

Comment

Using, Abusing, and Perusing the Past

Massimiliano Badino, *Universitat Autònoma de Barcelona and Massachusetts Institute of Technology*

Abstract: Historians' neglect of the imagined past is particularly surprising when one considers that, oftentimes, the process of constructing an imagined past is an interesting story in its own right. This essay argues that part of the reason for the scarce attention paid to science's imagined past is the fact that the very existence of an imagined past questions the foundations of history writing. The remedy to the flaws of history is, the essay suggests, simply more history. We do not need to sweep the imagined past under the rug but, rather, to understand its dynamics as a genuinely historical process.

Asking why historians of science have long neglected the phenomenon of science's imagined past is, on all counts, a fair and legitimate question—and an interesting one. For, apart from basic procedures such as ironing out discontinuities and inventing revolutions, there are several complicated and multifaceted ways in which a scientific tradition can be shaped over a long span of time. Let us take a particularly juicy example: the proof of the stability of the solar system. Nowadays, there is a virtually unshakable consensus among the community of astronomers that the problem of the stability of the solar system was first posed by Isaac Newton in the late seventeenth century and, after much labor, solved by Pierre Simon Laplace in 1773.¹ This narrative is almost too straightforward to be true—and, in fact, it is not. A close scrutiny of the sources reveals a story much more convoluted than the astronomers' imagined past. First, for Newton the stability of the solar system never rose to the status of a question to be decided by scientific resources. Rather, the stability of the solar system was a sign of God's active presence in the world. Second, it was Joseph Louis Lagrange, not Laplace, who first posed and solved the problem in the early 1780s, albeit unsatisfactorily by our present standards of mathematical rigor. But there is more. Lagrange's formulation of the problem of stability (and its solution conditions) followed, rather than preceded, the development of the formal tools necessary to solve it. In other words, while astronomers like to

Massimiliano Badino is Marie Skłodowska-Curie Fellow at the Universitat Autònoma de Barcelona and at the Massachusetts Institute of Technology. He is the author of *The Bumpy Road: Max Planck from Radiation Theory to the Quantum, 1896–1906* (Springer, 2015), as well as numerous articles on history and philosophy of modern physics. Centre d'Història de la Ciència, Universitat Autònoma de Barcelona, Mòdul de Recerca C, Carrer de Can Magrans s/n, 08193 Bellaterra (Barcelona), Spain; massimiliano.badino@gmail.com.

¹ This conviction is fairly old. See, e.g., Forest R. Moulton, *An Introduction to Celestial Mechanics* (London: Macmillan, 1914), p. 432; Archie E. Roy, *Orbital Motion* (Bristol: Institute of Physics Publishing, 1982), p. 248; Victor Szebehely and Hans Mark, *Adventures in Celestial Mechanics* (Weinheim: Wiley, 2004), p. 9; Gerhard Beutler, *Methods of Celestial Mechanics*, Vol. 1 (Berlin: Springer, 2005), p. 26; Alessandra Celletti and Ettore Perozzi, *Celestial Mechanics* (Chichester: Springer-Praxis, 2007), p. 93; and Scott Tremaine, "Is the Solar System Stable?" *Institute for Advanced Study Letter*, Summer 2011, pp. 1, 6–7, on p. 1.

Isis, volume 108, number 4. © 2017 by The History of Science Society.
All rights reserved. 0021-1753/2017/0108-0007\$10.00.

tell the tale of a clearly defined problem eventually cracked by mathematical ingenuity, documents reveal how difficult it was to recognize that there was a scientifically treatable problem to begin with.² The conceptual, cultural, and mathematical struggles implicit in the slow construction of the problem of stability as we know it today have been completely obliterated by a cognitively reassuring and pedagogically edifying narrative.

This might irritate the historian, but it can hardly surprise her. What is somewhat more surprising, and constitutes the real historiographical core of the matter, is that the paths through which imagined pasts are established and accepted often make for interesting and revealing stories in their own right. This is certainly the case for the example just described. The story of this imagined past began with Laplace, who did not openly claim to have proved the stability of the solar system but was shrewd enough to carve out a generous role for himself, especially in highly successful books such as the *Exposition du système du monde*. Almost inevitably, Laplace's role was augmented and enriched by the followers of the Laplacian school, who were eager not only to pay homage to their master but also to facilitate his rise to prominence on the scientific and political scene.³ François Arago, for instance, played a key role in his capacity as chief disseminator of the great feats of eighteenth-century astronomy. William Whewell also inadvertently contributed to propagating this imagined past, although for completely different reasons. Looking for evidence of an Intelligent Designer, Whewell found it very helpful to refer to Laplace's clear and compact formulation of the conditions for the stability of the solar system. The fact that Laplace also propounded the nebular hypothesis, a polemical target of Whewell's natural theology, only helped to strengthen the association between Laplace and the stability proof.⁴ When the story finally reached twentieth-century astronomers, it was simply too good to be rejected. Above all, it was pedagogically valuable: it taught the virtue of setting up a clear mathematical problem and working hard toward its solution.

Even from this very cursory account, it appears that the story of the imagined past of the proof of the stability of the solar system possesses everything one might ask of an intriguing historical process: it covers an ample span of time, and it involves the interplay of multiple actors, personal motives, political goals, philosophical debates, pedagogical agendas, and much more. Then why have historians of science paid no heed whatsoever to this and countless similar stories?

One answer that immediately springs to mind pertains to disciplinary pride. Laplace, Arago, and Whewell, like present-day astronomers, were not professional historians; and so their stories can and should be brushed off as bad history as readily as a physicist would dismiss, say, a historian's solution of Einstein's gravitational equations. Such a contemptuous highbrow reaction would be neither fair nor appropriate, however. It wouldn't be fair because all human experiences, be they stories of success or of failure, are part of the historian's field of expertise—that is to say, history. Studying science's imagined past is no different than studying the emergence of outrageous political or racial theories. Moreover, it wouldn't be appropriate because even professional

² For a detailed treatment of this episode see Massimiliano Badino, "And Yet It Stands: The Stability of the Solar System in Eighteenth Century Physical Astronomy," *Historical Studies in the Natural Sciences*, 2018, 48, forthcoming.

³ Pierre-Simon Laplace, *Exposition du système du monde*, in *Oeuvres de Laplace*, Vol. 6 (Paris: Gauthier-Villars, 1796), pp. 1–479, on p. 226. On Laplace's political career and the influence of the Laplacian school see Charles C. Gillispie, *Pierre-Simon Laplace, 1749–1827: A Life in Exact Science* (Princeton, N.J.: Princeton Univ. Press, 1997); and Roger Hahn, *Pierre Simon Laplace: A Determined Scientist* (Cambridge, Mass.: Harvard Univ. Press, 2005).

⁴ François Arago, *Astronomie populaire*, 4 vols. (Luxembourg: Legrand, Pomey et Crouzet, 1854), esp. Vol. 4, pp. 20–22; Arago, "Astronomical Discoveries of Laplace," *Anglo American, a Journal of Literature, News, Politics, the Drama, Fine Arts, Etc.*, 1844, 4:59–61 (this journal was published from 1843 to 1847); and William Whewell, *Astronomy and General Physics Considered with Reference to Natural Theology* (London: William Pickering, 1833).

historians can occasionally fall into the same trap, propagating an imagined past in their own scholarly literature.⁵

It is worth stressing that what ultimately is at stake in science's imagined past—and, by extension, in all imagined pasts—is not the event itself but, rather, the process of history writing. The story of how professional motives, personal inclinations, cultural priorities, pedagogical ideals, and other elements combined to fabricate, develop, and disseminate the imagined past pertaining to the proof of the stability of the solar system is first and foremost a wonderful window on the multiple epistemological assumptions, methodological expectations, and moral values implicated in the process of narrating the past. This consideration seems to offer another, more refined explanation of historians' failure in dealing with this process. Many think that the historian's pedagogical, professional, and possibly social duty is primarily to produce accounts of what happened, rather than talking about those who told us (wrongly or rightly doesn't matter) what happened. One should be concerned with the decline and fall of the Roman Empire rather than with the story behind Edward Gibbon's account of that process. The respected constitutional historian David Starkey vigorously pushed this point when he remarked in an interview in the *Telegraph* that history teaching pays far too much attention to the process at the expense of the product: "historical 'process'" —he argues— "is desiccated, tedious, pointless. What matters is the product—the history, the writing, the big picture. Narrative is the only explanation of history. Without chronology, history is meaningless."⁶

It is important to appreciate that, beneath its laudable pedagogical strategy, this position also encapsulates more prosaic tactics of professional self-preservation; and this is the point that brings us to what I think is the main reason for historians' disregard of science's imagined pasts. Starkey's claim is a sophisticated version of the venerable idea that history is concerned with "what really happened" and that the most appropriate attitude toward the past "out there" is a serene and disinterested contemplation. The past cannot be subjugated to cultural, social, political, ideological, or pedagogical projects of any sort because everything short of perusing the past is in fact abusing it. From such a perspective, dealing with imagined pasts looks like a fundamental betrayal of what should be the historian's most cherished ideal.

Tactics apart, I suspect that at least part of the reason why historians are often reluctant to inquire into the process of imagining the past is that such analysis would expose flaws they themselves are not immune to. Imagined pasts are fictions put together by studiously (or carelessly) selecting and interpreting sources. More important, they are fictions that can be used for multiple purposes: fostering one's own political and social ambitions, celebrating the intellectual virtues of a master, articulating a philosophical debate in the most convenient terms, and promoting certain pedagogical models, to mention just a few. A dedicated peruser of history would certainly call them all just so many abuses of the past; but is the professional historian's daily work much different in kind? Can an academic degree, years of experience, and careful research shield us from the risk of being snared in some bias? Many writers have argued that historians are necessarily selectors, interpreters, and fiction makers because facts never speak for themselves. William McNeill, for example, stated that "the arrangement of facts to make a history involve[s] subjective judgments and intellectual choices that ha[ve] little or nothing to do with source criticism, scientific or otherwise."⁷ The past, in other words, is not an autonomous entity to be unearthed and

⁵ For instance, Thomas Hankins, the well-known historian of eighteenth-century science, also attributed the proof of the stability of the solar system to Laplace. See Thomas L. Hankins, *Science and the Enlightenment* (Cambridge: Cambridge Univ. Press, 1985), p. 41.

⁶ David Starkey, "Restore the Magic by Ditching the Monotone of Textbooks," *Telegraph*, 7 Oct. 2002.

⁷ William McNeill, "Mythistory, or Truth, Myth, History, and Historians," *American Historical Review*, 1986, 91:1–10, on p. 1. Amusingly, in that paper McNeill also reiterates the imagined past of the stability of the solar system when he states that "science,

gazed at, but a way to give meaning to individuals as well as communities small and large. That is why McNeill insists that histories are in fact “mythhistories,” meant to be used in the service of different human projects.

If history cannot be neutral, historians cannot be “biased” with respect to an allegedly objective past “out there.” Rather, historians’ narratives are part and parcel of the larger social, political, cultural, and ideological debate and, as such, are prone to a variety of uses and abuses.⁸ This also entails that historians are influential players in this debate because, by placing communities within traditions, they have a crucial say about their identity. To mention a very recent example, in his review of Patrick Boucheron’s edited volume *Histoire mondiale de la France*, Robert Darnton touches on exactly this point when he stresses the heavy impact the book has had on current French discussions about national identity.⁹ Clearly, writing the past is a thorny business, but when science is involved it becomes even thornier. Historians and sociologists have long insisted that science itself is far from being a neutral mirror of the nature “out there” but, instead, negotiates continuously with competing political, social, and ideological agendas. Instead of acting as a myth breaker, the “mythhistorian” might find herself in the uncomfortable position of contributing to the construction of science’s cultural authority by inscribing it into a larger tradition of meanings and values.¹⁰

Historians of science, I believe, do not deal willingly with science’s imagined past for the same reason that historians in general are loath to deal with the fictional nature of history as a scholarly discipline (or scientists with the social nature of science): because it lays bare intrinsic aspects of the very act of history writing that can potentially lead to its debunking as mere politics or rhetoric.¹¹ This fear, albeit understandable, is, I think, misplaced. Even if narrating the past implies, partly and inevitably, constructing it, this does not entail that one cannot distinguish between good and bad fictions. Selection and interpretation are necessary to cope with numerous sources and the impossibility of direct access to the past, but it is still possible to tell what is dishonest and specious from what is sincere and reasonable. A clear and meaningful distinction can be drawn between interpreting and misinterpreting, telling and proselytizing, debating and deceiving.¹² The key point is that this distinction does not come prepackaged with some alleged historical method, and there is no guarantee that being a historian safeguards one against projecting ideals, conceptions, goals, and values onto his or her research. Historians should thus boldly confront the process of history writing. In the past century, a remarkable amount of ink has been spilled

of course, like the stars above, was true and eternal, as Newton and Laplace had demonstrated to the satisfaction of all reasonable persons everywhere” (*ibid.*).

⁸ For plenty of illustrative instances see Margaret MacMillan, *The Uses and Abuses of History* (London: Profile, 2009).

⁹ Robert Darnton, “A Buffet of French History,” *New York Review of Books*, 11 May 2017.

¹⁰ Interestingly, the converse might also happen. For a telling example see Fedra A. Pizzato, “Fossili della nazione: Paleontologia, antropologia e nazionalismo in Italia (1871–1915)” (Ph.D. diss., Ca’ Foscari Univ. Venice, 2016), where the author brilliantly shows how Italian anthropologists (reacting in fact to a European trend) used anthropological research to retell Italy’s prehistory in explicit support of a nationalist agenda.

¹¹ Authors such as Hayden White and Richard Rorty, for example, have insisted on the rhetorical and conversational side of history writing, a move that has often been interpreted as a retreat of academic history from its authoritative position in the cultural debate. On this issue see Hayden White, *Metahistory: The Historical Imagination in Nineteenth-Century Europe* (Baltimore: Johns Hopkins Univ. Press, 1973); Richard Rorty, *Objectivity, Relativism, and Truth* (Cambridge: Cambridge Univ. Press, 1991); Keith Jenkins, *On “What Is History?”: From Carr and Elton to Rorty and White* (London: Routledge, 1995); Frank R. Ankersmit, “The Dilemma of Contemporary Anglo-Saxon Philosophy of History,” *History and Theory*, 1986, 25(4):1–27; and Ankersmit, “Narrative and Interpretation,” in *A Companion to the Philosophy of History and Historiography*, ed. Aviezer Tucker (Malden, Mass.: Blackwell, 2009), pp. 199–208.

¹² On the ways in which this difference can be fleshed out see Richard J. Evans, *In Defence of History* (London: Granta, 1997); Mary Fulbrook, *Historical Theory: Ways of Imagining the Past* (London: Routledge, 2002); and Paul Newall, “Historiographical Objectivity,” in *Companion to the Philosophy of History and Historiography*, ed. Tucker, pp. 172–180.

on the philosophical problems of history. Through sophisticated conceptual analysis, philosophers and historians have mostly been preoccupied with the question, What is history? However, we are still lacking empirical studies on the practices of history. Rather than fearing science's imagined pasts, we badly need to "go historical" on some key questions: How is the past told? What values, emotional stances, and ideals are transmitted by imagining a scientific tradition? How does the imagination of the past influence the moral authority of a discipline, a school, a community? How do (imagined, constructed, rediscovered) traditions shape scientific research programs? More generally: What is history *for*?¹³ It's by doing what they are best at that historians can construct a more rewarding relationship with imagined pasts.

¹³ On this crucial change of question see Beverley Southgate, *What Is History For?* (London: Routledge, 2005).