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ORIGINAL ARTICLE

The Icarus flight of speculation: Philosophers' vices as perceived by nineteenth-century historians and physicists

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Abstract

Why did nineteenth-century German historians and physicists habitually warn against vices that they believed philosophers in particular embodied: speculation, absence of common sense, and excessive systematizing? Drawing on a rich array of sources, this article interprets this vice-charging as a rhetorical practice aimed at delineating empirical research from *Naturphilosophie* and *Geschichtsphilosophie* as practiced in the heyday of German Idealism. The straw-man of “the philosopher” as invoked by historians and physicists served as a negative model for strongly empiricist scholars committed to virtues like precision, thoroughness, and conscientiousness. In their historical narratives, historians and physicists consistently depicted philosophy either as a relic from the past or as a phase that they had virtuously left behind. This boundary work was central to the self-positioning of both history and physics, which makes clear that the persona of the philosopher mattered not only to philosophers but also to scholars in adjacent disciplines.

KEYWORDS

boundary work, empiricism, German Idealism, scholarly vices, scholarly virtues, speculation

1 | INTRODUCTION

Philosophical empiricism, argues Bas van Fraassen in *The Empirical Stance*, emerged “in a series of revolts, across Europe and America, against all forms of metaphysics” (2002, 3). Although this rebellion against metaphysics took on different forms, and was fought in different idioms, what was most distinctive, according to van Fraassen, was not its philosophical beliefs but its cultivation of a certain “stance” or “attitude towards science” (47). Expanding on van Fraassen’s

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analysis, we might say that this was true not only of philosophical empiricism. Empiricists across the academic spectrum, in fields as varied as chemistry and art history, defined the virtues or attitudes necessary for good “empirical” performance in opposition to the perceived vices of metaphysicians, or philosophers more generally. In genres varying from book reviews and methodology manuals to academic lectures and obituaries, nineteenth-century German scholars in particular defined the ethos of “science” (*Wissenschaft*) *ex negativo* by warning students and colleagues against vices that philosophers in particular were believed to embody: speculation, absence of common sense, lack of attention to empirical data, and excessive systematizing.

Why did these purportedly philosophical vices play such a significant role in the self-image of empirically oriented disciplines like history and physics? In exploring this question, this article seeks to contribute to two emerging conversations. The first is a conversation between the history of philosophy and the history of fields that are conventionally studied under the rubrics “history of science” and “history of the humanities.” Recent years have seen a sharp increase in historical interest in how academic disciplines interacted with one another on wider scales and through a greater variety of means than conventional mono-disciplinary history writing tended to convey. Thematic foci on scientific “personae” (Daston and Sibum 2003) and the virtues typical of them (Paul 2016; 2019) have proven fruitful in exploring such connections. Both personae and virtues often “traveled” across disciplinary divides, while also prompting discipline-specific debates on the marks of a good scholar (whether a historian or a physicist). Accordingly, if this article examines why nineteenth-century historians and physicists defined their preferred virtues in opposition to philosophers’ vices, it does so primarily to draw attention to patterns of interaction between three fields that are typically studied in isolation from each other: philosophy, history, and physics. Even if the figure of the vicious philosopher as evoked by historians and physicists sometimes amounted to a rhetorical strawman, the polemics illustrate that the persona of the philosopher (Condren, Gaukroger, and Hunter 2006) was a matter of concern well beyond the community of professional philosophers.

The second emerging conversation concerns a historical analysis of scholarly vices, which has the potential, or at least the ambition, to add historical depth and nuance to contemporary philosophical reflection on scholarly virtues and vices. While virtue ethics and virtue epistemology have become flourishing areas of scholarship, most philosophical studies of virtues deemed conducive to good academic performance show limited awareness of the fact that scholars have already been talking for centuries about character traits that must be cultivated or suppressed in the pursuit of scholarly aims.¹ In this context, historical epistemology as defined by Lorraine Daston—“the history of categories that structure our thought, pattern our arguments and proofs, and certify our standards for explanation” (1994, 282)—may serve as a much-needed conversation starter between virtue ethics and virtue epistemology on the one hand and the histories of science and humanities on the other. More specifically, in exploring the rhetorical practice of what Ian Kidd (2016) calls “vice-charging,” this article contributes to what Kidd (2021), elaborating on Daston’s proposal, dubs a “historical vice epistemology.” Situated at the intersection of history and “vice epistemology” as practiced by Heather Battaly (2014; 2018; 2020), Quassim Cassam (2019; 2023), and others (Tanesini 2021; Kidd, Battaly, and Cassam 2021), this project of historicizing scholarly vices aims to trace not only where vices like speculation, prejudice, and dogmatism came from but also what layers of meaning they acquired or lost over time and how they functioned, both in scholars’ discourse (for example, in methodology manuals) and in their day-to-day practice (for example, as performance criteria in book reviews).

Focusing on history and physics (two strongly empirically oriented disciplines) in nineteenth-century Germany (by then the world’s leading scientific country), we start the article by surveying which vices scholars from both disciplines attributed to philosophers. We subsequently interpret this vice-charging as a rhetorical practice aimed at delineating empirical scholarly research

¹See Kivistö 2014; Saarloos 2016; van Dongen and Paul 2017; Eskildsen 2021; ten Hagen 2021; Engberts 2022; Paul 2022.

from *Naturphilosophie* and *Geschichtsphilosophie* as practiced in the heyday of German Idealism (which implies that “the philosopher” was, in fact, a rather specific kind of philosopher). This in turn can be interpreted as a typical case of “boundary work”—a strategy of contrasting one’s own scholarly standards with the perceived deficiencies of a real or imagined “other” (Gieryn 1983)—between two newly emerging disciplines (history and physics) and the field in which both of them originated (philosophy).² Although this distancing was stronger at some moments than at others, we argue that it was central to the self-positioning of both disciplines, as witnessed by the fact that their historical narratives consistently depicted philosophy as belonging to a vicious past that historians and physicists had virtuously left behind. By way of conclusion, we reflect on what historical analysis of such discursive patterns—scholars *talking* about vices, as distinguished from scholars actually *displaying* vices—may contribute to historical vice epistemology as advocated by Kidd.

2 | VICE-CHARGING

What were the most common vices that nineteenth-century German historians and physicists attributed to philosophers? In answering this question, we limit ourselves to vices that were specifically attributed to the generic figure of “the philosopher.” Our survey, in other words, is based on sources that talk about typical qualities of “the philosopher” or reflect on vices that are explicitly framed as “philosophical” vices. Such generic discussions of “the philosopher,” we should add, were rather common at the time. German historians habitually invoked figures like “the politician” and “the artist” in discussing qualities that historians should either possess (political insight, literary skill) or keep at bay (political bias, fantasy) (Paul 2020). “The philosopher” likewise functioned as an ideal-typical construct—not devoid of stereotypical features, yet also shaped by still-fresh memories of Georg Wilhelm Friedrich Hegel (1770–1831) and other influential Idealists—with which both historians and physicists engaged in defining their professional ethos. The analysis that follows is based on this type of source: texts that explicitly frame speculation or lack of common sense as a philosopher’s vice.

Speculation was, indeed, the most common vice attributed to philosophers. As Sabrina Ebbersmeyer (1995) and Gayle Rogers (2021) have shown, speculation had had a rather eventful history in modern philosophy. It had been exalted, by Hegel in particular, to the highest stage of human thinking but had also been condemned by Ludwig Feuerbach (1804–72), Karl Marx (1818–83), and others for ignoring the empirical realities of human life. These different valuations in turn drew on a longer history in which speculation had been construed either as a legitimate metaphysical mode of knowing (Rogers 2021, 17–21, referring to Boethius and his legacy) or as a flight into abstraction, hovering far above the practicalities of life (Ebbersmeyer 1995, 1361). Almost without exception, nineteenth-century historians and physicists took the critics’ side: they framed speculation as the absolute “other” of the empiricist ethos that they themselves tried to cultivate. Moreover, they did so in explicit response to a perceived excess of speculative thinking among Idealist philosophers in early nineteenth-century Germany.

Hermann von Helmholtz (1821–94), for instance, claimed that philosophers of Hegelian persuasion had studied nature only “quickly and speculatively” (1862, 9), without much attention to empirical data.³ These thinking habits made philosophers appear as counterparts to the “conscientious researchers of the facts” (9) that Helmholtz wanted natural scientists to be. Their “tedious work” required patience, conscientiousness, and cautiousness rather than the hubris of what Helmholtz called, with a telling reference to Greek mythology, the “unduly audacious Icarus flight of speculation” (9). Likewise, Helmholtz’s friend and colleague Emil du Bois-Reymond (1818–96) complained about a long-standing “inclination toward philosophical speculation among the Germans,” which he saw embodied by Idealist philosophy in general and by its *Natur-*

philosophie in particular (1878a, 45).⁴ In a speech delivered in 1877, he expressed the hope that the recent successes of the natural sciences would help scholars “get rid of the speculation that continues to reemerge in Germany” (1878a, 29). Like Helmholtz, du Bois-Reymond associated speculation with “hubris” (1878a, 35)—Icarus’s fatal trait of character. By way of remedy, he proposed a series of empiricist virtues, including “diligence” and “manly seriousness” (1860, 33; 1877, 190).

Suspicion of speculation was not limited to natural scientists. As Helmholtz noted in 1862, warnings and protests against this vice could be heard “in all branches of *Wissenschaft*” (1862, 9), including the *Geisteswissenschaften* (“human sciences”). The discipline of history is a case in point. The field’s main methodology book, by medieval historian Ernst Bernheim (1850–1942), unequivocally summoned historians to “tear themselves loose” from the vice of “philosophical speculation” (1889, 140). While “speculative history” continued to be practiced by philosophers and “aesthetes” (*Schöngeister*), real historians should know better: in Bernheim’s view, they should “discipline” their fantasy and allow no assumptions or intuitions to color their work unless methodical research has proven them right (1889, 40, 89, 465). Book reviewers in the *Historische Zeitschrift* adopted a similar tone, for instance in accusing an author of being “still deeply immersed in speculation” (B[ernardi?] 1869, 401)—a quote in which the word “still” conveys the expectation that such unscientific behavior had become a thing of the past. Like Helmholtz and du Bois-Reymond, the historian Johann Gustav Droysen (1808–84) sought to strengthen this anti-speculative ethos by telling his students that he saw an “increasing separation between the exact and speculative disciplines” in all of German academia (1882, 33). While philosophers and theologians continued to speculate, “exact” fields like history and physics no longer allowed for it.

Another vice attributed to philosophers was an *excessive inclination toward system building*, resulting in “system coercion” or friction between the logic of the system and the particularities of the real world. Historians were particularly fond of accusing philosophers of “forceful constructions” (B[ernardi?] 1869, 402) and “frightening systems” (Schlosser 1859, 29). Friedrich Christoph Schlosser (1776–1861), most notably, condescendingly referred to “our German creators of philosophic systems, who ... spent years in their study [*Cabinet*] fabricating their speculations” (1843, 76). Apparently, for Schlosser, system building and speculation were related vices. From an empiricist point of view, after all, systems could only be constructed by speculative means. Echoing Schlosser, Carl von Noorden (1833–83) stated that while historians tried to find out what had really happened, philosophers were interested only in “the implementation of a philosophical system” (1862, 138). Writing in the pages of the *Historische Zeitschrift*, Emil Feuerlein (1818–83) seemed right in observing that historians accustomed to “nonphilosophical” modes of thinking were “frightened off” by philosophers who seemed to create “systems as systems,” or systems for the sake of system building (1870, 317).

Although physicists were, on average, less averse to system building than historians, they, too, recognized excessive systematizing as a vice to which philosophers were especially prone. Acting as a spokesman for the German natural sciences, physics included, the physician Rudolf Virchow (1831–1902) said that “no insight into the real natural course of events” has ever emerged “from the study rooms of the philosophers” (1893, 24)—a phrase in which *Studierzimmern* had strong connotations of “armchair study,” conducted without laboratories or instruments. Fortunately, the emancipation of the natural sciences from *Naturphilosophie* had brought an end to such a lazy system of thinking; as Virchow put it, “To the degree that philosophical systems have been relegated to the background, sober observation and sound common sense have taken their rightful place” (19).

⁴Both Helmholtz and du Bois-Reymond presented themselves as spokesmen for the field of physics but also contributed to the development of psychology and physiology. On the fluid boundaries between these three emerging disciplines in nineteenth-century Germany, see Staley 2021 and Hui 2013.

Lack of *common sense* as highlighted by Virchow was a third vice that both historians and physicists attributed to philosophers. More precisely, it was the absence of a virtue: *gesunde Menschenverstand*. While nineteenth-century German philosophers did not typically recognize common sense as a virtue—Hegel, Arthur Schopenhauer (1788–1860), and Friedrich Nietzsche (1844–1900) had nothing but scorn for it—advocates of empirical research, both in history and in physics, reverted to an older, mostly eighteenth-century discourse in which common sense had typically been presented as a correction to unduly abstract, metaphysical modes of philosophical thinking (von der Lühe 1995, 652–53, 643–47). According to du Bois-Reymond, philosophers had lost “the language of common sense and plain reasoning” (1891, 70). This echoed a distinction that physics textbook author Ernst Gottfried Fischer (1754–1831) had made in 1827 already, in contrasting the “far-reaching grandiosities” of German philosophers with “the common, undiverted sense” that he had claimed was necessary for acquiring “thorough knowledge of nature” (1827, xi–xiii). In Schlosser's vocabulary, *gesunde Menschenverstand* even had populist connotations insofar as the historian identified with “the German people” (*das deutsche Volk*) and did not hesitate to censure kings, princes, and generals for abuses of power and lack of interest in their subjects. So, when Schlosser called speculative philosophy a “sin against common sense” (1859, 28–29), this offers further evidence, not only of interference between vices, but also of common sense being claimed as a virtue by authors who believed that empirical *Wissenschaft* required a keen interest in the ordinary realities of human life.

While speculation, system coercion, and lack of common sense were the most important vices that both historians and physicists attributed to philosophers, they were not the only ones. Less prominent but still significant were charges of unbridled fantasy and lack of attention to empirical data. Leopold von Ranke (1795–1886), for instance, did not object to philosophers' ambition to obtain a panoramic view of history but argued against the preconceived ideas with which philosophers approached this task. The historian, according to Ranke, will not “determine in advance” what the whole of history must look like, “as does the philosopher, but while he observes the particular, he will be shown the course that the development of the world in general has taken” (1888 [1830], x). Also, du Bois-Reymond accused philosophers of obstructing the search for truth by not sufficiently restraining their fantasy—a theme that resonated among historians, too (du Bois-Reymond 1878a, 5; Ulmann 1885, 48–49; Bernheim 1889, 437–42). Even if these vices did not belong to the standard repertoire of arguments, they indicated a clear dismissal of philosophers' perceived working manner.

This brief survey illustrates three things. First, it shows that historians and physicists did not invent new vices in criticizing philosophers but drew on existing repertoires of bad scholarly habits. Speculation, most notably, had a centuries-old history, while a penchant for system building had been framed as a vice from at least the early eighteenth century (Strub 1998, 832). Second, if historians and physicists attributed these vices to “the philosopher,” their primary aim was not to criticize individual thinkers but to construct negative examples that could be held up to students and colleagues. Their audiences, in other words, consisted not of philosophers but of students in newly emerging, empirical branches of *Wissenschaft*. This may explain, third, why the images of “the philosopher” that they invoked were rather generic, or even outright stereotypical. Ironically, in invoking such stereotypes, historians and physicists ignored their own empiricist credo of carefulness, precision, and attention to detail. This raises the question: Why was it important to create such anti-models of scholarly virtue or strawmen onto which all vices that students had to be warned against could be projected?

3 | DEMARCATING BOUNDARIES

A clue as to why nineteenth-century German historians and physicists responded so allergically to philosophers' perceived vices is that their examples almost without exception came from a specific philosophical tradition: German Idealism as it had reigned supreme, especially at Hegel's own university in Berlin in the 1810s and 1820s. Physicists dissociated themselves from "philosophers," not because they mistrusted each and every philosopher in the world, but because they rejected the Idealist program of "nature philosophy" (*Naturphilosophie*), of which both Hegel and F. W. J. Schelling (1775–1854) were seen as key representatives (Caneva 1978; Phillips 2011). These nature philosophers, in turn, had had little patience with the attitudes of the physicists of their generation. Rejecting their "spiritless and unthinking empiricism," as Schelling put it in 1832, they preferred "speculative physics" instead (1832, 12, as paraphrased in Caneva 1997, 42).⁵ Speculation had enabled these philosophers to construct universal systems that they had seen as necessary for grasping nature in its entirety. Already in the 1800s, however, critical voices wondered whether this was the proper task of physics. Shouldn't physicists conduct experiments to examine the workings of nature in detail instead of developing scientifically unwarranted theories of everything?

Such empiricist critiques of speculation were voiced explicitly in the *Annalen der Physik und Chemie* (Annals of Physics and Chemistry), Germany's leading physics journal at the time. An 1824 article, for instance, dismissed *Naturphilosophie* as an "unthorough, superficial" branch of learning, guilty of bringing "the dreams of the imagination into *Wissenschaft*" (Choulant 1824, 468–69). Likewise, physics textbooks from this period depicted nature philosophy as a product of "unbridled speculation" and "fantasy" (Jungnickel and McCormmach 1986, 1: 26). Some physicists even went so far as to characterize nature philosophy as a disgrace to German culture as a whole. In 1806, just years after the French Revolutionary Wars, physicist Paul Erman (1764–1851) exclaimed that "twenty lost battles will not bring us as much disgrace as this deceiving and lying in our *Wissenschaft*" (cited in Erman 1927, 140). Erman's diary reveals that this criticism was targeted especially at Schelling's "bizarre blending of metaphysics and physics" (cited in Erman 1927, 141). Proper physics, according to Erman and his colleagues, should abandon all "speculative opinions" (Jungnickel and McCormmach 1986, 1: 27) and engage in proper experimenting. Within decades, this credo was adopted by virtually all German physicists: empiricist, experimental, and instrument-based physics became the norm (Wise 2018, 195–243).

Similarly, historians' anti-philosophical rhetoric was directed not against Plato or Aristotle but against Idealist philosophers of history like Hegel. Shortly after his appointment at Hegel's university in Berlin, Ranke wrote to his brother: "What contains more truth, what brings us closer to knowledge of the essence of things: the pursuit of speculative thoughts or the grasping of the conditions of humanity?" This was not a difficult choice for the source-oriented historian that Ranke wanted to be: "I am in favor of the latter option, because it is less prone to error" (1949, 104–5). Some eight months later, in a letter to Heinrich Ritter (1791–1869), Ranke went so far as to dismiss Hegel's philosophy of history as a "sophistic and intrinsically void philosophy that is only effective through the spell of strange formulas" (1949, 120). Following Ranke, Bernheim argued that philosophers of history in the Hegelian tradition had lost themselves in "unrestrained speculation" because they had disregarded "the sure foundations" of concrete historical events and rejected the methodical "control" of empirical research (1880, 2–3). This had not only caused philosophers to lose the ground under their feet but also created, in Bernheim's view, an almost unbridgeable "gap between empirical history and philosophy of history" (1880, 13, 32).

⁵Although philosophers' perceptions of historians and physicists fall outside the scope of this article, a paper could be written about the dismissive attitude that Hegel and his followers adopted toward figures like Ranke ("merely an ordinary historian," as Hegel is reported to have said) (Wiedemann 1893, 258; see also, more broadly, Hunter 2019).

The more historians came to regard it as their task not to identify patterns or regularities in the whole of human history but to assess the truth or falsity of historical statements in light of original historical sources, the more they became empiricists who preferred to immerse themselves in the details of medieval charters rather than to venture bold hypotheses about the unity of history (Fulda 2020).

Both in history and in physics, this “empirical turn” had implications for the persona of the researcher, which we understand as denoting the set of virtues, skills, and attitudes that scholars at a given time and place regard as important for doing their work (Paul 2016; 2019). As Ian Hunter points out, “The conflict between Rankean empirical history and Hegelian philosophical history” was a conflict between two “mutually hostile intellectual cultures” that represented “completely different ways of modelling the intellectual comportment or persona of the historian” (2019, 15). Much the same can be said about the conflict between the physicists and the *Naturphilosophen*, which largely revolved around the ethos appropriate for scientific study. Just as Ranke and his followers dissociated themselves from Hegel to the extent that they valued philological virtues like accuracy, precision, and attentiveness to details (Paul 2018; Eskildsen 2021), physicists emphasized qualities of precision and exactitude (Wise 1995; see also Krajewski 2016), thereby conveying that they committed themselves to a more scientific persona than the early nineteenth-century *Naturphilosoph*.

In the nineteenth-century German university system, these quarrels had an important institutional dimension. Until well into the nineteenth century, historians, physicists, and philosophers all worked in one and the same *philosophische Fakultät*. In this philosophical faculty, the emerging empirical *Wissenschaften*, with their inbuilt tendency toward specialization, were long seen as inferior to philosophy with its promise to provide, if not a grand synthesis, then at least an all-encompassing map of human knowledge. The difference was more than a symbolic one, as courses in history and physics typically attracted fewer students than those in philosophy, which translated into lower salaries for professors in empirical fields of inquiry (Jungnickel and McCormmach 2017, 1: 60). If this already proved fertile ground for anti-philosophical sentiments, the emergence of academic disciplines with institutional infrastructures (journals, professorships) for distinct fields of study (Stichweh 1992; Turner 1987) was even more significant. In the case of physics, this emancipation from philosophy was symbolized by its incorporation into newly created faculties of science. Because historians remained within the *philosophische Fakultät*, they had even more reason to distance themselves from their parent discipline. Their vice-charging can therefore also be interpreted as a form of boundary work. The habit of historians and physicists to contrast their own virtues with philosophers’ vices was a rhetorically convenient way of creating and maintaining disciplinary boundaries.

4 | MODELS AND ANTIMODELS

By the mid-nineteenth century, these boundaries had become sufficiently established for historians and physicists to declare that they had won the battle against Idealist philosophy. In their historical narratives—book-length disciplinary histories, but also obituaries and commemorative addresses—they began to depict philosophy as a thing of the past. Philosophers appeared no longer as contemporaries but as representatives of a prescientific age, in which empiricist *Wissenschaft* was still in its infancy. As was customary in this genre of Whiggish disciplinary history writing (on which see Graham, Lepenies, and Weingart 1983; Laudan 1993; ten Hagen 2022), the transition from vicious philosophy to virtuous science was illustrated by biographies of men who had stood either on the right or on the wrong side of history. Richly endowed with virtues and vices, respectively, these individuals served as models and anti-models, or as positive and negative examples of how to be an empirical scholar.

Emil du Bois-Reymond, for instance, presented Paul Erman as a model for emulation. Against the dark background of the “regrettable aberration of the German mind” that had been

Naturphilosophie, Erman appeared in bright colors as someone whose “skeptical idiosyncrasy” had made him a staunch critic of nature philosophy (1854, 1, 9). Likewise, speaking about Erman’s colleague Heinrich Gustav Magnus (1802–70), Hermann von Helmholtz recounted how successfully the Berlin physicist had battled against the “misuse of speculation” that had been so common at his university (1872, 13). Anti-models included not only Hegel but also older thinkers like René Descartes (1596–1650). According to Johann Christian Poggendorff (1796–1877), Descartes had been a typical philosopher: “Gifted with great acuteness of mind and a rich imagination, he committed himself almost exclusively to the speculative direction; but an exaggerated confidence in the perfection of his metaphysical ideas, by which he believed he could explain everything, usually led him astray and into error.” Poggendorff thus concluded that Descartes, “as a physicist, cannot be presented as a model” (Poggendorff 1879, 307).

Historians also construed their discipline’s past as a liberation from speculative approaches. Leopold von Ranke was assigned a pivotal role in this revolt against metaphysics, largely because of the “historical exercises” or informal research seminars that he had established to socialize his students into an ethos of painstaking source criticism (Eskildsen 2021). The source criticism that Ranke had popularized among historians, said an obituary writer in 1886, had formed “a healthy and necessary backlash [*Rückschlag*] against the speculative acts of violence that German philosophy was accustomed to perpetrate on the factual course of world history” ([Mehring] 1886). Ranke’s own students did much to keep this origin story alive. They depicted the Berlin *Altmeister* as “the great empiricist who broke the reign of speculation” (Below 1898, 229) by practicing a type of history that stood “in marked contrast to the historical-philosophical speculation of his time” (Pöhlmann 1883, 32). Alfred Dove (1844–1916) likewise highlighted Ranke’s dedication to empirical research by stating that “the prevailing doctrine of Hegel had nothing to offer to him; it only reinforced his empiricism” (Dove 1898, 163). What these examples show is that Ranke was revered as the founding father of an empirical, critical historiography that had taken the place formerly occupied by speculative *Geschichtsphilosophie*.

But what if physicists or historians, though firmly committed to an empiricist ethos, had made the youthful faux pas of attending the lecture course of an Idealist philosopher or perhaps even engaged in philosophizing themselves? Could they then still be held up as models for emulation? Or did this require hiding, glossing over, or apologizing for the sins of their youth? Du Bois-Reymond is, again, an illustrative example, as he had been a devout student of *Naturphilosoph* Henrik Steffens (1773–1845) in the late 1830s (Finkelstein 2013, 17). Youthful naivete, said du Bois-Reymond in 1877, had made him wander right into “the lecture halls of the world-constructing nature philosophers,” along with many other “imaginative youngsters” (1878b, 8). This confession, however, was followed by an almost Pauline conversion story. In his memoir, du Bois-Reymond claimed that he had realized his mistake in a flash when entering the laboratory of Berlin’s chemistry professor Eilhard Mitscherlich (1794–1863) in 1837. From the very moment he saw the “beautiful” samples and apparatus at Mitscherlich’s desk, du Bois-Reymond told his readers, “I realized what my vocation was” (1893, 199). This autobiographical story, however, omitted some salient details. What du Bois-Reymond did not tell his readers was that he had continued to study nature philosophy alongside physics and chemistry long after his introduction to laboratory experimentation. His grades in philosophy had even been higher than those in natural-scientific subjects (Finkelstein 2013, 27). Clearly, then, du Bois-Reymond rewrote his personal past in light of his later negative perceptions of philosophy. In order to stylize himself as a diligent empiricist, he downplayed his philosophical activities.

A related example is a commemorative address on Wilhelm von Giesebrecht (1814–89), a former pupil of Ranke’s, that Sigmund Riezler (1843–1927) in 1891 delivered at the Bavarian Academy of Sciences in Munich. Riezler told his audience how Giesebrecht had begun his studies in Berlin in 1833, one and a half years after Hegel’s death. Reportedly, he had been so impressed by Hegelian philosophy “that he proclaimed, with youthful vigor, Hegel alongside Goethe as his ‘demigod,’” until his older cousin Wilke from Halle had warned him in a letter not to put his faith

in Hegelian philosophy: “Beware lest any man spoil you through philosophy and vain deceit, after the tradition of men, after the rudiments of the world, and not after Christ” (Riezler 1891, 11). Although Wilke had quoted this apostolic admonition (Colossians 2:8) in the hope of bringing Giesebrecht back into the fold of the church, Riezler applied it to the issue of historians’ relation to philosophy. In his account of Giesebrecht’s life, the student’s “zealotry [*Schwärmerei*] for the philosophers in vogue” had been a youthful exuberance, “just a quickly passing phase in his personal development” (Riezler 1891, 12). As soon as Giesebrecht had joined Ranke’s historical exercises and learned to mistrust the grand sweep of Hegel’s historical narratives, he adopted “the reliable method of critical historical research” so thoroughly that his future books did not show the remotest affinity “either with Hegel or with any other philosophical system” (Riezler 1891, 13, 12).

Riezler’s address amounted to a conversion story, too: the idle philosopher had turned into a reliable historian (see Wegele 1885, 1035, for a similar story about Johannes Voigt [1786–1863]). Accordingly, the story can be interpreted as the historian’s equivalent of du Bois-Reymond’s transformation from a youthful philosopher into a devoted experimentalist. Both stories conveyed that in order to become a member of the discipline of history or physics, one had to overcome the vices of speculative philosophy.

5 | OLD VICES IN NEW CONTEXTS

One may wonder, finally, why historians and physicists continued to warn against philosophers’ vices if the Idealist system builders who once embodied these vices had long disappeared from the philosophical scene. That physicist Gustav Theodor Fechner (1801–87) used the death of Schelling in 1854 as an occasion for heaping sharp criticism on “the audacious, panoramic view of Schelling and Hegel” (1855, 117) is understandable enough. It is less obvious, however, why Bernheim, born almost two decades after Hegel’s death, still deemed it necessary to argue that Hegelian philosophical history “is incompatible with concrete science in its constructive principles” (1889, 473). If philosophy was relegated to the past, especially in the genre of disciplinary histories, why did historians and physicists persist in dissociating themselves from philosophers’ vices?

One answer is that the later decades of the nineteenth century witnessed a surge of interest in scientific methodology (Cowles 2020), in the wake of which even practicing scientists occasionally found themselves addressing epistemological issues about the nature and limits of scientific knowledge. As early as 1857, Helmholtz observed a rehabilitation of philosophy among his colleagues in the natural sciences, which he believed had been made possible by the waning influence of Idealism. Now that “the philosophical dump [*Bausch*] and related caterwauling [*Katzenjammer*] of Hegel and Schelling’s nature philosophical systems seems over,” he wrote, “people are starting to take interest in philosophy again” (cited in Koenigsberger 1902, 1: 283). Importantly, the kind of philosophy that Helmholtz was talking about was “a far more unpretentious business in comparison to the speculative construction of God and the world”; it was not metaphysics but “the critique of the sources of knowledge and the theory of [the] method of scientific thinking” (cited in Cahan 2018, 533) that Helmholtz was talking about—neo-Kantian epistemology in particular.⁶ Similarly, in an influential book on the foundations of Newtonian mechanics, Ernst Mach (1838–1916) argued for a “genuinely philosophical” approach to physics that had to be “anti-metaphysical” and devoid of the “excesses of the speculative method” (1883, v, vii). In short, when physicists continued to frame speculation as a vice, incompatible with empiricist virtues of restraint, diligence, and carefulness (Dove 1857, 613; Eckhard 1866, 62; Lufswitz 1874, 376), one reason they did so was to distinguish between legitimate and illegitimate forms of philosophical interest.

While Bernheim’s book *Geschichtsforschung und Geschichtsphilosophie* (Historical Research and Philosophy of History, 1880) demonstrates a similar interest in epistemological questions, it

also illustrates a second reason scholars persisted in dissociating themselves from philosophers' vices. According to Bernheim, old enemies were reemerging in new guises. Although Hegelian philosophy was dead, positivists like Auguste Comte (1798–1857) “disregarded the individual” just as much as Idealist philosophers of history had done (Bernheim 1880, 57). Henry Thomas Buckle (1821–62) likewise appeared in Bernheim’s book as a scholar whose “profoundly unhistorical mind” tended toward “dangerous one-sidedness,” causing his work to be “entirely incompatible with scientific historical research” (1880, 100, 65). Bernheim thus presented Buckle, like Comte, as an Idealist philosopher redivivus.

Something similar happened in the so-called *Lamprechtstreit*, prompted by the Leipzig historian Karl Lamprecht (1856–1915), who infuriated many a colleague by suggesting that “old” political history based on solid archival research should make way for a “new” mode of cultural history, aimed at identifying the psychological makeups of past civilizations (Chickering 1993, 108–283). After decades of polemicizing against Idealist philosophy of history, Rankean historians knew immediately what was at stake: Lamprecht was reviving the old evil of “metaphysical speculation” (N. N. 1897, 347). Consequently, comparisons with Hegel were frequently made. Lamprecht’s system, argued Georg von Below (1858–1927), “is not unlike Hegel’s” (1898, 257 n. 2). Didn’t Lamprecht see, asked another commentator, how badly philosophical abstraction befitted historical writing? “We only need to recall the historical books written under the spell of Hegel’s system” (N. N. 1899, 264). In the pages of the *Historische Zeitschrift*, Robert Pöhlmann (1852–1914) approvingly quoted Berthold Delbrück (1842–1922) as saying that Lamprecht’s historical writing made it look “as if we were still living in times when the great epics of speculative philosophy captivated the minds” (Pöhlmann 1893, 46–47, quoting Delbrück 1889, 593). What all these references to Hegel conveyed was that Lamprecht’s work was a step back rather than a step forward (Below 1898, 225). As the philosopher Heinrich Rickert (1863–1936), speaking about Lamprecht, summarized the *communis opinio*: “One would believe that, scholarly speaking, such speculation ... had long had its day” (1896, 612 n. 1).

Physicists, too, saw Idealist vices making unexpected comebacks. One of their main targets of criticism was energetics (*Energetik*) as advocated by Wilhelm Ostwald (1853–1932): an attempt at unifying physics by interpreting all natural phenomena as manifestations of energy. Ostwald set the tone for the debate by claiming that this project drew on the most promising aspects of philosophical Idealism, while avoiding its faults (Ziche 2005, 32). His critics, however, were quick to point out that energetics was nothing but a reincarnation of Hegel’s and Schelling’s nature philosophy. Consequently, the fight against *Energetik* was fought with time-honored weapons. Max Planck (1858–1947), most notably, argued that energetics was a “metaphysical,” nonempirical endeavor that should not be confused with real physics. He feared, however, that aspiring physicists would be misled: Ostwald was encouraging students to immerse themselves in “dilettantish speculations” rather than in “thorough study of existing masterpieces” of the discipline (1896, 77, 78).

Both historians and physicists thus kept warning against speculation, system building, and lack of common sense, partly to explain that renewed interest in epistemological questions did not imply a relapse into nonempirical modes of thinking, and partly because they worried about old vices reemerging in new contexts.

6 | CONCLUSION

What, if anything, can this analysis of vice-charging by nineteenth-century historians and physicists contribute to the two conversations mentioned in the Introduction: a dialogue between historians of philosophy and historians of other disciplines, on the one hand, and a rapprochement between historical and philosophical perspectives on scholarly vices, on the other? This article has joined the first conversation by showing that the persona of the

philosopher mattered not only to philosophers but also to scholars in adjacent fields (even if the latter often discussed philosophers' habits in rather stereotypical terms). Also, the article has argued that such negative images of "the philosopher" served as means of defining *ex negativo* the empiricist ethos of two newly emerging fields. Historians' and physicists' polemizing against philosophers is therefore best interpreted as a means for negotiating the boundaries between established and emerging academic disciplines. This in turn implies that history, physics, and philosophy should not be studied in isolation from one another: their interaction was more profound than conventional mono-disciplinary history writing has allowed us to see.

The second conversation, with vice epistemologists and other philosophers interested in scholarly vices, seems a more challenging one. In the spirit of Lorraine Daston's historical epistemology and Ian Kidd's historical vice epistemology, this article has examined scholarly vices in a historicizing mode. It has argued that vices like speculation took on new meanings in new contexts, while showing that historians' and physicists' perceived need to charge philosophers with vicious habits changed over the course of the nineteenth century. All this confirms that "it is not always the same kind of ethos, or the same kind of self, that is involved: both have histories" (Daston and Galison 2007, 40). Historical study of scholarly vices, in other words, may add historical depth and nuance to philosophers' accounts of scholarly vices. The complicating factor, however, is that historical findings of the kind presented in this article may not match too well with the research foci of vice epistemologists. Especially insofar as this article has focused on *language of vice*, philosophers may object that this tells little about vices *as such*.

If virtue and vice epistemologists did nothing but conceptual analysis, this reservation would be warranted. In reality, however, the field shows a strong interest in applying philosophical insight into educational contexts—teaching intellectual virtues has become a subject of study on its own (Baehr 2016; 2021)—while also offering concrete suggestions on how to remedy epistemic injustices in real-life situations (Cassam 2019; Tanesini 2021). Insofar as this means that the field seeks to "contribute to the ameliorative task of improving both our epistemic characters and the epistemic dynamics of our communities" (Kidd 2016, 181), language of virtue and vice as used by nineteenth-century historians and physicists suddenly becomes relevant, not for any *conceptual clarity* that it offers about the nature of speculation, but because it demonstrates that scholars *cared* about virtues and vices, that they made great efforts to *specify* which virtues were most important in their research areas, and that they tried to *socialize* their students into these virtues, both by talking about duties and dangers and by presenting (positive or negative) models of virtue and vice. No matter how polemical and self-justificatory this discourse could be, it demonstrates that there has been a tradition—indeed, a centuries-long tradition—of interpreting scholarly work and the demands it made on researchers in terms of virtuous character traits (Paul 2022). This suggests that, in the realm of scholarship at least, vice epistemologists do not need to *apply* abstract notions of virtue and vice to a field unfamiliar with this terminology. Instead, philosophers might want to *retrieve* and *articulate* in more robust philosophical terms what Helmholtz, Ranke, and others knew already by the nineteenth century: namely, that *Wissenschaft* requires the cultivation of virtuous habits of mind and dissociation from vices detrimental to scholarly work.

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REFERENCES

- B[ernardi?], Th[eodor?]. 1869. Review of *Vergleichende Erdkunde*, by Ernst Kapp. *Historische Zeitschrift* 21, no. 2: 401–3.
- Baehr, Jason, ed. 2016. *Intellectual Virtues and Education: Essays in Applied Virtue Epistemology*. New York: Routledge.
- Baehr, Jason. 2021. *Deep in Thought: A Practical Guide to Teaching for Intellectual Virtues*. Cambridge, Mass.: Harvard University Press.
- Battaly, Heather. 2014. “Varieties of Epistemic Vice.” In *The Ethics of Belief*, edited by Jonathan Matheson and Rico Vitz, 51–76. Oxford: Oxford University Press.
- Battaly, Heather. 2018. “Closed-Mindedness and Dogmatism.” *Episteme* 15, no. 3: 261–82.
- Battaly, Heather. 2020. “Closed-Mindedness as an Intellectual Vice.” In *Virtue Theoretic Epistemology: New Methods and Approaches*, edited by Christoph Kelp and John Greco, 15–41. Cambridge: Cambridge University Press.
- Beiser, Frederick C. 2014. *The Genesis of Neo-Kantianism, 1796–1880*. Oxford: Oxford University Press.
- Below, G. v[on]. 1898. “Die neue historische Methode.” *Historische Zeitschrift* 81, no. 1: 193–273.
- Bernheim, Ernst. 1880. *Geschichtsforschung und Geschichtsphilosophie*. Göttingen: Robert Peppmüller.
- Bernheim, Ernst. 1889. *Lehrbuch der historischen Methode: Mit Nachweis der wichtigsten Quellen und Hilfsmittel zum Studium der Geschichte*. Leipzig: Duncker und Humblot.
- Cahan, David. 2018. *Helmholtz: A Life in Science*. Chicago: University of Chicago Press.
- Caneva, Kenneth. 1978. “From Galvanism to Electrodynamics: The Transformation of German Physics and Its Social Context.” *Historical Studies in the Physical Sciences* 9: 63–159.
- Caneva, Kenneth. 1997. “Physics and Naturphilosophie: A Reconnaissance.” *History of Science* 35, no. 1: 35–106.
- Cassam, Quassim. 2019. *Vices of the Mind: From the Intellectual to the Political*. Oxford: Oxford University Press.
- Cassam, Quassim. 2023. “Philosophical Virtues.” Included in this issue of *Metaphilosophy*.
- Chickering, Roger. 1993. *Karl Lamprecht: A German Academic Life (1856–1915)*. Atlantic Highlands, N.J.: Humanities Press.
- Choulant, Ludwig. 1824. “Versuch über Ludwig Wilhelm Gilbert’s Leben und Wirken.” *Annalen der Physik und Chemie* 76, no. 4: 453–71.
- Condren, Conal, Stephen Gaukroger, and Ian Hunter, eds. 2006. *The Philosopher in Early Modern Europe: The Nature of a Contested Identity*. Cambridge: Cambridge University Press.
- Cowles, Henry M. 2020. *The Scientific Method: An Evolution of Thinking from Darwin to Dewey*. Cambridge, Mass.: Harvard University Press.
- Daston, Lorraine. 1994. “Historical Epistemology.” In *Questions of Evidence: Proof, Practice, and Persuasion Across the Disciplines*, edited by James Chandler, Arnold I. Davidson, and Harry Harootunian, 282–89. Chicago: University of Chicago Press.
- Daston, Lorraine, and Peter Galison. 2007. *Objectivity*. New York: Zone Books.
- Daston, Lorraine, and H. Otto Sibum. 2003. “Introduction: Scientific Personae and Their Histories.” *Science in Context* 16, nos. 1–2: 1–8.
- Delbrück, Berthold. 1889. *Die indogermanischen Verwandtschaftsnamen: Ein Beitrag zur vergleichenden Alterthumskunde*. Leipzig: S. Hirzel.
- Dove, Alfred. 1898. *Ausgewählte Schriften vornehmlich historischen Inhalts*. Leipzig: Duncker und Humblot.
- Dove, H. W. 1857. “Einige Bemerkungen über die meteorologischen Aufsätze des Hrn. Vettin.” *Annalen der Physik und Chemie* 178, no. 4: 607–13.
- Droysen, Joh[ann] Gust[av]. 1882. *Grundriss der Historik*. 3rd ed. Leipzig: Veit und Comp.
- du Bois-Reymond, Emil. 1854. “Gedächtnissrede auf Paul Erman.” In *Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin aus dem Jahre 1853*, 1–27. Berlin: F. Dümmler.
- du Bois-Reymond, Emil. 1860. *Gedächtnissrede auf Johannes Müller*. Berlin: F. Dümmler.
- du Bois-Reymond, Emil. 1877. “9 März. Gesamtsitzung der Akademie.” In *Monatsberichte der Königlichen Preussischen Akademie der Wissenschaften zu Berlin aus dem Jahre 1876*, 190–94. Berlin: G. Vogt.
- du Bois-Reymond, Emil. 1878a. *Culturgeschichte und Naturwissenschaft: Vortrag gehalten am 24. März 1877 im Verein für wissenschaftliche Vorlesungen zu Köln*. Leipzig: Veit und Comp.
- du Bois-Reymond, Emil. 1878b. *Der physiologische Unterricht sonst und jetzt: Rede bei Eröffnung des neuen Physiologischen Instituts der königl. Friedrich-Wilhelms-Universität zu Berlin*. Berlin: August Hirschwald.
- du Bois-Reymond, Emil. 1891. *Über die Grenzen des Naturerkennens: Die sieben Welträtsel*. 3rd ed. Leipzig: Veit und Comp.
- du Bois-Reymond, Emil. 1893. [“Entgegnung.”] *Berliner Klinische Wochenschrift* 30, no. 8: 199.
- Ebbesmeyer, S. 1995. “Spekulation.” In *Historisch Wörterbuch der Philosophie*, vol. 9, edited by Joachim Ritter and Karlfried Gründer, 1355–72. Darmstadt: Wissenschaftliche Buchgesellschaft.

- Eckhard, C. 1866. "Der gegenwärtige experimentelle Thatbestand der Lehre von der Hydrodiffusion durch thierische Membranen." *Annalen der Physik und Chemie* 204, no. 1: 61–100.
- Engberts, Christiaan. 2022. *Scholarly Virtues in Nineteenth-Century Sciences and Humanities: Loyalty and Independence Entangled*. Cham: Palgrave Macmillan.
- Engberts, Christiaan, and Herman Paul. 2017. "Scholarly Vices: Boundary Work in Nineteenth-Century Orientalism." In *Epistemic Virtues in the Sciences and the Humanities*, edited by Jeroen van Dongen and Herman Paul, 79–90. Cham: Springer.
- Erman, Wilhelm. 1927. *Paul Erman: Ein Berliner Gelehrtenleben 1764–1851*. Berlin: Verlag für der Geschichte Berlins.
- Eskildsen, Kasper Risbjerg. 2021. "Virtues of History: Exercises, Seminars, and the Emergence of the German Historical Discipline, 1830–1900." *History of Universities* 34, no. 1: 27–40.
- Fechner, Gustav Theodor. 1855. *Ueber die physikalische und philosophische Atomenlehre*. Leipzig: Hermann Mendelssohn.
- Feuerlein, Emil. 1870. "Ueber die culturgeschichtliche Bedeutung Hegel's." *Historische Zeitschrift* 24, no. 2: 314–68.
- Finkelstein, Gabriel. 2013. *Emil du Bois-Reymond: Neuroscience, Self, and Society in Nineteenth-Century Germany*. Cambridge, Mass.: MIT Press.
- Fischer, Ernst Gottfried. 1827. *Lehrbuch der mechanischen Naturlehre*, vol. 1. 3rd ed. Berlin: G. C. Nauck.
- Fulda, Daniel. 2020. "Between Archival Research and Aspirations to Leadership in Society: 19th-Century Germans as Practitioners in History." In *Doing Humanities in Nineteenth-Century Germany*, edited by Efraim Podoksik, 59–82. Leiden: Brill.
- Gieryn, Thomas F. 1983. "Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists." *American Sociological Review* 48, no. 6: 781–95.
- Graham, Loren, Wolf Lepenies, and Peter Weingart, eds. 1983. *Functions and Uses of Disciplinary Histories*. Dordrecht: Springer.
- Hamann, Julian. 2018. "Boundary Work Between Two Cultures: Demarcating the Modern *Geisteswissenschaften*." *History of Humanities* 3, no. 1: 27–38.
- Helmholtz, Hermann. 1862. *Ueber das Verhältniss der Naturwissenschaften zur Gesamtheit der Wissenschaften*. Heidelberg: Georg Mohr.
- Helmholtz, Hermann. 1872. "Gedächtnisrede auf Gustav Magnus." In *Abhandlungen der königlichen Akademie der Wissenschaften zu Berlin aus dem Jahre 1871*, 1–17. Berlin: G. Vogt.
- Hui, Alexandra. 2013. *The Psychophysical Ear: Musical Experiments, Experimental Sounds, 1840–1910*. Cambridge, Mass.: MIT Press.
- Hunter, Ian. 2019. "The Contested Persona of the Historian: On the Origins of a Permanent Conflict." In *How to Be a Historian: Scholarly Personae in Historical Studies, 1800–2000*, edited by Herman Paul, 15–35. Manchester: Manchester University Press.
- Jungnickel, Christa, and Russell McCormmach. 1986. *Intellectual Mastery of Nature: Theoretical Physics from Ohm to Einstein*. 2 vols. Chicago: University of Chicago Press.
- Jungnickel, Christa, and Russell McCormmach. 2017. *The Second Physicist: On the History of Theoretical Physics in Germany*. Cham: Springer.
- Kidd, Ian James. 2016. "Charging Others with Epistemic Vice." *Monist* 99, no. 2: 181–97.
- Kidd, Ian James. 2021. "A Case for an Historical Vice Epistemology." *Humana. Mente* 14, no. 39: 69–86.
- Kidd, Ian James, Heather Battaly, and Quassim Cassam, eds. 2021. *Vice Epistemology*. New York: Routledge.
- Kivistö, Sari. 2014. *The Vices of Learning: Morality and Knowledge at Early Modern Universities*. Leiden: Brill.
- Koenigsberger, Leo. 1902. *Hermann von Helmholtz*, vol. 1. Braunschweig: Friedrich Vieweg und Sohn.
- Krajewski, Markus. 2016. "Genauigkeit: Zur Ausbildung einer epistemischen Tugend im 'langen 19. Jahrhundert.'" *Berichte zur Wissenschaftsgeschichte* 39, no. 3: 211–29.
- Laudan, Rachel. 1993. "Histories of the Sciences and Their Uses: A Review to 1913." *History of Science* 31, no. 1: 1–34.
- Lufswitz, Kurd. 1874. "Der Verfall der 'kinetischen Atomistik' im siebzehnten Jahrhundert." *Annalen der Physik und Chemie* 229, no. 3: 373–86.
- Mach, Ernst. 1883. *Die Mechanik in ihrer Entwicklung: Historisch-kritisch dargestellt*. Leipzig: F. A. Brockhaus.
- [Mehring, Franz]. 1886. "Leopold Ranke." *Volks-Zeitung* (May 25).
- N. N. 1897. "Notizen und Nachrichten." *Historische Zeitschrift* 79, no. 2: 344–84.
- N. N. 1899. Review of *Die neue historische Methode*, by Georg von Below, and *Die historische Methode des Herrn von Below*, by Karl Lamprecht. *Literarisches Centralblatt* (February 25): 262–64.
- [Noorden, Carl von]. 1862. "Zur Beurtheilung Friedrich Christoph Schlossers." *Historische Zeitschrift* 8, no. 1: 117–40.
- Paul, Herman. 2016. "The Virtues and Vices of Albert Naudé: Toward a History of Scholarly Personae." *History of Humanities* 1, no. 2: 327–38.
- Paul, Herman. 2018. "The Virtues of a Good Historian in Early Imperial Germany: Georg Waitz's Contested Example." *Modern Intellectual History* 15, no. 3: 681–709.
- Paul, Herman, ed. 2019. *How to Be a Historian: Scholarly Personae in Historical Studies, 1800–2000*. Manchester: Manchester University Press.
- Paul, Herman. 2020. "'I Am Not a Politician': Professional Boundary Work in Wilhelmine Germany." *Journal of Modern European History* 18, no. 3: 237–42.

- Paul, Herman. 2022. *Historians' Virtues: From Antiquity to the Twenty-First Century*. Cambridge: Cambridge University Press.
- Phillips, Denise. 2011. *Acolytes of Nature: Defining Natural Science in Germany, 1770–1850*. Chicago: University of Chicago Press.
- Planck, Max. 1896. "Gegen die neueren Energetik." *Annalen der Physik und Chemie* 293: 72–8.
- Poggendorff, J. C. 1879. *Geschichte der Physik: Vorlesungen gehalten an der Universität zu Berlin*. Leipzig: Johann Ambrosius Barth.
- Pöhlmann, Robert. 1883. "Ranke's Weltgeschichte." *Historische Zeitschrift* 51, no. 1: 31–53.
- Pöhlmann, Robert. 1893. "Das romantische Element im Kommunismus und Sozialismus der Griechen." *Historische Zeitschrift* 71, no. 3: 1–47.
- Ranke, Leopold von. 1888 [1830]. ["Philosophie und Geschichte."] In *Ranke, Weltgeschichte*, vol. 9, pt. 2, edited by Alfred Dove and Georg Winter, vii–xi. Leipzig: Duncker und Humblot.
- Ranke, Leopold von. 1949. *Das Briefwerk*. Edited by Walther Peter Fuchs. Hamburg: Hoffmann und Campe.
- Rickert, Heinrich. 1896. *Die Grenzen der naturwissenschaftlichen Begriffsbildung: Eine logische Einleitung in die historischen Wissenschaften*, vol. 1. Freiburg: J. C. B. Mohr.
- Riezler, Sigmund. 1891. *Gedächtnisrede auf Wilhelm von Giesebrecht gehalten in der öffentlichen Sitzung der k. b. Akademie der Wissenschaften zu München zur Vorfeier ihres 132. Stiftungstages am 21. März 1891*. Munich: Verlag der k.b. Akademie.
- Rogers, Gayle. 2021. *Speculation: A Cultural History from Aristotle to AI*. New York: Columbia University Press.
- Saarloos, Lejón. 2016. "Virtue and Vice in Academic Memory: Lord Acton and Charles Oman." *History of Humanities* 1, no. 2: 339–54.
- Schelling, Fr. W. J. v[on]. 1832. *Ueber Faraday's neueste Entdeckung: Zur öffentlichen Sitzung der K. Akademie der Wissenschaften, am 28. März 1832*. Munich: A. Weber.
- Schlosser, F. C. 1843. *Geschichte des achtzehnten Jahrhunderts und des neunzehnten bis zum Sturz des französischen Kaiserreichs: Mit besonderer Rücksicht auf geistige Bildung*, vol. 3. Heidelberg: J. C. B. Mohr.
- Schlosser, F. C. 1859. *Geschichte des achtzehnten Jahrhunderts und des neunzehnten bis zum Sturz des französischen Kaiserreichs: Mit besonderer Rücksicht auf geistige Bildung*, vol. 7. 4th ed. Heidelberg: J. C. B. Mohr.
- Staley, Richard. 2021. "Sensory Studies, or When Physics Was Psychophysics: Ernst Mach and Physics Between Physiology and Psychology, 1860–71." *History of Science* 59, no. 1: 93–118.
- Stichweh, Rudolf. 1992. "The Sociology of Scientific Disciplines: On the Genesis and Stability of the Disciplinary Structure of Modern Science." *Science in Context* 5, no. 1: 3–15.
- Strub, Ch. 1998. "System." In *Historisch Wörterbuch der Philosophie*, vol. 10, edited by Joachim Ritter and Karlfried Gründer, 823–56. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Tanesini, Alessandra. 2021. *The Mismeasure of the Self: A Study in Vice Epistemology*. Oxford: Oxford University Press.
- ten Hagen, Sjang L. 2021. "History and Physics Entangled: Disciplinary Intersections in the Long Nineteenth Century." Ph.D. thesis, University of Amsterdam.
- ten Hagen, Sjang. 2022. "History as a Tool for Natural Science: How Ernst Mach Applied Historical Methods to Physics." *Historical Studies in the Natural Sciences* 52, no. 1: 40–79.
- Turner, R. Steven. 1987. "The Great Transition and the Social Patterns of German Science." *Minerva* 25, nos. 1–2: 56–76.
- Ulmann, Heinrich. 1885. "Über wissenschaftliche Geschichtsdarstellung." *Historische Zeitschrift* 54, no. 1: 42–54.
- van Dongen, Jeroen, and Herman Paul, eds. 2017. *Epistemic Virtues in the Sciences and the Humanities*. Cham: Springer.
- van Fraassen, Bas C. 2002. *The Empirical Stance*. New Haven: Yale University Press.
- Virchow, Rudolf. 1893. *Die Gründung der Berliner Universität und der Uebergang aus dem philosophischen in das naturwissenschaftliche Zeitalter*. Berlin: Julius Becker.
- von der Lühe, A. 1995. "Sensus communis III: Neuzeit." In *Historisch Wörterbuch der Philosophie*, vol. 9, edited by Joachim Ritter and Karlfried Gründer, 639–61. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Wegele, Franz X. von. 1885. *Geschichte der deutschen Historiographie seit dem Auftreten des Humanismus*. Munich: R. Oldenbourg.
- Wiedemann, Theodor. 1893. "Sechzehn Jahre in der Werkstatt Leopold von Ranke's: Ein Beitrag zur Geschichte seiner letzten Lebensjahre (Schluß)." *Deutsche Revue* 18, no. 4: 253–65.
- Wise, M. Norton, ed. 1995. *The Values of Precision*. Princeton: Princeton University Press.
- Wise, M. Norton. 2018. *Aesthetics, Industry, and Science: Hermann von Helmholtz and the Berlin Physical Society*. Chicago: University of Chicago Press.
- Ziche, Paul. 2005. "The 'New Philosophy of Nature' Around 1900: Metaphysical Tradition and Scientific Innovation." In *Wilhelm Ostwald at the Crossroads Between Chemistry, Philosophy and Media Culture*, edited by Britta Görs, Nikolaos Psarros, and Paul Ziche, 29–46. Leipzig: Leipziger Universitätsverlag.

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