

« For the benefit of the wider society, I think it is far more interesting and useful if we professional historians give attention to the valuable bits of past science that modern scientists consider unimportant, outdated, or simply wrong. Much more stimulating accounts can be produced on the basis of a pluralist presumption: the current dominant system in a field of science is not the only good approach to the understanding of nature, and looking at the past is one of the possible ways of finding other good ones. What I like to practice is “loser’s history”, whose aim is to dig up from the past something good that has become neglected, and to bring it to the present.

But we cannot possibly pay attention to *all* the losers from the past! There are far too many, and many of them were real “loser” (in the American colloquial sense of the word) who do not deserve much attention. Now, that is a presentist judgement. When I say that some bits of past science are valuable enough to write about and others are not, I am making a judgement very much rooted in my present. And what is operative here is *my* present, not the present of the orthodox professional scientists. So Gordin (2014, 422) is not quite correct when he says that my kind of work is ultimately whiggish because my scientific judgements can only be made on the basis of present-day science. True, I cannot reject the *entirety* of modern science and still function in a sensible way intellectually in today’s world (and nor can he), but I can go really quite far in hacking away a large part of the platform on which I stand.

[...]

The pluralist historiography that I advocate here is closely related to my vision of the history and philosophy of science as “complementary science” (Chang 2004, ch. 6). The basic idea of complementary science is that we can do history and philosophy of science with the aim of improving scientific knowledge in ways that are not taken up by scientists themselves. In the context of this paper, it is important to note that what I am talking about is the improvement of *present* scientific knowledge, so we are squarely in the realm of presentist historiography. Given the current monistic and hegemonic tendencies in science, scientific progress tends to be accompanied by the shutting down of alternative paths of inquiry and a resulting loss of potential and actual knowledge. A critical and sympathetic engagement with the past of science allows us to recover the lost paths, which can also suggest new paths. In that way, methods and resources of history and philosophy of science can be employed in order to locate and address scientific questions productively. Complementary science seeks to generate scientific knowledge in places where science itself fails to do so.

This is not to deny that science is very good at what it does, but just to note that there are things that science does not currently do, even though they are quite scientific. The more well-defined and focused specialist science becomes, the more exclusive and exclusionary it tends to turn.

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There is a sense in which we do not truly know anything unless we know how we know it. With a critical awareness of uncertainty and inconclusiveness, our knowledge reaches a higher level of flexibility and sophistication. For example, there is little that deserves the name of knowledge in being able to recite that the earth revolves around the sun. More intellectual value comes with the understanding of the evidence and arguments that convinced Copernicus and his followers to reject the firmly established, highly developed and eminently sensible system of geocentric astronomy established by Ptolemy. This is exactly the kind of scientific knowledge that is not easily available in current specialist science (who really knows about Ptolemaic astronomy any more?) but can be given complementary science.

Now, critique may be considered the proper province of philosophy rather than history, but history really is one of the most effective tools for generating critical awareness. As Loison (2016, 36) put it: “by reactivating the complexity of the past, one develops the tools to criticize present science.” This pays out most importantly in relation to the contingency of scientific knowledge. If we know that there are credible alternatives to our current way of thinking, the latter will lose its appearance of invincibility and necessary truth.

[...]

Recovery and critical awareness are valuable in themselves, but they can also stimulate the production of genuinely novel knowledge. The work of extension is strictly speaking not historical, but it is a direct consequence and benefit of doing history in the presentist and pluralist way I have been advocating here. Again, it will strike many readers as highly implausible that genuinely novel scientific knowledge can stem from historical work, and ultimately the only way to demonstrate the possibility is to show actual successes.

For example, it was through his study of the history of mechanics that Ernst Mach recognized Newton’s absolute space and time to be unnecessary. This recognition then prompted Mach to advocate a relational theory of space, which in turn helped pave Einstein’s path to relativity (see Norton 2010). Mach’s “historical-critical method” was intended to lead to new and better science through a critical examination of the past. [...] Such productive engagements with the past of science cannot be undertaken without a pluralist allowance that the dominant science of one’s own day is not the only possible way of understanding nature. Loison (2016, 36) stresses this as a requirement for his “critical presentism”: in Canguilhem’s idiom, “the truth of the day” is not “the truth of always”. »