A legacy of skepticism and universalism

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Abstract

Many of the practices associated with modern science emerged in the early days of the Royal Society of London for Improving Natural Knowledge, which was founded in 1660.

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Many of the practices associated with modern science emerged in the early days of the Royal Society of London for Improving Natural Knowledge, which was founded in 1660. Today, it is usually referred to as simply "the Royal Society". When the Royal Society chose a coat of arms, they included the words *Nullius in verba*:

Nullius in verba is usually taken to mean "Take nobody's word for it", which was a big departure from tradition. People previously had mostly been told to take certain things completely on faith, such as the proclamations of the clergy and even the writings of Aristotle.

In the early 1600s, **René Descartes** had written a book urging people to be **skeptical** of what others claim, no matter who they are.

Rene Descartes. Image: public domain.

This caught on in France, even among the public — many people started referring to themselves as Cartesians. Meanwhile in Britain, the ideas of **Francis Bacon** were becoming influential. His skepticism was less radical than Descartes', and included many practical suggestions for how knowledge could be advanced.

Francis Bacon in 1616. Image:public domain.

Bacon's mix of skepticism with optimism about advancing knowledge using observation led, in 1660, to the founding in London of "a Colledge for the Promoting of Physico-Mathematicall Experimentall Learning". This became the Royal Society.

The combination of skepticism and the opening up of knowledge advancement to contemporary people, not just traditional authorities, set the stage for the success of modern science. When multiple skeptical researchers take a close look at the evidence behind a new claim and are unable to find major problems with the evidence, everyone can then be more confident in the claim. As the historian David Wootton has put it, "What marks out modern science is not the conduct of experiments", but rather "the formation of a critical community capable of assessing discoveries and replicating results."

Taking the disregard of traditional authority further, in the 20th century the sociologist Robert Merton suggested that scientists value **universalism.** By **universalism**, Merton meant that in science, claims are evaluated without regard to the sort of person providing the evidence. Evidence is evaluated by scientists, Merton wrote, based on "pre-established impersonal criteria".

Universalism provides a vision of science that is egalitarian, and universalism is endorsed by large majorities of today's scientists. However, those who endorse it don't always follow it in practice. Scientific organizations such as the Royal Society can be elitist. For example, sometimes the scholarly journals that societies publish treat reports by famous researchers with greater deference than those by other researchers.

Placing some trust in authorities (such as famous researchers) is almost unavoidable, because in life we have to make decisions about what to do even when we can't be completely certain of the facts. In such situations, it can be appropriate to "trust" authorities, believing their proclamations. We don't have the resources to assess all kinds of scientific evidence ourselves, so we have to

look to those who seem to have a track record of making well-justified claims in a particular area. But when it comes to the development of new, cutting-edge knowledge, science thrives on the skepticism that drives the behavior of some researchers.

Together, the values of communalism, skepticism, and a mixture of universalism and elitism shaped the growth of scientific institutions, including the main way in which researchers officially communicated their findings: through academic journals.

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