Discussion of "The Demise of the Demarcation Problem" (1983) by Larry Laudan
by Nic Fillion, SFU, September 2, 2020

Let's start with a gem: Laudan has a compelling style; his arguments draw from multiple historical traditions; he presents a clear perspective on complex problems.

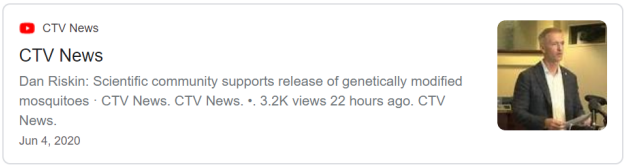
His views are unavoidable on questions of scientific realism (pessimistic induction), scientific change (research traditions), and scientific demarcation, among others.
He typically tries to capture the **historical trajectory of a problem** to draw general conclusions about the problem and its (proposed) solution(s). I suggest we first discuss the problem itself, and only discuss his historical case in detail if there's time.

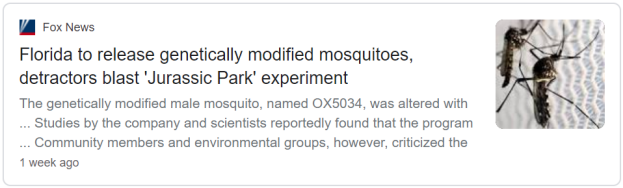
Why do we want a criterion of demarcation? He proposes a bunch of reasons in the opening paragraph (p. 111):

- "We live in a society which sets great store by science. Scientific 'experts' play a **privileged role** in many of our institutions, ranging from the courts of law to the corridors of power."
- "As a more fundamental level, most of us strive to **shape our beliefs** about the natural world in the 'scientific' image. [...] we generally believe them, however counter-intuitive and implausible their claims might appear to be."
- "[w]e generally make the scientist's contempt for these things our own, reserving for them those **social sanctions and disapprobations** which are the just desert of quacks, charlatans, and con-men."

"In sum, much of our intellectual life, and increasingly large portions of our social and political life, rest on the assumption that we (or, if not we ourselves, then someone whom we trust in these matters [**=philosophers, the gatekeepers since Ancient Greece**]) can tell the difference between science and its counterfeit."

Controversial science is in the news all this time...





Laudan's main thesis. His view is that "philosophy has largely **failed to deliver** the relevant goods" (p. 111). In more details:

> [...] it is probably fair to say that **there is no demarcation line** between science and non-science, or between science and pseudo-science, which would win assent from a majority of philosophers. Now is there one which *should* win acceptance from philosophers or anyone else [...]. [...] it may just be that there are no epistemic features which **all and only the disciplines** we accept as 'scientific' share in common. (p. 112)

Towards the end of the paper, he puts in along those lines (p. 124):

> [...] we have learned enough about what passes for science in our culture to be able to say quite confidently that it is **not all cut from the same epistemic cloth**.

> *The evident epistemic heterogeneity of the activities and beliefs customarily regarded as scientific should alert us to the probably futility of seeking an epistemic version of a demarcation criterion.* Where, even after detailed analysis, there appear to be no epistemic invariants, one if well advised not to take their existence from granted. **But to say as much is in effect to say that the problem of demarcation [...] is spurious, for that problem *presupposes* the existence of such invariants.**

Put bluntly: the problem of demarcation is a **pseudo-problem**.

Where would that leave us, according to Laudan?

- "I am not denying that there are **crucial epistemic and methodological questions** to be raised about knowledge claims, whether we classify them as scientific or not. [...] It remains **as important as it ever was** to ask questions like: When is a claim well **confirmed**? When can we regard a theory as **well-tested**? What characterizes **cognitive progress**?" (p. 124)
- "If we stand up and be counted on the side of reason, we ought to drop terms like 'pseudo-science' and 'unscientific' from our vocabulary; they are just **hollow phrases** which do only emotive work for us. As such, they are more suited to the **rhetoric of politicians and Scottish sociologists of knowledge than to that of empirical researchers**." (p. 125)

We should still fight quackery, but not in this way.

For his potentially more controversial theses, Laudan is very good at explaining that "no, no, that's just an ordinary thesis we should all get behind."

Now, even if we agreed with Laudan on this, there is still plenty to argue about...

What conditions would a criterion have to satisfy? In his Section 3, *A Metaphilosophical Interlude*, Laudan discusses three central questions concerning criteria of scientificity. Among other things, Laudan here builds a bridge between his descriptive and normative claims about science (which is very important!).

(1) What conditions of adequacy should a proposed demarcation criterion satisfy?
It can no longer be entirely stipulative *a priori* ("uncompromisingly legislative").

> Any proposed dividing line between science and non-science would have to be (at least in part) explicative and thus sensitive to existing patterns of usage. Accordingly, if one were today to offer a definition of 'science' which classified (say) the major theories of physics and chemistry as non-scientific, one would thereby have failed to reconstruct some paradigmatic cases of the use of the term. (p. 117)

But more than capturing usage is needed:

> But we expect more than this of a *philosophically* significant demarcation criterion between science and non-science. Minimally, we expect a demarcation criterion to identify the *epistemic* or *methodological* features which mark off scientific beliefs from unscientific ones. We want to know what, if anything, is special about the knowledge claims and the modes of inquiry of the sciences. (p. 118)

(2) Should it offer both necessary and sufficient conditions for scientific status?

> Without conditions which are both necessary and sufficient, we are never in a position

> to say "*this* is scientific: but *that* is unscientific". A demarcation criterion which fails to provide both sorts of conditions simply will not perform the tasks expected of it.

Is it not perhaps confusing definition and criterion?

(3) What actions of judgements are implied the (non-)scientific status of beliefs/activities?

That overlaps with what was said earlier (individual and socio-political reasons). He adds:

> [...] demarcation criteria are typically used as *machines de guerre* in a polemical battle between rival camps. [...] Philosophers should not shirk from the formulation of a demarcation criterion merely because it has these judgemental implications associated with it. Quite the reverse, philosophy at its best should tell us what is reasonable to believe and what is not. [...] Although the cleaver that makes the cut may be largely epistemic in character, it has consequences which are decidedly non-epistemic. [...] far-reaching moral, social, and economic consequences [...]. (p. 120)

The Old Demarcationist Tradition. Laudan here discusses what he sees as the evolution of the problem of demarcation up to the 20$^{\text{th}}$ century.

The Greeks (esp. Aristotle): Twofold demarcation:

1. Genuine knowledge vs mere opinion (reality vs appearance, truth vs error).
   Here, Laudan discusses a view of scientific knowledge often attributed to Aristotle based on the *Posterior Analytics*, and claims this is **the** view of science espoused by Aristotle and the tradition.
2. Know-how (artisan knowledge) vs know-why (analytical knowledge/science)

Should we buy this?

Modern: "More generally, the seventeenth century brought a very deep shift in demarcationist sensibilities." (p. 114) Abandonment of infallibility, from-first-causes. Maintain apodeictic certainty.

19th century: "As I have shown elsewhere, this influential account finally and decisively cam unraveled in the nineteenth century with the emergence and eventual triumph of a *faillibilistic* perspective in epistemology." (p. 114)

"[...] it is no longer viable to attempt to distinguish science from non-science by assimilating that distinction to the difference between knowledge and opinion. [...] nineteenth century philosophers and scientists quickly forged other tools to do the job. Thinkers such as Comte, Bain, Jevons, Helmholtz and Mach (to name only a few) began to insist that **what really marks science off from everything else is its** *methodology*." (p. 115)

This gives rise to two important themes:

1. **Unity of Method**: "the various activities regarded as science utilized essentially the same repertoire of methods"
2. Establishing the credentials of the methods in question.

Laudan claims this **methodological project failed to deliver** since no agreement about what the scientific method was found.

Should we buy this? Compare Laudan's observation with those of Otto Neurath, the driving force behing the Unity of Science movement of his time:

> [t]here is no scientific method. There are only scientific methods. And each of these is fragile; replaceable, indeed destined for replacement; contested from decade to decade,

from discipline to discipline, even from lab to lab.

That's basically what Laudan says, but with opposite conclusion!

The New Demarcationist Tradition. According to Laudan, this new tradition arises as a result of the Vienna circle's **syntactic and logical approach** to the matter (p. 120). According to him, they replaced **methodological attempts** by attempts based on **a theory of meaning**: verifiability, meaningfulness, and scientific character all coincide.

According to Laudan, this project of using a theory of meaning as a criterion of demarcation was an **unmitigated disaster**:

> The new demarcationism thus reveals itself as a largely toothless wonder, which serves neither to explicate the paradigmatic usages of 'scientific' (and its cognates) nor to perform the critical **stable-cleaning chores** for which it was originally intended. (p. 122)

But is it really what was happening, or was it the beginning of a re-birth of methodology?

The last gem is cursed: it's about Laudan's occasionally slanted historical depiction (in my opinion, of course). It serves its dramatic effect, but can be misleading.