (268-9)

The *goal* of science is the extension of certified knowledge, which can be spelled out in terms of its technical methods: “empirically confirmed and logically consistent statements of regularities (these are often predictions).

The *imperatives* of science derive from the goal and the methods (e.g., empirically confirm statements of regularities, be consistent, seek knowledge, certify knowledge, etc.) More precisely, Merton thinks that empirical methodology is a “prerequisite for sustained true prediction [and...] logical consistency, a prerequisite for systematic and valid prediction”. These imperatives are binding “not only because they are procedurally efficient, but because they are believed right and good”.

He then flags four institutional imperatives—universalism, communism, disinterestedness, and organised skepticism—as comprising the ethos of modern science—its “core values”.

#### Universalism

The acceptance or rejection of a scientific claim should not depend upon the personal or social background of the person offering that claim.

However science is always situated within a larger society, which may oppose universalism. “Ethnocentrism is not compatible with universalism”. Here Merton notes that even when violated the force of the norm is still evident.

Universalism also mandates that “careers be open to talents” i.e., that science be a meritocracy. Since the goal of science is furthering our knowledge, and precluding competent practitioners would impede this goal, access to scientific careers should promote be based on competence alone.

Universalism is also a (*laissez-faire*) *democratic* principle. As Merton writes, “Impersonal criteria of accomplishment and not fixation of status characterize the open democratic society”.

## **Communism**

Established scientific knowledge should be accessible to all members of the scientific community to use, explore, etc.

In other words, data and theories are not like cars, houses, etc.

If a law, theory, etc. is named after a person, this only bestows prestige upon the person so named, usually because the law or theory is a significant contribution. Since this is the only privilege of ‘ownership’ of a theory, it becomes a prized possession. Merton notes that originality and priority (who first came up with an idea) are “accented” because of this.

As a result communication of scientific results is prized and secrecy about them scorned.

Interestingly, Merton remarks that the “communism of the scientific ethos is incompatible with the definition of technology as ‘private property’ in a capitalistic economy”.

## **Disinterestedness**

Scientific claims should not be put forth solely to further one’s interests or advance one’s own agenda.

Merton first notes that disinterestedness is an *institutional obligation*, which should not be confused with any *individual motive*. Scientists may have any number of individual drives and desires (fame, curiosity, altruism, etc.) that motivate them. The “institutional control of a wide range of these motives” better characterizes what is central to science.

This explains why there is little fraud in science. Merton notes that this comes about because scientists are well-“policed” by rigorous empirical tests performed by other scientists.

Scientists also have a very different relationship to lay clientele than other professions. When there is a stronger relationship between laypeople and scientists, incentives for fraud and pseudoscience become more pressing.

## **Organised skepticism**

Scientific claims should be evaluated by suspending judgment and scrutinizing claims in terms of empirical and logical considerations alone.

This often puts science in conflict with other spheres of life, since those spheres often do not suspend judgment and have fairly well entrenched commitments to certain ideas.