



# Forms of presentism in the history of science. Rethinking the project of historical epistemology



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## ABSTRACT

Since the late 1980s, presentism has seen a resurgence among some historians of science. Most of them draw a line between a good form of presentism and typical anachronism, but where the line should be drawn remains an open question. The present article aims at resolving this problem. In the first part I define the four main distinct forms of presentism at work in the history of science and the different purposes they serve. Based on this typology, the second part reconsiders what counts as anachronism, Whiggism and positivist history. This clarification is used as a basis to rethink the research program of historical epistemology in the third section. Throughout this article, I examine the conceptual core of historical epistemology more than its actual history, from Bachelard to Foucault or others. Its project should be defined – as Canguilhem suggested – as an attempt to account for both the contingency and the rationality of science. As such, historical epistemology is based on a complex fifth form of presentism, which I call *critical presentism*. The critical relation at stake not only works from the present to the past, because of the acknowledged rationality of science, but also from the past to the present because of the contingency and historicity of scientific knowledge.

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## 1. Introduction

Accusations of “Whiggism” have long been a staple of debate among historians of science. Much has been written about the subject since the mid-twentieth century, when history of science became a professional practice, gaining a modicum of independence from both science and philosophy (Hall, 1983; Harrison, 1987; Wilson & Ashplant, 1988). In order to assert their new status and emphasize the difference between them and their predecessors, the first professional historians of science chose to strongly reject all forms of retrospective analysis in their field. Therefore, from the 1960s to the 1980s, “whiggish” became a synonym of incompetent and the worst insult that could be levelled against a historian of science. Yet, as has been noted, in the 1980s things began to turn around, and several historians (who were not scientists to begin with) argued that the practice of history could not do without at least a mild form of “present-centeredness” (Rée, 1991; Wilson & Ashplant, 1988). Over the past few years, this trend towards the reconsideration of presentism in history of science has gained momentum, and more and more historians deem “certain forms” of presentism and anachronism necessary (Alvargonzález,

2013; Jardine, 2000; Oreskes, 2013; Tosh, 2003). More generally, the issues of why and how historians of science conduct their research and produce narratives of the past have been raised again, giving further credence to the presentist approach. For example, Oren Harman and Alexandre Métraux edited in December 2013 an entire issue of *Science in Context* devoted to the topic, entitled “Approaches, styles, and narratives: reflections on doing history of science” (Harman and Métraux, 2013). All seven contributions in that volume raise the crucial problem for historians of science of the inescapable tension between the present and the past.

This resurgence of presentism in the field of history of science is evidence of its centrality. If one accepts that the objective of science is to produce true explanations, it seems difficult to dismiss all use of present knowledge to trace back and understand its history. This is why, as David Alvargonzález claims, “history of science is essentially whiggish” (Alvargonzález, 2013) – at least to some extent. The question is therefore no longer *if* we have to make room for presentism, but rather *how* we should use presentism. Throughout this paper I use the term “presentism” in an inclusive sense, referring to any form of retrospective analysis that makes some room for present day science. This definition implies no value judgement: presentism can lead to misinterpreting the past just as it can also help better understand it. The aim of this article is to bring insights into the pivotal question of presentism in two related

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ways: by clarifying the terms and concepts at stake (Sections 2 and 3) and by characterizing the project of historical epistemology as a way to solve the issue of presentism in the history of science (Section 4).

First, in light of much of the recent (and less recent) literature on that topic, I propose a classification of four different types of presentism, from the less controversial in practice to the most disputed. I name these forms *empirical*, *descriptive*, *causal-narrative* and *normative* presentisms. I examine potential ways of “using them without any abuse” (Jardine, 2000) by emphasizing the practical conditions under which these types of presentism may be legitimate. I also argue that each of these forms of presentism may yield distinct and important contributions to our understanding of the past.

On the basis of this typology, the second part of the article proposes definitions of anachronism on the one hand and Whiggism and positivist history on the other (the latter two categories are treated as almost synonymous here, as most historians use them interchangeably). The above categories apply to retrospective analyses in which three of the four forms of presentism are not used consistently. This characterization highlights that Whiggism has two close but nonetheless different meanings, which are very often conflated and ill-defined. The first consists in a misuse of *causal-narrative presentism* (Whiggism as history necessarily leading to present science, in a finalistic approach), whereas the second is a misuse of *normative presentism* (Whiggism as history in which past science is reduced to an incomplete version of present science).

In the last part of the article, I reconsider the very nature of historical epistemology in close connection with the question of presentism. The term “historical epistemology” has at least two acceptations. It can refer to a tradition in history and philosophy of science, especially in France, running from Bachelard to Canguilhem, Foucault and others (Braunstein, 2002, 2006). Yet it can also be understood as a method, not necessarily linked to the French tradition (Braunstein, 2008b). It is this more normative approach that I am primarily interested in: regardless of the concept’s history, my aim is to show that historical epistemology is best characterized as a way not only to raise the problem of presentism in the history of science but to solve it. I argue that historical epistemology accounts for both the historicity and the rationality of science and thereby escapes the dead ends of Whiggism and positivism on the one hand and relativism on the other. Despite its normative focus, this section also draws on aspects of Georges Canguilhem’s work, which has received increasing scrutiny in recent years (Chimisso, 2015; Méthot, 2013). Unlike Bachelard, Canguilhem gave close consideration to historicity and contingency in history of science. Unlike Foucault, he remained convinced of the necessity to use the present as a yardstick.

## 2. Four forms of presentism

In one of the most recent articles on presentism, David Alvar González makes a very convincing case for a “certain conceptual anachronism” in the field of history of science (Alvar González, 2013, p. 95). Others have also supported this claim in the past few years, particularly since Nick Jardine’s influential 2000 paper “Uses and abuses of anachronism in the history of science” (Jardine, 2000). Since then, it has generally been acknowledged that the practice of history of science needs to refer to the present for a variety of reasons. Most historians of science make a distinction between a “good” and a “bad” form of presentism: the former helps us understand the past while the second only distorts it under the weight of the present.

For example, Nick Jardine proposed in his 2000 paper a distinction between a “legitimate” and a “vicious” form of

anachronism. More recently, in 2009, Oscar Moro-Abadia devoted a whole article to this question, and, following Jardine, tried to establish a clear separation between “present-centeredness” and “anachronistic history” (Moro-Abadia, 2009). Most of the literature on that topic is based on such dichotomies. My aim in this section is to show that we must now go beyond a dichotomic understanding of the nature of presentism: the question is not only about professional ethics and a choice between good and bad; we should be concerned with providing explicit definitions of the different forms of presentism applied in the field of history of science.

These forms have been more or less clearly acknowledged since the late 1970s. For instance, in 1979, David Hull published a defense of presentism in which he already considered three different forms of presentism:

In this paper, I discuss three sorts of presentism, reading present-day meanings, principle of reasoning, and empirical knowledge back into earlier periods. I argue that in all three cases knowledge of present-day language, logic, and science is necessary not only for investigating the past but also for communicating the results of these investigations to the historian’s contemporaries (Hull, 1979, p. 4).

My goal here is to develop clear definitions of what I consider to be the main forms of presentism on the basis of the existing literature and of my own experience as a historian of biology. Three of these forms could be used both in a “bad” and in a “good” way depending on the competence of the historian. Therefore the first question that must be answered is not about the legitimacy of presentism as a whole, but about its various definitions and functions in the construction of historical narratives. In this section, I introduce a distinction between the four following types of presentism: *empirical presentism*, *descriptive presentism*, *causal-narrative presentism* and *normative presentism*. I consider these forms of presentism as mainly exclusive: each of them defines a specific way of using the present in order to understand the past which, in the main, does not overlap with the others.

### 2.1. Empirical presentism

In 1983, French historian Guy Beaujouan already regretted that historians of science – and especially historians of ancient science – almost systematically neglected the “operational substratum” of knowledge and did not “look for the realities that might underpin the natural wonders reported in chronicles”<sup>1</sup> (Beaujouan, 1983, pp. 351–352). In his view history of science all too often failed to consider what present science could tell us about the materiality of natural phenomena. This *empirical presentism* is extensively discussed in most of the articles devoted to Whiggism and anachronism. It could be defined as *the use of present-day knowledge to help specify the characteristics of the empirical substratum based on which past interpretations were made, regardless of the content of these interpretations*.

Much of Hull (1979) paper refers to this form of presentism. More recently, Nick Jardine and Nick Tosh also defended this kind of practice, and both of them strongly oppose what they consider as being a complete sterilization of intellectual history because of an extremist understanding of anti-presentist methodology:

All too often recent historians of science have abandoned common sense in their flight from presentism. Since it is presentist to appeal to knowledge we possess but that the subjects of our historical studies did not, we are supposedly not free to deploy in our interpretations and explanations such facts as, for example, our diagnoses of the diseases afflicting past persons, or our computed

<sup>1</sup>My translation.

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