How to place Epicureanism in relation to the modern tool of the scientific method

Post by “Kalosyni” of September 23, 2025 at 1:40 PM

I'd like to compare the tools of the Epicurean canon with the tools of the modern scientific method. Firstly, it is important to understand what the scientific method is.

Here is a good article excerpt on the scientific method (source link posted below):

> Quote
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> Science is an enormously successful human enterprise. The study of scientific method is the attempt to discern the activities by which that success is achieved. Among the activities often identified as characteristic of science are **systematic observation and experimentation, inductive and deductive reasoning, and the formation and testing of hypotheses and theories**. How these are carried out in detail can vary greatly, but characteristics like these have been looked to as a way of demarcating scientific activity from non-science, where only enterprises which employ some canonical form of scientific method or methods should be considered science (see also the entry on science and pseudo-science). Others have questioned whether there is anything like a fixed toolkit of methods which is common across science and only science. Some reject privileging one view of method as part of rejecting broader views about the nature of science, such as naturalism (Dupré 2004); some reject any restriction in principle (pluralism).
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> **Scientific method should be distinguished from the aims and products of science, such as knowledge, predictions, or control. Methods are the means by which those goals are achieved.** Scientific method should also be distinguished from meta-methodology, which includes the values and justifications behind a particular characterization of scientific method (i.e., a methodology) — values such as objectivity, reproducibility, simplicity, or past successes. Methodological rules are proposed to govern method and it is a meta-methodological question whether methods obeying those rules satisfy given values. Finally, method is distinct, to some degree, from the detailed and contextual practices through which methods are implemented. The latter might range over: specific laboratory techniques; mathematical formalisms or other specialized languages used in descriptions and reasoning; technological or other material means; ways of communicating and sharing results, whether with other scientists or with the public at large; or the conventions, habits, enforced customs, and

> institutional controls over how and what science is carried out.
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> While it is important to recognize these distinctions, their boundaries are fuzzy. Hence, accounts of method cannot be entirely divorced from their methodological and meta-methodological motivations or justifications, Moreover, each aspect plays a crucial role in identifying methods. Disputes about method have therefore played out at the detail, rule, and meta-rule levels. Changes in beliefs about the certainty or fallibility of scientific knowledge, for instance (which is a meta-methodological consideration of what we can hope for methods to deliver), have meant different emphases on deductive and inductive reasoning, or on the relative importance attached to reasoning over observation (i.e., differences over particular methods.) Beliefs about the role of science in society will affect the place one gives to values in scientific method.
>
> The issue which has shaped debates over scientific method the most in the last half century is the question of how pluralist do we need to be about method? Unificationists continue to hold out for one method essential to science; nihilism is a form of radical pluralism, which considers the effectiveness of any methodological prescription to be so context sensitive as to render it not explanatory on its own. Some middle degree of pluralism regarding the methods embodied in scientific practice seems appropriate. But the details of scientific practice vary with time and place, from institution to institution, across scientists and their subjects of investigation. How significant are the variations for understanding science and its success? How much can method be abstracted from practice? This entry describes some of the attempts to characterize scientific method or methods, as well as arguments for a more context-sensitive approach to methods embedded in actual scientific practices.

You can read the full article over at this website.

My hope for this thread is to compare and contrast... feel free to add to this thread at any time.

Post by “Kalosyni” of September 23, 2025 at 1:56 PM

Here at this link is a diagram on inductive and deductive reasoning in the scientific method:

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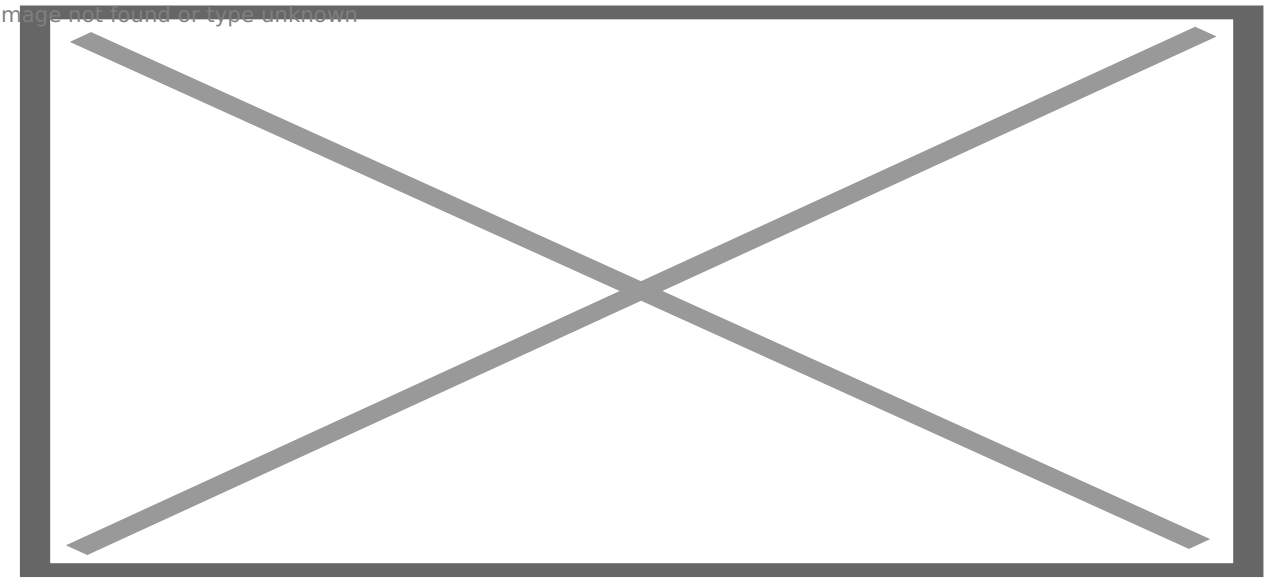

File:Inductive and deductive reasoning in the scientific method.png - Wikimedia Commons
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> Quote
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> While science is primarily based on deductive reasoning, inductive reasoning does have its place. Observations of nature are specific in nature. As observations of a specific phenomenon amass, a researcher begins to emerge with a general understanding of that phenomenon (inductive inference), which in turn results in the development of specific hypotheses. Once hypotheses are established, experimentation produces results to reject false hypotheses and support unfalsified hypotheses. As a collection of unfalsified hypotheses get researchers closer and closer to 'the truth', inductive reasoning can be used to develop a scientific theory.

Post by “Robert” of September 23, 2025 at 8:44 PM

Thank you for these resources, and for the topic! The question has been on my mind as well, as I've been seeking to learn more about the vectors o influence that connect Epicurus with later empiricists, e.g. Locke. I know very little about Locke, hut when I read summaries of his thought I see lots of stuff that seems like it could have been lifted from Epicurus more or less wholesale.

Who do you think had greater influence on development of science--Epicurus, or Aristotle?

Post by “Kalosyni” of September 24, 2025 at 6:08 PM

Aristotle...

> Quote
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> While Epicurus's atomism contained elements that were closer to the modern scientific worldview, Aristotle's work had a more powerful and sustained direct influence on the history of science. Indeed, the Scientific Revolution can be seen as both a continuation of and a reaction against the Aristotelian tradition, demonstrating just how pervasive and central his ideas were to the scientific discourse of the time.
>
> (Source: Google search)

Here is an interesting article - "Why does Francis Bacon Criticise Aristotle in the *Novum Organum*?"

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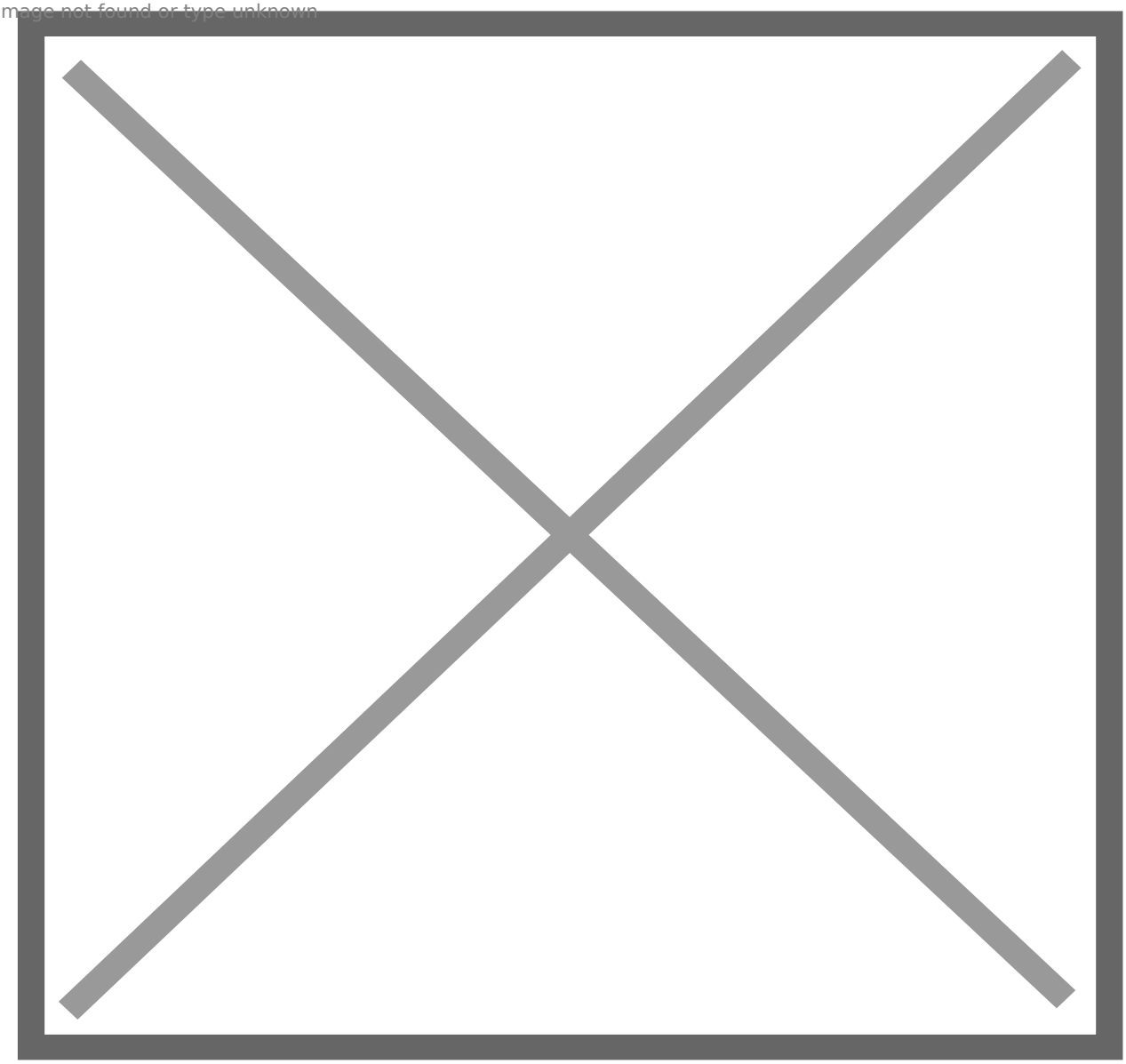

[Why does Francis Bacon Criticise Aristotle in the Novum Organum?]
During the Renaissance, Aristotle’s methods and concepts had gained many followers, which lead to virtually all of the universities founded…
medium.com

Post by “Cassius” of September 24, 2025 at 6:36 PM

This is the level at which these issues of what "science" says really concern us. This, from that article, is what I would say Epicurus was concerned about too.

> Quote

https://www.epicureanfriends.com/thread/4736-how-to-place-epicureanism-in-relation-to-the-modern-tool-of-the-scientific-metho/

Bacon despised Aristotle's ideas on deductive reasoning, not only because it was a direct contradiction to his methods of inductive reasoning, but also because he felt that it was more suited to disputation than for the discovery of practical facts. Additionally, Bacon saw syllogistic reasoning, which is a form of deductive reasoning that was widely used at that time, as "utterly useless for discovering the laws of nature and for applying them to the solution of practical problems", which, as discussed before, was Bacon's prime purpose for science. (Broad, 1958, p.51). This is because the general premises of which reasoned the conclusion were derived too rashly and were drawn from flawed observation, or worse, no observation and experimentation at all; he called this phenomenon the 'anticipation of nature'. Furthermore, Bacon saw Aristotle's procedures of syllogism as being circular: the premise of the syllogism was also a conclusion that had to be supported by premises; a process that would go round and round forever, never achieving any form of practical application (Dear, 2009, p.4; Bacon, 2020, sec.31). His solution was his method of inductive reasoning which started with the collection of data, followed by methodical, inductive investigation which produces applicable, practical knowledge (Klein & Giglioni, 2018, sec.5). Therefore, Bacon heavily criticised Aristotle's method of deductive reasoning, as it did not serve the purpose of science and was highly inaccurate to deriving truthful facts and this criticism, he hoped, would convince the people of his time to use his method of inductive reasoning.