

ARTICLE

Philological Observation

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Scholars have shown that historicizing studies of sight can shed light on everything from art history to statecraft to scientific inquiry. But the disciplined eye of the scholar of language—the philological observer—has received little attention, an omission particularly worthy of notice given recent interest in how the history of humanities might be incorporated into the history of science more broadly. This article contributes to a treatment of philological observation in the nineteenth century. Focusing particularly on the career of the Munich Latinist Eduard Wölfflin (1831–1908), a founding father of the monumental Latin lexicon known as the Thesaurus linguae Latinae, it isolates three distinct modes of philological observation: the constitutive, the collative, and the estimative. In the process, it indicates parallels between the kinds of sight practiced by philologists and those of their contemporaries in other investigative arenas, showing how developments on a Latinist’s desk can be tied into much larger networks of cultural and epistemic concerns

Introduction

The life of a visiting student can be trying—a fact no less true now than it was in the spring of 1879, when a young philologist, Friedrich Vogel, made his way from his home in the Bavarian town of Schobdach to the Prussian University of Bonn. Vogel was already deep in his academic course: he had completed eight semesters under the tutelage of a rising star at the University of Erlangen, Eduard Wölfflin, and had respectable work to show for it.¹ Bonn, where the philological faculty boasted bona fide giants, promised intellectual seasoning and professional connections. But the transition was not easy: were comfort his consideration, Vogel wrote, he would rather “hasten with a thousand sails back to his dear Erlangen” for the summer semester.² Instead he found himself homesick and anonymous, paying awkward visits to Bonn scholars who sighed at the length of his written work, and soliciting the advice of a student who appeared to “possess more books than knowledge.”³ The sense of isolation at the outset must have been profound. “Don’t forget completely,” he reminded his teacher Wölfflin before his journey, “the—albeit willingly—banished one in Bonn.”⁴

¹On Wölfflin see Oskar Hey, “Eduard Wölfflin,” *Biographisches Jahrbuch für die Altertumswissenschaft* 34 (1911), 103–36; Rudolf Pfeiffer, “Klassische Philologen,” in *Geist und Gestalt: Biographische Beiträge zur Geschichte der Bayerischen Akademie der Wissenschaften vornehmlich im zweiten Jahrhundert ihres Bestehens*, vol. 1 (Munich, 1959), 113–39, at 123–7.

²Vogel to Wölfflin, 21 April 1879, Universitätsbibliothek Basel (hereafter UB), NL 93: 74c 167.

³Vogel to Wölfflin, 12 May 1879, UB, NL 93: 74c 168.

⁴Vogel to Wölfflin, 21 April 1879, UB, NL 93: 74c 167.

The passage of weeks brought acclimation and even some acclaim—in the form of admission to the philological seminar, the instructional forum where aspiring researchers honed their craft.⁵ But the way was still bumpy. An episode with the storied Bonn philologist Franz Bücheler, in particular, made Vogel indignant. The subject was a large stone, discovered nearly two decades earlier by a Bonn master carpenter working on a building foundation. Consigned to the debris, the stone had drawn the attention of passing students, who noticed a Latin inscription on its weathered face. The faint letters were enough to ensure safe harbor in a collection and, two years later, treatment in the Bonn-based journal *Rheinisches Museum für Philologie*.⁶ But more, according to Vogel, remained to be said. Preparing a presentation for a Bücheler course, he studied the inscribed words, which were “in such bad condition that it’s hard to follow the strokes, even with the transcription in one’s hand.”⁷ In the end, his own “extremely laborious rendering” revealed something unexpected: a section of the inscription read otherwise than reported. On the stone stood not “*aram dicavit ... quin et deorum stirpe genito Caesari*” (“[Fulvius Maximus] dedicated an altar ... also to Caesar, born of divine lineage”), but rather “*aram dicavit ... quin et deorum stirpe genero Caesari*” (“[Fulvius Maximus] dedicated an altar ... also to Caesar, his son-in-law, of divine lineage”).⁸ Vogel’s reading had implications: it provided a link, earlier denied, between the subject of the inscription and a consul of the second century CE, the father-in-law of the Emperor Commodus.⁹ And it necessitated corrections to already published accounts.¹⁰ For a student, this was an exciting development. Even to be tasked with interpreting the stone, which Bücheler said presented particular difficulties, was a distinction.¹¹ Wölfflin, ever invested in his student’s progress, wrote from Erlangen with congratulations on “the philosopher’s stone.”¹²

The congratulations turned out to be premature. In fact, the vaunted stone, wrote Vogel, had become more like a stumbling block.¹³ For while his own eyes, trained on the chiseled surface, had revealed a new philological conclusion, others saw things less clearly. Bücheler contested the reading “very decidedly,” allowing

⁵On the philological seminar specifically see e.g. Robert S. Leventhal, “The Emergence of Philological Discourse in the German States, 1770–1810,” *Isis* 77/2 (1986), 243–60; William Clark, *Academic Charisma and the Origins of the Research University* (Chicago, 2006), 141–82; Carlos Spoerhase, “Seminar Libraries as Laboratories of Philology: The Modern Seminar Model in Nineteenth-Century German Philology,” *History of Humanities* 4/1 (2019), 103–23.

⁶Karl Zangemeister, “Unedierte Inschrift einer Ara Fulviana zu Bonn,” *Rheinisches Museum*, n.s. 19 (1864), 49–62, with image thereafter. The piece opens with the account of the stone’s discovery.

⁷Vogel to Wölfflin, 5 July 1879, UB, NL 93: 74c 173.

⁸Vogel to Wölfflin, 12 July 1879, UB, NL 93: 74c 174.

⁹See Wilhelm Henzen, “Die Aemter auf der Ara Fulviana,” *Jahrbücher des Vereins von Alterthumsfreunden im Rheinlande* 37 (1864), 151–6, where at 155–6 the identification of Fulvius with Commodus’ father-in-law (Zangemeister, “Unedierte Inschrift,” 59–60) is questioned. Further see Emil Hübnér, “Iscrizioni Latine Scoperte Recentemente a Basilea, Leone di Spagna e Bonna,” *Annali dell’istituto di corrispondenza archeologica* 36 (1864), 200–33, at 229–33.

¹⁰The original publication, for example, argued explicitly that “there stands, or stood [in the inscription], not *genero*, as one could think on first glance, but *GENITO*.” Zangemeister, “Unedierte Inschrift,” 52.

¹¹Vogel to Wölfflin, 5 July 1879, UB, NL 93: 74c 173.

¹²Wölfflin to Vogel, 7 July 1879, Thesaurus linguae Latinae Archive, Munich (hereafter *TLLA*).

¹³Vogel to Wölfflin, 12 July 1879, UB, NL 93: 74c 174.

that the *t* in *genito* could be an *r*, but insisting the *i* was unambiguous. This despite the fact that other students, apparently in support of Vogel's *genero*, said the very same *i* appeared to them to be an *e*.¹⁴ Beyond that, Bücheler seemed in his resistance to be relying "less on the marks on the stone" than on an objection about the consular attribution that the altered reading would imply. Vogel, unmoved, plotted his course: in class he would read and explicate *genito* "very obediently" in deference to Bücheler. But if asked whether he had been persuaded on the point, he would draw the line: "I will say openly that my eyes can only read *genero*."¹⁵

Were Vogel's eyes remarkable? They belonged to a talented though not transcendent student, largely forgotten today, whose academic career did not proceed beyond the German *Gymnasium*. They were the eyes, nonetheless, of a trained philological practitioner, shaped in the institutions and after the scholarly fashions of the era, and as such they provide us a fitting entrée to the phenomenon of sight as a historicizable practice, one deeply implicated in experience and the knowledge generated thereby. This is something of an evergreen topic, one that has delivered results relevant to a wide spectrum of specialists, from the art historians for whom historicizing studies of sight have been a stock in trade, to the students of anthropology, bureaucracy, and statecraft liable to learn what it has meant to "see like a state."¹⁶ It has proven fertile, too, for historians of science, who have explored the centrality of mediated and trained sight to the establishment of the very objects with which learned investigation concerns itself.¹⁷ In classic studies aimed at everything from early modern matters of fact to astronomical observation to modern microphysics, they have unpacked the tools, coordination, and epistemological nuance of visual perception.¹⁸ The work has been anything but parochial: details of seeing are shown time and again to defy narrow framing, a fact amply evidenced in the approaches pursued. The visual apprehension of images, in the hands of the art historian, comes into dialogue with the marketplace, with optics, with the everyday, to say nothing of the attentive regimes of readers and naturalists.¹⁹ The historian of science, meanwhile, offers a profile of "scientific observation" that is ecumenical indeed: a collaborative project to begin developing a history of the subject has handled areas as wide-ranging as the economy and the unconscious

¹⁴Ibid.

¹⁵Ibid.

¹⁶See, e.g., Michael Baxandall, *Painting and Experience in Fifteenth-Century Italy* (Oxford, 1972); Svetlana Alpers, *The Art of Describing: Dutch Art in the Seventeenth Century* (Chicago, 1984); Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge, 1990); and, of course, James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, 1998).

¹⁷For observation's ability to "furnish the universe" with objects of investigation, and for further background, see Lorraine Daston, "On Scientific Observation," *Isis* 99/1 (2008), 97–110. An examination of different versions of the "disciplinary eye" according to an accreting series of "epistemic virtues" is developed in Lorraine Daston and Peter Galison, *Objectivity* (New York, 2007).

¹⁸Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton, 2011; first published 1985), esp. 22–79; Simon Schaffer, "Astronomers Mark Time: Discipline and the Personal Equation," *Science in Context* 2/1 (1988), 115–45; Peter Galison, *Image and Logic: A Material Culture of Microphysics* (Chicago, 1997).

¹⁹See, e.g., in addition to the works above, the outline for a model of *Kunstbetrachtung* in Oliver Kase, *Mit Worten sehen lernen: Bildbeschreibung im 18. Jahrhundert* (Petersberg, 2010), 292–9.

self.²⁰ But here as elsewhere certain regions remain underexplored, including the topic of sight in textual and lexical study—the province of the *philological observer*. The lacuna has become especially apparent in light of growing interest in the history, practice, and import of the human—particularly the philological—sciences, and an increasing focus on writing them into the history of science more broadly.²¹ Recent work has begun to address the gap, limning the significance of the early modern *observatio* for philologists and physicians alike, and calling attention to the currency and collectively determined nature of textual “observation” also in later, more disciplinarily segregated contexts.²² The present article is meant to join these efforts, moving towards a typology of how philological observation in the heyday of German *Wissenschaft* could be understood, practiced, and informed; it also shows how certain methods of philological research are indeed part of a larger story about modes and means of intellectual inquiry—shared “cognitive goods”—that cut across the modern disciplines.²³

What I will offer, taking up the threads of Vogel’s story and following them into the career of his teacher Wölfflin, is a sketch of three distinct ways that a scholar of the classical languages could be expected to see in the final third of the nineteenth century. My method is simple: I have allowed Wölfflin to show the way. Each of the modes of sight profiled here is keyed to a particular instance in which the Basle-born philologist, professor of Latin at Munich for a quarter-century, explicitly invoked “observation”—*Beobachtung*—or the “eye” in his papers and printed work. In each case, the reference has been taken as a starting point, a marker from which to build up a scaffolding of context and period testimony in an attempt to glimpse “observation” in its true dimensions: that is, in the domain of experience

²⁰Lorraine Daston and Elizabeth Lunbeck, eds., *Histories of Scientific Observation* (Chicago, 2011), where, e.g., Harro Maas (206–29) and Mary S. Morgan (303–25) treat economic observation, and Lunbeck (255–75) addresses psychoanalysis.

²¹Rens Bod, Jaap Maat, and Thijs Weststeijn, eds., *The Making of the Humanities*, 3 vols. (Amsterdam, 2010–14); James Turner, *Philology: The Forgotten Origins of the Modern Humanities* (Princeton, 2014); Lorraine Daston and Glenn W. Most, “History of Science and History of Philologies,” *Isis* 106/2 (2015), 378–90; Sheldon Pollock, Benjamin A. Elman, and Ku-ming Kevin Chang, eds., *World Philology* (Cambridge, 2015); Anthony Grafton and Glenn W. Most, eds., *Canonical Texts and Scholarly Practices: A Global Comparative Approach* (Cambridge, 2016).

²²Pathbreaking for the early modern part of the story is the work of Gianna Pomata: see, inter alia, her “Observation Rising: Birth of an Epistemic Genre, 1500–1650,” in Daston and Lunbeck, *Histories of Scientific Observation*, 45–80, esp. e.g. 51; also Dirk van Miert, “Philology and Empiricism: Observation and Description in the Correspondence of Joseph Scaliger (1540–1609),” in Van Miert, *Communicating Observations in Early Modern Letters (1500–1675): Epistolography and Epistemology in the Age of the Scientific Revolution* (London, 2013), 89–113. For philological observation in a modern university context, see the fascinating Ralf Klausnitzer, “Gemeinsam einsam frei? Beobachter und Beobachtungskollektive an der modernen Universität,” in Stefanie Stockhorst, Marcel Lepper, and Vinzenz Hoppe, eds., *Symphilologie: Formen der Kooperation in den Geisteswissenschaften* (Göttingen, 2016), 73–99; further, Spoerhase, “Seminar Libraries,” esp. 112–15.

²³For recent reflections in this line, see the articles in *The Two Cultures Revisited: The Sciences and Humanities in a Longue Durée Perspective*, *History of Humanities* 3/1 (2018), 5–88, with the introductory remarks by the journal’s editors (“Rethinking the Humanities and the Sciences”); further, the outline in Rens Bod, Jeroen van Dongen, Sjang L. ten Hagen Bart karstens, and Emma Mojet, “The Flow of Cognitive Goods: A Historiographical Framework for the Study of Epistemic Transfer,” *Isis* 110/3 (2019), 483–96.

where manuscripts were managed, magnifiers wielded, and Munich streets walked.²⁴ I say “glimpse” advisedly, because we can hardly expect that by trailing Wölfflin we will have arrived at an exhaustive view of the many varieties of trained sight that he and his contemporaries practiced. The choice, in surveying what still remains largely terra incognita, has been for coverage that is vivid rather than vast: that opts not for flyover but for following a guide to a few choice vantages.

As far as guides go, Wölfflin has much to recommend him. He was lauded in his prime for his skill as a linguistic “observer” and identified with “observation” in old age and after his death.²⁵ His career had scope, including the founding editorship of a journal and a role as primary mover behind a Latin lexicon of unprecedented proportions, the so-called *Thesaurus linguae Latinae*, which he came to identify as his “life’s work.”²⁶ Of further importance for our purposes, Wölfflin himself, like some of his contemporaries, took “observation” as a term with which to conjure, one that figured in his reflections on how philological work should be conducted and how it resembled other disciplines.²⁷ For the philologist, Wölfflin contended, *Beobachtung* should be a “catchphrase,” a journal an opportunity to “see with different eyes,” a university a place “to sharpen the eye and to learn to observe, just as the natural scientist proceeds from observation and experiment.”²⁸ These are marked statements, meant to emphasize how seeing properly was as essential in the linguist’s study as, for example, in the laboratory. If we work to catch what Wölfflin meant in such instances, we stand a chance of telling a history of sight that begins not on the canvas or behind a lens, but on the Latinist’s desk—one that draws what was happening there into more encompassing networks of epistemic presumptions and practices, wider complexes of cultural, national, and scientific concerns.

²⁴The work is intended to evince a “praxeological” approach to textual studies. See, e.g., the contributions to *Schwerpunkt. Historische Praxeologie: Quellen zur Geschichte philologischer Praxisformen, 1800–2000, Zeitschrift für Germanistik*, n.s. 23/2 (2013), 221–404, introduced by Carlos Spoerhase and Steffen Martus; likewise their remarks in “Praxeologie der Literaturwissenschaft,” *Geschichte der Germanistik* 35–6 (2009), 89–96.

²⁵Hey, “Eduard Wölfflin,” 118 n. 1 (prime), 112 (posthumous); further, “Zum 70. Geburtstag Eduard Wölfflins,” *Allgemeine Schweizer Zeitung*, 1 Jan. 1901, UB, NL 93: 67b.

²⁶The project is a *Lebensaufgabe* at UB, NL 93: 137, 25. On the *Thesaurus*, still in progress in Munich today, see e.g. Dietfried Krömer, ed., *Wie die Blätter am Baum, so wechseln die Wörter: 100 Jahre Thesaurus linguae Latinae* (hereafter Krömer, *WBB*) (Stuttgart and Leipzig, 1995); Dietfried Krömer and Manfred Flieger, eds., *Thesaurus: Geschichten* (Stuttgart and Leipzig, 1996); Anthony Corbeill, “‘Going Forward’: A Diachronic Analysis of the *Thesaurus linguae Latinae*,” *American Journal of Philology* 128/4 (2007), 469–96; and the five essays introduced by Kathleen Coleman under the title “The *Thesaurus Linguae Latinae* and Classical Scholarship in the 21st Century: Five Perspectives,” *Transactions of the American Philological Association* 137/2 (2007), 473–507. Further publications are at www.thesaurus.badw.de/ueber-den-tll/literaturhinweise.html.

²⁷For another striking example see Klausnitzer on the Germanist Richard Moritz Meyer (1860–1914) at “Gemeinsam einsam frei?,” 77–8.

²⁸For *Beobachtung* as “catchphrase” see Eduard Wölfflin, “Die Geminatio im Lateinischen,” *Sitzungsberichte der philosophisch-philologischen und historischen Classe der Bayerischen Akademie der Wissenschaften* (hereafter *SBAW*) (1882), vol. 1, 422–91, at 423; on the journal see Wölfflin, “Addenda et Corrigenda,” *Archiv für Lateinische Lexikographie* (hereafter *ALL*) 1 (1884), 573. The statement on the university is in Wölfflin’s lecture notes on historical syntax. See UB, NL 93: 50.

Constitutive sight

Parts of Vogel's story of the "philosopher's stone" would have resonated with his professor Wölfflin, who, at a pivotal moment in his own career, had also matched his sight against that of his seniors. In 1854, he had taken his doctorate at Göttingen with an edition and critical treatment of a compendium by the obscure Lucius Ampelius.²⁹ Crucial to the work was a seventeenth-century copy of the text held in Munich, from which the scholar Claude Saumaise had prepared his *editio princeps* of 1638.³⁰ Made from an older manuscript lost in Wölfflin's day, Saumaise's copy was not nearly as ancient as Vogel's stone. Nevertheless, it was difficult to make out: "many things had been negligently recorded, in letters not quite orderly and clear, others almost deleted by the hand of the corrector, others had been obliterated."³¹ Wölfflin did his own careful reading, but it seemed to Karl Halm, the soon-to-be Munich professor helping advise the work, that the younger man had not seen everything there was to see. To correct the problem, Halm secured permission to take the Saumaise manuscript home, where he could examine portions with "armed eyes" (*armatis oculis*), and with the help of still another philologist, the formidable Otto Jahn.³² The pair, Wölfflin reported, were able to coax from the transcript many readings that he himself had overlooked.³³ The episode made a lasting impression: in autobiographical notes that Wölfflin recorded before his death in 1908, he took care to commemorate once again the work of Halm and Jahn, who had come to his aid because the Saumaise manuscript was "difficult to read." And he added a third set of eyes to the collaboration, unmentioned a half-century earlier: Theodor Mommsen, the force behind the monumental collection of Roman inscriptions known as the *Corpus Inscriptionum Latinarum* (*CIL*), had also been present for the scrutiny.³⁴

What type of seeing was it that Vogel and Wölfflin described? In the disciplinary terms of the era, Vogel's activity would have fallen under the heading of epigraphy, the science of reading inscriptions; Wölfflin's under paleography, the decipherment and classification of manuscripts. But it is difficult to separate cleanly these and related subdisciplines, and in this case it is most apt to treat the two together as exemplifying a practice that I will call *constitutive sight*. A principal component here was the resolution of signifying marks, often displayed in decayed, obscured, or idiosyncratic fashion, into the familiar quantities (letters and words) they were meant to represent. The aim of constitutive sight was thus inseparable from the

²⁹Wölfflin, *De Lucii Ampelii libro memoriali quaestiones criticae et historicae* (Göttingen, 1854). The edition appeared as *Lucii Ampelii liber memorialis* (Leipzig, 1854).

³⁰See Wölfflin, *De Lucii Ampelii libro memoriali*, 8–13.

³¹*Ibid.*, 11.

³²*Ibid.*, 11–12.

³³*Ibid.*, 12.

³⁴Biographical notes at UB, NL 93: 66e. On Mommsen the literature is extensive: the most detailed account is Lothar Wickert, *Theodor Mommsen: Eine Biographie*, 4 vols. (Frankfurt am Main, 1959–80); see further the work of Stefan Rebenich, including *Theodor Mommsen und Adolf Harnack: Wissenschaft und Politik im Berlin des ausgehenden 19. Jahrhunderts* (Berlin and New York, 1997); Rebenich, *Theodor Mommsen: Eine Biographie* (Munich, 2002). In connection with the *CIL* specifically, see e.g. Torsten Kahlert, "Unternehmungen großen Stils": *Wissenschaftsorganisation, Objektivität und Historismus im 19. Jahrhundert* (Berlin, 2017), 53–184.

form of the marks as recorded. Ideally, for example, there was little call to exercise constitutive sight on a *transcribed* inscription printed in a familiar font—the crucial act of resolution having already taken place. On the other hand, constitution was necessary if one received an image of the same inscription, in which the original forms of the letters were reproduced; or if a suspected text-critical problem forced one to reconsider the traces the transcription claimed to constitute. This emphasis on the material form of the text explains Vogel's protest that Bücheler's ruling on *genero* did not appear to be based on an actual viewing of the stone, as well as Halm's petition to take the Saumaise manuscript home for inspection. Nor is the weight carried by senior figures like Halm, Jahn, Mommsen, and Bücheler insignificant. For constitutive sight demanded the exercise of a connoisseurship bound up in the eyes of those with long, sometimes hard-won practice at turning traces into letters and sense. To cultivate the sort of virtuosic sight that could reliably arrive at all of a manuscript's—or a stone's—many mysteries, one needed, at minimum, sustained engagement with manuscripts or inscriptions, or their images.

How strikingly that engagement could inform the vision is evidenced by scholars' enduring recollections of more seasoned colleagues' ability to see what they could not: Halm over the Ampelius is an example, as is one eulogist's recollection of Bücheler's ability, in a teaching capacity, to facilitate from inscriptions the "decipherment and interpretation of what often seemed flatly unreadable."³⁵ But nowhere have I seen the phenomenon so grippingly narrated as in the story of the great Latinist Friedrich Ritschl's struggle to read a Milanese manuscript containing the writings of the Roman comic playwright Plautus.³⁶ As a young Breslau professor, Ritschl had secured a stipend to visit Italy, arriving in November 1836. By the middle of the month he was in Milan's storied Ambrosiana library confronting the so-called Ambrosian palimpsest, from which the first bits had been published two decades earlier. It was a daunting spectacle. Formed when one text is written atop another, often after the latter's attempted erasure, palimpsests are not easy reading in the best of circumstances. And the Ambrosian Plautus, the examination of which would mark an important step towards Ritschl's epoch-making studies of early Latinity, was particularly imposing. The older letters—the Plautus he was trying to read—had been scratched out and covered over by a "repulsively thick, black, fat" writing, conveying "worthless bits" from the Old Testament.³⁷ Beyond that, the manuscript was "in the most wretched condition, in parts totally destroyed through the use of chemical reagents and falling apart in shreds."³⁸ In Ritschl's first two days of work he had managed "with unspeakable effort" to make out only three verses.³⁹

But in the end he persevered, and his tenacity began to pay off: "I myself am astonished at how it has been possible to bring out many a thing, and still more when I think with what doleful, desperate expressions I first looked at the old,

³⁵P. E. Sonnenburg, "Franz Buecheler," *Biographisches Jahrbuch für die Altertumswissenschaft* 34 (1911), 139–62, at 150.

³⁶See Otto Ribbeck, *Friedrich Wilhelm Ritschl: Ein Beitrag zur Geschichte der Philologie*, vol. 1 (Leipzig, 1879), 173–81, 218–19.

³⁷*Ibid.*, 175.

³⁸*Ibid.*, 173.

³⁹*Ibid.*, 173.

tattered pages.”⁴⁰ By June, when he returned to finish the work, the report was even better: “the practice does so much good, that I read [the palimpsest] in some places like a printed book, and collate four, five, even six, and yesterday even seven pages in one day.”⁴¹ Ritschl was not the only one impressed by his progress. When the Ambrosiana librarians introduced him to the Italian poet Alessandro Manzoni, they steered the conversation directly to the palimpsest: “for they begin to take for a kind of miracle partly my stamina, partly the ability to read the whole verses where they recognize not one letter, and to interest themselves in it as something worthy of seeing or showing.”⁴² Tourists were—much to Ritschl’s annoyance—brought to view the German visitor poring over his inscrutable text.⁴³ Summoning sense from the void, constitutive acumen had charismatic appeal. It looked, to the uninitiated, like a miracle.

The trick for the philologist, of course, was to bring the miracle closer to hand. In this connection, in addition to intensive practice over the traces themselves, the record reveals a whole array of equipment for augmenting the naked eye. Halm had his “arms”—a magnifying glass, perhaps—for the examination of the Saumaise manuscript. Ritschl was eventually allowed to take chemical reagents to the Ambrosian Plautus.⁴⁴ Epigraphers embraced mechanical means of reproducing inscriptions so they could be viewed by eyes far from the source: paper impressions were said to be advantageous, their study often preferable to that of the original.⁴⁵ The historian of ancient law Otto Gradenwitz attempted to win the Berlin Academy’s support for a photographic procedure to help make out palimpsests.⁴⁶ Meanwhile, inside the lecture hall, where an array of visual procedures were deployed to help students develop the ability to construe, for instance, artworks and physiological facts, philologists too availed themselves of the imaging opportunities of the era.⁴⁷ Wölfflin embraced photography in his own instruction, procuring several facsimiles of manuscripts for use in exercises conducted alongside his paleography lectures.⁴⁸ Notes from one of the course’s incarnations open with an apology for gathering the group in such a large lecture hall. The light it afforded was necessary, Wölfflin said, for there would be “more to see than to hear.” His auditors, he continued, were not unlike physicians, “who in their clinical semester are led to the sick-bed and are now supposed to see and observe

⁴⁰Ibid., 178.

⁴¹Ibid., 218.

⁴²Ibid., 179.

⁴³Ibid.

⁴⁴Ibid., 180, 218.

⁴⁵Emil Hübner, *Über mechanische Copien von Inschriften* (Berlin, 1881), esp. 5. For more on Hübner see Lorraine Daston, “The Immortal Archive: Nineteenth-Century Science Imagines the Future,” in Daston, ed., *Science in the Archives: Pasts, Presents, Futures* (Chicago, 2017), 159–82.

⁴⁶Otto Gradenwitz, “Otto Gradenwitz,” in H. Planitz, ed., *Die Rechtswissenschaft der Gegenwart in Selbstdarstellungen*, vol. 3 (Leipzig, 1929), 40–88, at 84–5.

⁴⁷For contemporary art-historical instruction see Trevor Fawcett, “Visual Facts and the Nineteenth-Century Art Lecture,” *Art History* 6/4 (Dec. 1983), 442–60. On physiology see Henning Schmidgen, “Pictures, Preparations, and Living Processes: The Production of Immediate Visual Perception (*Anschaung*) in Late-19th-Century Physiology,” *Journal of the History of Biology* 37 (2004), 477–513.

⁴⁸Eduard Wölfflin, “Griech. + lat. Paläographie. 1889,” UB, NL 93: 49a.

[*beobachten*] and recognize things with their own eyes, about which they have only heard and read.”⁴⁹ It was time, in other words, for the budding philologists to witness firsthand what sat behind their printed texts.

The concern, Wölfflin made clear, was not to turn every student into an accomplished renderer of an Ampelius or an Ambrosian palimpsest. It was rather to ensure that they could assess such rendering if they chose, preserving the “independence ... to judge differently,” if it came to it, what there was to be seen in the manuscript sources.⁵⁰ Judgment like this was essential to the sovereignty of the scholar, and there was room for it even in the case of oft-read texts: Wölfflin reported that he had two facsimile pages of a key manuscript of Sophocles’ *Antigone*, in which he saw a dozen instances otherwise than editors reported.⁵¹ In the same vein, Ritschl, for all his labors in Milan, recognized that it was “almost impossible to *exhaust* the old manuscript” before him—other eyes would see more and differently, as in fact they soon did.⁵² It was no different with inscriptions: indeed, Ritschl would later lament that no matter how diligent the transcriber, the cold certainty of constituted type simply could not “exhaust both the incredible variety and the often remarkable ambiguity of the archetypes [the inscriptions themselves].”⁵³ The visual “ambiguity” involved was ineffable—one “would labor in vain to describe [it] in words”—so that Ritschl looked to produce a volume that would reproduce it pictorially.⁵⁴ With images in hand, each user could rule individually, “having employed their own free judgment and tranquil reflection,” on such matters as how certain or uncertain a given reading was.⁵⁵ Ritschl was providing a playground for the very sort of constitutive judgment that Wölfflin taught, and that his student Vogel exercised. The dust-up with Bücheler was not a mere instance of student pique: it was a symptom of a kind of visual openness in the manuscript collections and museums—and countless other sites vastly less convenient—that marked for the textual scholar the domain of the unconstituted trace. In this “clinic,” messy and sometimes ambiguous, philologists needed to be able to see for themselves.

Collative sight

But let us step away from the clinic and into a still more unlikely venue—the garden. It was precisely here that Wölfflin directed his audience’s attention in a lecture to members of the Bavarian Academy’s philosophical-philological class in 1882.⁵⁶ The talk handled a thoroughly philological subject—forms of Latin word repetition. But Wölfflin chose to open in a curious place. “Those in Munich,” he began,

⁴⁹Ibid. Wölfflin also compared his auditors to young *Naturforscher* in microscopy courses.

⁵⁰Ibid. Similarly in Eduard Wölfflin, “Paläographie. Hermeneutik + Kritik. Sommer 1896,” UB, NL 93: 49a, 4.

⁵¹Wölfflin, “Griech. + lat. Paläographie. 1889.”

⁵²Ribbeck, *Ritschl*, 178, original emphasis; Franz Bücheler, *Philologische Kritik* (Bonn, 1878), 10.

⁵³Friedrich Ritschl, “Praefatio,” in *Priscae Latinitatis monumenta epigraphica* (Berlin, 1862), [iii].

⁵⁴Ibid.

⁵⁵Ibid.

⁵⁶Wölfflin, “Die Geminatio im Lateinischen.”

who lecture or hear lectures in the early morning hours and make their way [to the university] through the garden of the forestry school, will regularly find an official of the institution occupied with different measurements. He repeats these at different times of day and turns them over to the directorate [*Vorstand*], which perhaps after ten years publishes the observations on the basis of a comprehensive material and draws from them general conclusions, from which deserved recognition is not then withheld. Even the philologists who see this daily doubtless find it totally in order: but it probably occurs to few of them that they themselves should observe [*beobachten*] in the same way.⁵⁷

Wölfflin kept going, doubling down on the parallel between the scholar of language and the investigator of natural phenomena. Just as nature's secrets needed to be extracted through listening and accounting without the importation of "preconceived ingenious hypotheses," he said, so too truths about language needed to be won from careful monitoring. Given language's complexity, philologists, so Wölfflin, had "as little cause to be ashamed of detailed observation as the researcher of nature." Quite to the contrary: they, like their natural-scientific colleagues, would have "to strive to devise their own measurement methods and measuring instruments in the interest of observations—*Beobachtungen*—that [were] as sharp and exact as possible." In fact, he announced, "the word *observation* must become a catchphrase for philology."⁵⁸

The whole of the introductory comments in which Wölfflin made this case—I will call them simply his "forestry remarks"—could not have taken more than a few minutes. They bore little explicit connection to the lecture that followed. Nevertheless, they reward our attention. For what was indicated had little to do with constitutive sight. It referred instead to a particular mode of philological investigation, championed by Wölfflin particularly in the 1870s and 1880s, which I will unfold below by examining his forestry remarks through a series of contextual lenses, divided for convenience into the "circumstantial," the "parabolic," and the "syntactic." To grasp the type of seeing Wölfflin recommended with his "catchphrase" of 1882 is, in the first instance, to reconstruct how indeed foresters and philologists really could observe in the same way.

Circumstantial

We begin with the circumstances—what we might just as well call the "immediate" context of Wölfflin's 1882 lecture. It came just two years after his call from the comparatively provincial Erlangen to an influential chair in Munich, the culmination of a quarter-century climbing the academic ladder, first in Switzerland and then in Germany. The prominence of the new position in the Bavarian *Hauptstadt* allowed Wölfflin—entering his fifties—to pursue seriously some of the bold designs that had helped get him there, the size and shape of which are

⁵⁷Ibid., 422.

⁵⁸Ibid., 423.

indicated by an article he completed soon after his arrival. The piece, entitled “On the Tasks of Latin Lexicography,” made clear that neither the kind of editorial work that he had once done on Ampelius, nor the constitutive sight that had helped support it—and that he continued to teach in his paleography lectures—remained foremost in his mind.⁵⁹ In Wölfflin’s view, philologists had devoted decades primarily to a particular type of textual criticism, searching up manuscript material and massaging it to establish and emend texts. Returns were diminishing, and the field would do well to pursue “a new object,” one that involved nothing less than “the construction of a language history from the beginnings of Latin to its transition into the Romance languages.”⁶⁰

The principal vehicle of this language history was to be a massive lexicon, a *Thesaurus linguae Latinae*, that would deliver the “life history” of every Latin word.⁶¹ Wölfflin was hardly the only one of his contemporaries to recognize the merits of such a project.⁶² But he was unique in his obsession with realizing the idea, for which he had been drafting plans since at least the 1870s, soon after he wrote to Halm to declare that philology was due to open a new era—a “lexical period.”⁶³ He quickened his efforts around the time of his move to Munich. His work in these years—including his forestry remarks—needs to be seen as part of a flurry of activity aimed at launching the “lexical period” from his newly influential perch, and by extension elevating his vision for a future of classical philology in which historical lexicography and historical grammar loomed large. If there was to be a *Thesaurus*, it would require time, coordination, money, a shift in how philologists worked, and even—so Wölfflin suggested—how they saw. Some programmatic rhetoric was certainly in order.

That he would draw this rhetoric from outside his own field was entirely in character. Wölfflin was fond of figures, and frequently spiced his language with metaphors drawn from the military and economic sphere, as well as that of the *Naturforscher*.⁶⁴ We find him in other places, for example, likening modes of philological study and organization to meteorology, statistics, mathematics, biology, chemistry, and medicine.⁶⁵ Clearly the appeal to natural and physical investigation was, for him, part of a standard rhetorical toolkit—one calibrated to what the industrialist Werner Siemens would famously label, just a few years after

⁵⁹Eduard Wölfflin, “Über die Aufgaben der lateinischen Lexikographie,” *Rheinisches Museum* 37 (1882), 83–123.

⁶⁰*Ibid.*, 84.

⁶¹So, e.g., Eduard Wölfflin, “Entwurf eines Planes zur Ausarbeitung eines Thesaurus linguae latinae,” *TLLA*, 4.

⁶²Heinz Haffter, “Friedrich Ritschl an Karl Halm zum Thesaurus-Plan vor hundert Jahren,” *Museum Helveticum* 16/4 (1959), 302–8; Bücheler, *Philologische Kritik*, 16–17; Mommsen’s sentiments in Friedrich Vogel, “Zu Eduard Wölfflins hundertstem Geburtstag: Die schwierigen Anfänge des Thesaurus linguae latinae,” *Bayerische Blätter für das Gymnasial-Schulwesen* 66 (1930), 345–50, at 345.

⁶³Wölfflin to Halm, 6 April [1872], Bayerische Staatsbibliothek (hereafter BSB), cgm 6970.

⁶⁴The use of military and economic metaphors is remarked in Oskar Hey, “Eduard Wölfflin,” *ALL* 15 (1909), *Ergänzungsheft*, 1–6, at 4. For the *Naturwissenschaften* see below.

⁶⁵For meteorology and statistics see e.g. *Philologus* 25 (1867), 92–134, at 127; for statistics and mathematics see Wölfflin, “Über die Aufgaben,” 84; for biology see Wölfflin to Mommsen, 27 July 1887, Staatsbibliothek zu Berlin, Preussischer Kulturbesitz (hereafter StBB-PK), NL Mommsen I: Wölfflin, 47v; for chemistry and medicine (and business) see Wölfflin to Halm, 6 April [1872], BSB, cgm 6970.

Wölfflin's forestry remarks, "the scientific age."⁶⁶ And yet we do well to appreciate the salience of particular variations on the theme: namely, in this case, the invocation of the forestry school garden. The reference would have had a measure of immediacy for Wölfflin's audience in Munich, where just a few years earlier the university had seen the creation of five new professorial chairs in forestry science, the product of Bavaria's realignment of its forestry education.⁶⁷ The developments changed not only the balance of the Staatswirtschaftliche Fakultät—nearly doubling its size—but also the university's spatial arrangement: following the new professorships came the establishment of a site for forestry research, a *forstliche Versuchsanstalt*, complete with auditoriums, laboratories, work rooms, and collections.⁶⁸ The *Versuchsanstalt* included a garden, just south of the university, which became the venue for the very measurements that Wölfflin called to the attention of his academy listeners. We know that in 1882 it displayed an array of experimental apparatus, at least one of which was checked twice a day.⁶⁹ And in fact it seems that when Wölfflin spoke of those passing through the garden on the way to lecture, he did so from experience: the eastward walk to the university from his house in Munich's Hessesstrasse would have put the grounds of the new *Versuchsanstalt* in his path.⁷⁰

It is possible that Wölfflin's interest in the doings there was primed by familial circumstance. His father-in-law had served for a decade as president of the Forestry Commission in the Swiss town of Winterthur, where Wölfflin had been a teacher in the 1860s.⁷¹ Beyond that, the Latinist was simply the sort of colleague—not unfamiliar today—who didn't miss a campus building project, even if it didn't have much to do with him. He had a particular nose for the economy of the university: one that seemed to him sometimes to tilt in the direction of colleagues in medicine and the natural sciences. The attitude is apparent in his letters from the Bavarian university of Erlangen, where he taught prior to Munich. Here he had witnessed the construction of a new maternity institution and a new chemical laboratory, and the pressing of a longer wish-list in the Bavarian Cultusministerium that

⁶⁶Werner Siemens, *Das Naturwissenschaftliche Zeitalter* (Berlin, 1886).

⁶⁷J. N. Köstler, "Die Eingliederung der Forstwissenschaft in die Universität München," *Allgemeine Forstzeitschrift* 42/43 (1953), 1–5; Hubert von Pechmann, "Geschichte der Staatswirtschaftlichen Fakultät," in Laetitia Boehm and Johannes Spörl, eds., *Die Ludwig-Maximilians-Universität in ihren Fakultäten*, vol. 1 (Berlin, 1972), 127–84, at 147–53.

⁶⁸On faculty size see the printed *Amtliches Verzeichniss* of the university's personnel for 1878 and 1878/9. For the *Versuchsanstalt* see von Pechmann, "Geschichte der Staatswirtschaftlichen Fakultät," 151; "Bekanntmachung: Das forstliche Versuchswesen in Bayern betr.," *Finanz-Ministerialblatt für das Königreich Bayern* (1883), 1–13, at 3 (§3); Tuisko Lorey, "Versammlung des Vereins deutscher forstlicher Versuchsanstalten für 1882," *Allgemeine Forst- und Jagd-Zeitung* (hereafter *AFJZ*) 58 (1882), 388–91, at 388.

⁶⁹Lorey, "Versammlung (1882)," 388; Ernst Ebermayer, "Geschichtliche Entwicklung der forstlich-meteorologischen Stationen und ihre zukünftigen Aufgaben," in August Ganghofer, ed., *Das forstliche Versuchswesen*, vol. 2 (Augsburg, 1884), 1–44, esp. 13–16.

⁷⁰The *Versuchsanstalt* was at Amelienstrasse 67. See e.g. *Verzeichnis der Vorlesungen an der Königlichen Ludwig-Maximilians-Universität zu München* for the summer semester 1882, at 6.

⁷¹Heinrich Troll MD (1812–70), the father of Wölfflin's wife Bertha, served from 1851 to 1861 as *Forstamtmann*, the member of the Winterthur Stadtrat charged with directing the Forstkommission. I thank Rahel Lüttringhaus of the Winterthur Stadtarchiv for this information.

included an Erlangen physics institute, a greenhouse, a physiological institute, and more, prompting Wölfflin's remark to a ministry official that "we philologists are actually the cheapest."⁷² He had also written of the "pitying" laughter of Erlangen researchers in the natural sciences, each of whom—unlike their colleagues in philology—enjoyed the help of a hired attendant.⁷³ Five new forestry professors and a *Versuchsanstalt* that opened its doors around the time of his arrival in Munich would have signaled similar issues at his new post. The foresters had it good. But the philologists, Wölfflin was ready to argue, could use a kind of *Versuchsanstalt* as well.

Parabolic

The matter went beyond posturing about resources and influence. Indeed, if we turn to the *content* of what it is that Wölfflin's anonymous forester is shown doing, it is possible to begin recovering actual harmonies in practice that he envisioned with his philological-cum-natural observation program. We do not hear overmuch about the forestry official: the man repeated his measurements multiple times a day, Wölfflin noted, passing them on to a directorate. After ten years, the directorate, working from the comprehensive material at its disposal, could publish these so-called "observations" and use them to develop general conclusions that would win praise. The account is admittedly telegraphic, but I would argue that it was an apt summary of—indeed, a kind of parable for—key principles of a particular sort of disciplined sight, advocated especially in Wölfflin's early efforts around the *Thesaurus*, that I wish to call *collative*.

What are the key moments of the parable's exegesis? I take them to be five. First, the forester's observations had *collative breadth*: they did not confine themselves to a single point, but were assembled—collated—along an axis, in this case diachronic (the measurements are conducted at various points during the day and done "regularly" for a decade). Second, they were "comprehensive": they relied on repetition multiple times, multiple days, leading to an extensive collection for the *Vorstand*. Third, they were disinterestedly documented: the forestry official did not decide *which* measurements to turn over, nor did he compile his own "conclusions"—he eschewed the caprice of what Wölfflin called "preconceived ingenious hypothesis," and in this account it is not feats of memory or judgment, but rather regular recording that characterizes his behavior. Perhaps as a result, his work—here a fourth characteristic—proved durable, unmarred in its utility by the passage of a decade. This in turn supported a final element, namely a division of labor. The observations were carried out by the forester. But they were just as valid for the directorate, which could work with them a decade later, apparently without entering the garden.

⁷²Wölfflin to Halm, undated [early May 1875], BSB, cgm 6970: "Auf Völk wurde von allen Seiten Sturm gelaufen: Entbindungsanstalt, chemisches Laboratorium, physikalische Anstalt, Gewächshaus, physiologisches Institut etc. worauf ich ihm bemerkte, wir Philologen seien doch die billigsten." The Völk in question was a Cultusministerium official, on whom see also the mention by Karl Bücher in Rüdiger vom Bruch and Rainer A. Müller, eds., *Erlebte und gelebte Universität: Die Universität München im 19. und 20. Jahrhundert* (Pfaffenhofen, 1986), 127.

⁷³Wölfflin to Halm, 14 Dec. 1879, BSB, cgm 6970.

Thus the forester. What of the philologist? Collative breadth, first of all, was at the heart of Wölfflin's program to deliver far-ranging histories of words and syntax. This was precisely a project that demanded observation-on-an-arc: what mattered was not *this* or *that* usage of a word, but how it fit into a pattern of use from century to century, region to region, one part of an author's work to another. In writings intended to illustrate Wölfflin's methodology around the time of his forestry remarks, "observing" meant, for instance, establishing a word's affinity to the familiar address of correspondence by noting that "the word *avere*—to desire—appears sixteen times in Cicero's letters to Atticus, only twice in his speeches—and there in the *Philippics*."⁷⁴ It meant pointing out that in the fifth century a writer from Hispania formed the comparative with *magis*, while a Lyonese, just slightly later, favored *plus*—presaging the Spanish comparative *más* versus the French *plus*.⁷⁵ In both cases, the collative dimension is obvious. *Avere* was followed along the axis of genre, from familiar epistle to public rhetoric, to establish its affinity with the former. Meanwhile, the various alternatives for expressing the comparative periphrastically—*magis* and *plus*—were assessed according to where they appeared geographically and chronologically. Lexical "life histories" were built on such observations.

Generating them was no easy task. To establish where a given word, structure, or lexical pattern did or did not occur in a single author, let alone in Latin literature as a whole, was a challenge. To run a research agenda around countless such observations required specialized equipment. "Arming" the eye, that is, was no less essential to collative sight than it was to its constitutive counterpart. Wölfflin's forestry remarks had included talk of philological "measuring instruments"; elsewhere he invoked optical equipment—the "stylistic magnifying glass" or the "microscope"—in descriptions of his research.⁷⁶ The range of apparatus that Wölfflin plausibly understood under these headings was wide: it included everything from the personal "collectanea"—sorted lists of lexical examples—that he fashioned for himself, to the "statistical-lexical" approach that professedly characterized his work.⁷⁷ But for our purposes, I would like to introduce here one particular instrument, which Wölfflin began to develop less than a year after his forestry remarks. It supported a journal with the title *Archiv für Lateinische Lexikographie*, which he founded in 1883 with the intention of paving the way for an eventual *Thesaurus*.

The concept of the new journal was simple: historical study of the Latin language defied individual effort and demanded instead planned, collaborative organization.⁷⁸ The *Archiv*, therefore, would recruit a network of some 250 volunteers, every one responsible for a particular *pensum*—an assigned portion of Latin litera-

⁷⁴Eduard Wölfflin, "Vorwort," *ALL* 1 (1884), 1–12, at 8.

⁷⁵Eduard Wölfflin, "Über die Latinität des Afrikaners Cassius Felix: Ein Beitrag zur Geschichte der Lateinischen Sprache," *SBAW* (1880), 381–432, at 383.

⁷⁶Eduard Wölfflin, *Antiochos von Syrakus und Coelius Antipater* (Winterthur, 1872), v (microscope), 26 ("die stilistische Loupe"); Wölfflin, "Über die Latinität des Afrikaners Cassius Felix," 382.

⁷⁷A fine (early) example of personal collectanea are Wölfflin's notes on Livy in UB, NL 93: 53; for equation of "microscopic investigation" with *statistisch-lexikalische Untersuchung*, see Wölfflin, *Antiochos von Syrakus*, v.

⁷⁸Wölfflin, "Vorwort," 6.

ture.⁷⁹ Each of these *Mitarbeiter* would accept the obligation of responding to a twice-yearly list of “forty particularly interesting items ... for observation,” the so-called *Fragezettel* or *Fragebogen*.⁸⁰ The responses were to take the form of standardized paper slips, cataloguing where in a given *pensum* each of the items occurred.⁸¹ Wölfflin planned to use the resulting material to develop the content of future *Archiv* issues, producing from it just the sorts of lexicographically oriented studies that he had forecast as the future of the discipline. For such efforts, scholars examining, e.g., every appearance in the space of several centuries of words terminating in *-urio* would not need to read all the texts. Instead, they could move their eyes from one end of Latinity to the other simply by consulting the newly assembled slips submitted for Item 14 of the first *Fragezettel*, which asked *Mitarbeiter* to collect from their texts “all verbs ending in *urio*, alphabetically ordered.”⁸² The upshot is clear: in the rows of boxed *Archiv* slips that collected in Wölfflin’s Munich residence in the 1880s and 1890s, collative observation had acquired an impressive new tool.⁸³ Wölfflin’s lexical period could open and its hero, the lexicographer, could go to work, with eyes armed like never before.

It is with the *Archiv* that we see reflected all points of Wölfflin’s forester parable. The journal’s slip collection resulted from collative tracking of a word’s usage across all of Latin literature. It was massively comprehensive: in the 1880s, Wölfflin wished to ensure the “absolute completeness” of the *Archiv*’s lexical collections, their embrace of every instance of every item specified by the questionnaire.⁸⁴ Such completeness was particularly important, because it eliminated the need for any “preconceived hypotheses” on the part of *Archiv* volunteers: they were simply to collect and transmit what they were told. This was disinterested documentation, in other words, to rival the daily recording of the forestry official, and Wölfflin saw it precisely as a hedge against obsolescence, a way to give philological collections the durability enjoyed by the measurements in his forestry parable. He said as much in the *Archiv*, discussing early excerpts for a large Latin lexicon attempted a quarter-century earlier, whose unevenness attested that “in the selection of the linguistically notable the judgments even of thoroughly trained philologists depart very widely from each other.”⁸⁵ “What is important after all?” he asked. “To this question no one can honestly give an answer, for [even] that which appears to be the most insignificant becomes important, as soon as it is exposed to a new, hitherto unknown viewpoint.”⁸⁶ Allowing individuals to elevate their own judgment—their own criteria for excerption—made for measurements that aged

⁷⁹Eduard Wölfflin, “Organisation der Arbeit,” *ALL* 1 (1884), 12–15.

⁸⁰Eduard Wölfflin, “Archiv für lateinische Lexikographie und Grammatik” (*Anzeige*), *Mitteilungen der Verlagsbuchhandlung B.G. Teubner in Leipzig* (1883), 25–26, at 26. For the first *Fragezettel* see Eduard Wölfflin, “Erste Fragezettel,” *ALL* 1 (1884), 15–19.

⁸¹See the “Allgemeine Bestimmungen,” *ALL* 1 (1884), 19–20.

⁸²Wölfflin, “Erster Fragezettel,” 16.

⁸³Recollection of the *Archiv* slips in Oskar Hey, “Eduard Wölfflin, der Lehrer und der Mensch,” *UB, NL* 93: 135, 7, at 5. The slips have been preserved in the *TLLA*.

⁸⁴See Wölfflin, “Vorwort,” 7–10. The commitment to completeness is restated in “Vierter Jahresbericht der Redaktion,” *ALL* 5 (1888), 318–20, at 319–20.

⁸⁵Wölfflin, “Vorwort,” 4.

⁸⁶*Ibid.* See the similar assertion by the concordance maker Helen Kate Furness quoted in Daniel Rosenberg, “An Archive of Words,” in Daston, *Science in the Archives*, 271–310, at 286.

badly: “how could an editor,” Wölfflin wondered, “have relied after ten or twenty years on the heterogeneous preparations, if the one excerptor noted what the other passed over?”⁸⁷ The scenario suggests a further, crucial element of the *Archiv*: the division of labor. In place of the forestry official taking regular measurements were the more than two hundred *Archiv* volunteers—many of them *Gymnasium* teachers—regularly responding to a *Fragezettel*. In the place of the directorate was the editor, Wölfflin, who received the resulting observations, filed them into boxes, and arranged, sometimes years later, for their analysis and publication. From top to bottom, the type of observational apparatus on display at the *Archiv* was in keeping with the teachings of the forester parable.

Syntax

It was also not out of step with the syntax of what some real—as opposed to parabolic—German forestry research looked like around the time of Wölfflin’s forestry remarks. The *forstliche Versuchsanstalt* in Munich was just one of several similar institutions established in the 1870s and early 1880s in a newly unified Germany. Motivating them was the need to ensure standardized collection of large amounts of information about forest growth, behavior, and conditions in different sites and over long periods of time.⁸⁸ Problems of duration were said to distinguish forestry research as against experimental work in, for example, agriculture or physics or chemistry.⁸⁹ Because phenomena often needed to be tracked for years, in some cases for periods far outstripping a human life span, organized collaboration was essential. Failing that, noted one forestry scholar, “all the effort which the individual has expended is in many cases entirely lost.”⁹⁰ The need for organization meant that a *Versuchsanstalt* like the one in Munich did not stand alone: it belonged to an association, the Verein Deutscher forstlicher Versuchsanstalten, which aimed to establish standardized instructions coordinating certain types of measurements and ensuring compatibility.⁹¹ At the 1882 annual meeting of the *Verein*, which took place in Munich just months after Wölfflin’s forestry remarks, the points for discussion included the progress of plans for uniform phenological observations—those concerning the annual cycles of plant and animal events such as flowering and the first (or final) seasonal appearance of bird species.⁹² The *Verein* managed to agree upon an instruction two years later.⁹³

The instruction was a multipage document detailing which phenomena (e.g. change in leaf color) were to be observed for which plants, animals, and

⁸⁷Wölfflin, “Vorwort,” 4.

⁸⁸See Adam Schwappach, “Versuchswesen, Forstliches: Einleitung und geschichtliche Entwicklung,” in Raoul Ritter von Dombrowski *et al.*, eds., *Allgemeine Encyclopädie der gesammten Forst- und Jagdwissenschaften*, vol. 8 (Wien and Leipzig, 1894), 139–42.

⁸⁹Richard Hess, *Ueber die Organisation des forstlichen Versuchswesens* (Giessen, 1870), 13–14.

⁹⁰Schwappach, “Versuchswesen,” 140.

⁹¹*Ibid.*, 141–2. Further to the *Verein*, see Franz Baur, *Untersuchungen über den Festgehalt und das Gewicht des Schichtholzes und der Rinde* (Augsburg, 1879), 1–12.

⁹²Lorey, “Versammlung (1882),” 388, 390–91.

⁹³Tuisko Lorey, “Versammlung des Vereins deutscher forstlicher Versuchsanstalten für 1884,” *AFJZ* 60 (1884), 441–6, at 442–3.

insects—and in what way.⁹⁴ It attempted to avert problems, giving readers extra notes on what, for example, constituted a general change in leaf color, and warning them not to rely on samples in aberrant places, such as steep slopes.⁹⁵ Observers were to be outfitted with multiple copies of a prearranged tabular template—a sort of “observation journal” (*Beobachtungsjournal*).⁹⁶ In 1885, officials at over 250 stations under seven different *Versuchsanstalten* (for its part, Munich elected not to participate) delivered information, which was published in a collective yearly report.⁹⁷ On the basis of ten years of such observations, the Giessen professor Karl Wimmenauer then issued a volume of “principal results”: readers learned, for instance, that with every degree of latitude, the flowering period had been shown to shift by about two and a half days.⁹⁸ Wölfflin’s parable about a decade of measurements issuing in a set of published summary conclusions was as true, therefore, to certain actual patterns of contemporary forestry research as it was to the envisioned rhythms of lexicographical collection and publication.⁹⁹

And the parallels, as should already be clear, do not end there. The *forstliche Versuchsanstalten* were able to track flowering periods and vegetation in time and space; the philological *Versuchsstation*—for that is how Wölfflin styled the *Archiv* at its outset—aimed to plot words by a whole variety of coordinates, including historical and geographical, in the interest of a “life history” of Latin words.¹⁰⁰ Both foresters and their philological counterparts, in short, could be found characterizing the life cycles and regional patterns of their objects.¹⁰¹ Both needed sizable organizational efforts to put those characterizations within reach. In the Latin language as in the forest, historical developments easily outstripped the sight lines of the individual: a lone philologist could not follow words through centuries’ worth of texts any more than a single forester could observe the centuries-long growth pattern of a tree. Which meant, in turn, that both philologist and forester cited the futility of isolated effort and looked instead to activate the collective. Both aimed to assemble an observation network that extended throughout Germany. Both looked to graft their assignments onto the duties of those—*Gymnasium* teachers and forestry officials—already otherwise in state service. Both needed to

⁹⁴Adam Schwappach, ed., *Jahresbericht der forstlich-phänologischen Stationen Deutschlands*, vol. 1 (Berlin, 1886), 4–13.

⁹⁵*Ibid.*, 5, 7.

⁹⁶*Ibid.*, 8–13.

⁹⁷*Ibid.*, 1. The *Jahresbericht* would extend to ten volumes, each documenting the observations of a given year: the final installment, compiling the reports from 1894, appeared in 1896.

⁹⁸Karl Wimmenauer, *Die Hauptergebnisse zehnjähriger forstlich-phänologischer Beobachtungen in Deutschland, 1885–1894* (Berlin and Heidelberg, 1897), 22–3. Wimmenauer recommended that the *Verein* not continue the phenological observations beyond 1894.

⁹⁹Compare the handling of earlier observations related by Ernst Ebermayer, professor at Munich from 1878 and a leader in the *forstliche Versuchsanstalt*, in Ebermayer, “Geschichtliche Entwicklung,” 8–9.

¹⁰⁰*Versuchsstation*, meant to emphasize that the *Archiv* was making trials towards a later *Thesaurus*, is at Wölfflin, “Vorwort,” 6, and Wölfflin, “Archiv” (*Anzeige*), 25.

¹⁰¹For related reflection on Wölfflin’s embrace of parallels between philology and biology see Heinz Haffter, “Frühere Thesaurusmitarbeiter,” in Haffter, *Et in Arcadia Ego: Essays, Feuilletons, Gedenkworte* (Baden, 1981), 160–76, at 169–70; and (skeptically) Pfeiffer, “Klassische Philologen,” 125–6. For the likening of words to plants see Eduard Wölfflin, “Die neuen Aufgaben des Thesaurus linguae latinae,” *SBAW* (1895 [1894]), 93–123, at 95–6, 100, 101–2.

worry about standardizing the work of these observers and reached for comparable technologies—the *Fragezettel* and the instruction—to do so. Wölfflin, with his hundreds of *Mitarbeiter*, his *Fragezettel*, and his slips, was simply making good on his own advice. Soon after he asked his colleagues to attend to the forester, he gave the *forstliche Versuchsanstalt* a philological counterpart, a *Versuchsstation* that went by the title *Archiv*.

Two kinds of sight: a résumé

Before we leave the philological garden, it is worth reflecting briefly on how the collative sight practiced here differed from the constitutive sight plied on the Bonn stone with which we began. Constitutive sight had to be learned over words' material traces: in research libraries, in museums, in photographs proffered for lecture-hall exercises. It had an open-ended mythos: one that acknowledged visual evidence as inexhaustible and potentially ambiguous—susceptible to alternative configuration by different individuals judging differently. Constitutive sight “done right,” in other words, did not foreclose the need to *look again*. But neither did it privilege all readings: it embraced a hierarchy of experience that ascribed virtuosity and authority to practiced eyes—that credited, in effect, the accumulated memory of visual impressions prior. The differing judgments on whether the Bonn stone displayed Bücheler's *genito* or Vogel's *genero*, and the resultant mediation of the issue through structures of avoidance, authority, and obedience, represent both the mythos and its policing very nicely.

The collative sight on display in the *Archiv* exemplified a different economy altogether. It was conducted, first of all, from constituted text rather than material trace. Bracketing the messiness of the “clinic,” contributors generally responded to their *Fragezettel* on the basis of printed texts. The observational task lay not in resolving points—letters or words—but in recording the patterns of points already resolved: did a phenomenon occur in Cicero's letters or speeches, in Spain or in France, in early Latin or late? The guiding mythos was one of closure: Wölfflin operated with concepts like “absolute completeness” (of lexical collections), “exhaustive” handling (of particular words); it was possible, he said, to handle certain components of philological work like a calculation, an equation with terms established “as exactly as possible” in the interests of a result that would last “for all time.”¹⁰² Ideally, that is, a complete count of *avere* in Cicero needed no *re-vision*. Where constitution gave play to individual judgment, the disinterested regime of collative sight reined it in: exhaustive collection, based on the “uniform” questions in the *Fragezettel*, was meant “to level out the difference of the *Mitarbeiter*.”¹⁰³ In short, the hard-won *élan* of a Ritschl was not at home here: it is difficult to imagine an onlooker saluting Wölfflin's *avere* tally as a “miracle,” any more than the quotidian registry—reportedly unremarkable to passers-by—of the anonymous forestry official. The goal was to activate quickly hundreds of effectively interchangeable

¹⁰²Wölfflin, “Vorwort,” 8 (“absolute Vollständigkeit”), 7 (“erschöpfend behandelt”); Wölfflin, “Die Geminatio im Lateinischen,” 423–4 (calculation).

¹⁰³Wölfflin, “Vorwort,” 14.

observers, as opposed to a few whose long-honed apparatus of memory, practice, instinct allowed them to conjure what nobody else could see.

This is not to say that no training was necessary, let alone that collative sight, as a mode of handling constituted text, was a kind of foregone conclusion. Wölfflin's writings make clear that there were competing constellations of philological values—that not everyone was equipped or inclined to observe in line with the forestry parable. Sometimes his disapproval is explicit: regarding a predecessor's vague assertion that Tacitus used the word "*claritudo* rather often, but also *claritas*, though less so, it seems," Wölfflin noted drily the lack of an appropriate "instrument for observation"—one that would have revealed and acerbically quantified, as he did, how the use of the latter yielded to the former over time.¹⁰⁴ In other cases, it can be read between the lines, as in his eulogy for his mentor Halm, the inspector of the Ampelius manuscript, which remarked on the older man's "feel for language" (*Sprachgefühl*)—the connoisseurial ability to render judgments from an intuitive sense of a word's behavior. So instinctive was Halm's *Sprachgefühl*, Wölfflin wrote, that he felt he could mend textual corruptions without the nuisance of rooting around for hints and parallels.¹⁰⁵ "Feel," that is, had an unencumbered quality at the site of encounter: its justificatory apparatus was unseen, extending backwards in time through the invisible corridor of memory and experience. Though in later years, Wölfflin reported, Halm did use dictionaries (troves of example citations) to confirm his instincts, he apparently attempted to preserve this unencumbered impression: his custom was "not to say that he had found after long searching a similar passage [to support an emendation], but rather that this or that had 'occurred' to him."¹⁰⁶ The aesthetic of instinct maintained here is not unfamiliar: it recalls Ritschl constituting in a flash in Milan, to say nothing of other typologized feats of philological sight—the "bulls-eye vision" (*Trefferblick*) of those able to envision what might fill a lacuna in a transmitted text, or the ability of the great critic Karl Lachmann to "see wrinkles, weak spots, defects, and difficulties [in the transmission] where other people perceived nothing at all."¹⁰⁷ It was clearly, however, out of step with the comprehensive documentary regime on display in the forestry parable. There was no pretense of anything "occurring" to the measuring official: it was not memory, instinct, or legerdemain that distinguished him, but explicit recording, day after day. In the lexicon that Wölfflin's *Archiv* would help bring about, the corrective orientation contra *Sprachgefühl* was brought to a point: "Ever less did the memory even of the most well-read prove sufficient to grasp in detail lexical form and combination," read a 1900 *Thesaurus* introduction. "Ever more one realized how often a general feel for language and style alone misled."¹⁰⁸

¹⁰⁴Eduard Wölfflin, "Tacitus" (Jahresbericht (part 1 of 3)), *Philologus* 25 (1867), 92–134, at 99.

¹⁰⁵Eduard Wölfflin, *Gedächtnissrede auf Karl von Halm* (Munich, 1883), 22.

¹⁰⁶*Ibid.*

¹⁰⁷Otto Gradenwitz, *Einführung in die Papyrskunde* (Leipzig, 1900), xiv ("Trefferblick"); on Lachmann see Julius Zacher, "Ein Fehler Lachmanns in seiner Kritik und Erklärung von Hartmannes Iwein," *Zeitschrift für Deutsche Philologie* 7 (1876), 175–207, at 196: I owe this citation to Spoerhase, "Seminar Libraries."

¹⁰⁸"Erster Thesaurus-Prospekt," in Krömer, *WBB*, 193–200, at 193.

The *Archiv* was meant to advance this realization, and to work out what an alternative—collative sight—looked like in practice. The journal was pitched in such terms: the future *Thesaurus*, like other great enterprises, would benefit, Wölfflin said, from the opportunity in advance to make potential contributors “familiar with their duties and to give them practice in harmonious collaboration.”¹⁰⁹ In subsequent years, in as many places as the *Archiv* contributors called home, the *Fragezettel* would serve to calibrate and coordinate the sight of those observing. At the end of the journal’s first year, Wölfflin hailed the fact that “hundreds of philologists had become quickly acquainted with [its] goals and familiar with the work method.”¹¹⁰ Those engaged with the *Archiv*, he wrote, “see today with different eyes, and think otherwise than previously.”¹¹¹ Thanks to his journal and the organization it represented, Wölfflin believed, more philologists were learning the merits of forestry observation. The result was regular access to objects previously elusive: one to which he recurred was the “absence” of a word in a particular portion of the textual evidence. This kind of “negative observation” or “observation of absence” (*Beobachtung des Fehlenden*) was necessary to establish important elements of word history: for example, when a given word seemed to have left active usage.¹¹² But without the exhaustive documentation provided by the *Archiv*, the assertion that a word like *avere* was lacking, e.g., in Cicero’s speeches was liable to be a misleading figment of memory or feel, or the artifact of an incomplete set of excerpts, reflecting the interests of a given excerptor. In a very real sense, something like “absence” gained currency as a readily observable—a *visible*—entity only inside the comprehensive, disinterested frame of collative observation.¹¹³

This fact points us to a general premise that constitutive and collative sight did share—a profound generative tendency, an ability to transform the boundaries of the observer’s “everything.” Thomas Kuhn wrote of the trained physicist’s ability to register the “confused and broken lines” of particle pathways as a “record of familiar subnuclear events” on and against which research is conducted.¹¹⁴ In similar fashion, the constitutive sight of a trained philologist like Halm allowed him to pick out unseen readings in a manuscript that Wölfflin had already combed from top to bottom. The collative sight of the *Archiv*, meanwhile, allowed Wölfflin to link words to patterns of frequency and absence previously unremarked. There is something of the Kuhnian thrill in both: the re-contouring of the “all” that there was to see. But the frisson in each case is distinct. That of the clinic lay in sensory exposure, the firsthand experience of chaos reigning behind neatly constituted text. That of the forestry garden lay in connection to a supersensory network, an observational and information-processing web with nodes not just in Munich, but across

¹⁰⁹Wölfflin, “Vorwort,” 6.

¹¹⁰Wölfflin, “Addenda et Corrigenda,” 573.

¹¹¹Ibid.

¹¹²Wölfflin, “Über die Aufgaben,” 85 (“negativ beobachten”), 102, 105 (“die Beobachtung des Fehlenden”); Wölfflin, “Vorwort,” 4–5; compare “Plan zur Begründung eines Thesaurus linguae latinae,” in Krömer, *WBB*, 187–90, at 188.

¹¹³For the link between exhaustive collection and negative observation, see Wölfflin, “Vierter Jahresbericht,” 319–20; similarly e.g. Theodor Mommsen, “Gutachten über das Unternehmen eines lateinischen Wörterbuchs (1891),” in Krömer, *WBB*, 127–44, at 142.

¹¹⁴Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd edn (Chicago, 1996), 111.

Germany—one that could plot tendencies across time and space and see collectively what a single set of eyes could not. Circumstantially, parabolically, syntactically, the garden turned out to be a place where even a philological observer could learn a thing or two.

Estimative sight

A decade after Wölfflin's forestry remarks, there began the project forever associated with his name. The *Thesaurus linguae Latinae* was to be the most complete lexicon of Latinity ever attempted. Its purview was collative in the widest sense, tracking the development and distribution of every Latin word.¹¹⁵ It was state-backed and collaborative: the five principal academies of the German-speaking world came together to fund and steer the effort—making it, in form, one of a defining set of extra-university research enterprises increasingly prominent in the second half of the nineteenth century.¹¹⁶ Boasting half a million marks of government money and a twenty-year projected timeline, the lexicon would rely on a formidable apparatus—a collection of lexical examples meant, for the literature of several centuries, to be flatly exhaustive: every word, every instance, every text.¹¹⁷ The comprehensiveness enterprised by the *Archiv* was carried here to an entirely new level. Coordinated on a shoestring out of Wölfflin's study, the journal's observation network had looked to deliver complete records, to be sure—but only for the limited number of items listed on the *Fragezettel*. By contrast, the lexical “material” now assembled for the *Thesaurus* catalogued an entire vocabulary from A to Z, filling thousands of boxes with paper slips registering individual instances of words' usages. Numbering four and a half million slips by the fall of 1899, the collection threatened to buckle the shelves at the so-called Bureau in Munich where it was stored and worked into lexicon entries by a staff of paid on-site lexicographers.¹¹⁸ Philologists, it turned out, were not so cheap after all.

But all was not so rosy—in fact, the collative program had begun to raise alarms. Wölfflin's preparatory work with the *Archiv* had sharpened his sense of the problem. His network of slip collectors had delivered, for instance, seven boxes of material documenting the appearances of the preposition *a*, *ab*— an “instructive, that is, terrifying example, insofar as no one can resolve to read through and

¹¹⁵“Plan zur Begründung,” 188.

¹¹⁶The place of the academy in the institutional reorganization of research in this period has emerged particularly in studies focused on Berlin. See, *inter alia multa*, Hubert Laitko, “Die Preußische Akademie der Wissenschaften und die neuen Arbeitsteilungen. Ihr Verhältnis zum ‘Kartell’ der deutschsprachigen Akademien und zur Kaiser-Wilhelm-Gesellschaft,” in Jürgen Kocka, ed., *Die Königlich Preußische Akademie der Wissenschaften zu Berlin im Kaiserreich* (Berlin, 1999), 149–73. For exemplary considerations of the large academy-led project as a genre see Rebenich, *Theodor Mommsen und Adolf Harnack*, 55–93; and, recently, Petra Hoffmann, *Weibliche Arbeitswelten in der Wissenschaft: Frauen an der Preußischen Akademie der Wissenschaften zu Berlin 1890–1945* (Bielefeld, 2011), esp. 55–110; Kahlert, *Unternehmungen großen Stils*.

¹¹⁷“Plan zur Begründung,” 189.

¹¹⁸The slip number is in the *Bericht* of the Thesaurus Commission meeting of 13–14 Oct. 1899, *TLLA*. On the shelves see the *TLLA* binder *Geschäftsführung* I, 144.

work on them.”¹¹⁹ In 1893, therefore, when it came time to craft a proposal for how work on the *Thesaurus* should proceed, Wölfflin coauthored a report (with Bücheler) that advised *against* complete collection. Confronting lexicographers with citations for every appearance of the words they treated, it argued, created impractical situations. In Wölfflin’s own probes, conducted on the basis of *Archiv* slips, a trained Latinist had needed three months for an article on the single verb *abeo*—an unworkable time scale for a project aiming to handle the whole of the language.¹²⁰ The imperative was instead “to leave aside directly during the collection of the material the dispensable ballast.”¹²¹ Several Latin authors would have to be excerpted only selectively to assure the work’s quick progress.¹²² This seemed difficult to reconcile with Wölfflin’s earlier stances on the desirability of disinterested collection and the impossibility of making durable determinations about the linguistically “important.” Indeed, the Wölfflin–Bücheler report admitted that surrender on the point of comprehensiveness would make the *Thesaurus* unable to answer some key collative questions (for example, the “negative” one of when and where the usage of certain words ceased).¹²³

The difficulties were not lost on others associated with the project. Hermann Diels, representing the Berlin Academy in the *Thesaurus* preparations, responded to the report with the concern that it allowed to “prevail right from the beginning the effort to distinguish the important from the unimportant.”¹²⁴ While this would indeed unburden the lexicographer, Diels continued, it would also outfit him with “subjectively colored and incomplete, therefore unscientific [*unwissenschaftliches*] material.”¹²⁵ Wölfflin and Bücheler had suggested that for certain words—the particles—it would be sufficient in most cases to harvest only “the most interesting and characteristic examples.”¹²⁶ Stumping in effect for the disinterested component of collative sight, Diels countered by rejecting—precisely as Wölfflin himself once had—the idea that excerptors would be able to make reliable determinations about what was linguistically significant. “I believe that is impossible first of all,” he said, “since I would not trust myself at least, especially in the case of words as difficult and as little researched as the particles, to hit on the ‘interesting and characteristic’ in whatsoever writer.”¹²⁷ For this and other reasons, he insisted, forgoing completeness at the outset would be “scientifically untenable” (*wissenschaftlich unmöglich*).¹²⁸ He recommended instead a procedure that relied on copying technology to produce a slip for every word of every text through the middle of

¹¹⁹Franz Bücheler and Eduard Wölfflin, “Memorial betr. Thesaurus linguae latinae (1893),” in Krömer, *WBB*, 162–76, at 164.

¹²⁰*Ibid.*, 163.

¹²¹*Ibid.*

¹²²*Ibid.*

¹²³*Ibid.*

¹²⁴Hermann Diels, “Stellungnahme zum Memorial (1893),” in Krömer, *WBB*, 177–86, at 177. On Diels see W. M. Calder III and Jaap Mansfeld, eds., *Hermann Diels (1848–1922) et la science de l’antiquité* (Geneva, 1999), especially (for the *Thesaurus*) the essay by Stefan Rebenich, “‘Mommsen ist er niemals näher getreten’: Theodor Mommsen und Hermann Diels,” 85–142.

¹²⁵Diels, “Stellungnahme,” 177.

¹²⁶Bücheler and Wölfflin, “Memorial,” 165.

¹²⁷Diels, “Stellungnahme,” 177–9.

¹²⁸*Ibid.*, 177.

the second century CE, eliminating the need for choice in the collection process and making much of the work of material collection “mechanical.”¹²⁹

Diels’s support for the collative position won approval, touching off a massive collection program that only exacerbated the difficulties of scale that had concerned Wölfflin. The *Thesaurus* had its millions-strong slip archive, but was vastly overshooting projected allotments for space and time.¹³⁰ Those writing entries, unable to judge what material to use and what to leave, were often—in good forester fashion—making no choice at all. They were passing everything into the lexicon, delivering long articles “in the mistaken impression,” Wölfflin wrote accusingly, “that everything they observed was important.”¹³¹ Concerned by this issue, among others, Wölfflin drafted a 1904 report to the other members of the commission leading the *Thesaurus*.¹³² Here, two decades after his forestry remarks, he cited a prior lament that the *Thesaurus* had come a century too early. The necessary capacity for “linguistic observation” (*sprachliche Beobachtung*) was still not developed, he said—contemporary philologists were not always able to see what mattered (*worauf es ankommt*).¹³³ And mounds of material only blunted their sense. Were the authors of articles to *observe*, Wölfflin urged, they would be able to include the necessary and omit the less important.¹³⁴ Observation would make the articles shorter.¹³⁵

The brand of *Beobachtung* that Wölfflin advocated here differed unmistakably from the one he had pushed as recently as the 1880s. The old shyness about ruling on importance, the wariness of judgment, were discarded in favor of a distinct critical, *estimative* character. Estimative sight appeared to embrace, even reside in, the individual ruling about significance, about which observations were *important*. It recoiled from—or at least aimed quickly to reduce—the massive collections that had been a sure representation of collative comprehensiveness, recalling instead *Sprachgefühl*’s practiced, heuristic, unencumbered instinct for what should be where. Estimation functioned prior to collative sight, or followed in its tracks. It was not the type of sight, crucially, that itself traced the arcs of collation, but rather

¹²⁹Diels divided his conception of the *Thesaurus* workflow into “mechanical” (*mechanisch*) and “scientific” (*wissenschaftlich*) components. The former category, which could be delegated to those without special knowledge, encompassed the work of collection for those texts handled exhaustively. Diels, “Stellungnahme,” 183.

¹³⁰From the beginning, yearly production at the *Thesaurus* lagged behind projections, prompting Wölfflin in 1902, at the close of the third year of production, to note that at least eight extra years would be necessary for completion. See his memorandum “Auch der Thesaurus ...” *TLLA*, [5]. By 1904, one estimate pointed to a deficit of nearly two decades; striking length overages against projections were also diagnosed: see “Erweitertes Votum zum Redaktionsberichte p.1 Oct. 1903,” *TLLA*, 3, 14.

¹³¹Wölfflin, “Erweitertes Votum,” 15.

¹³²The source of some of what follows is an undated manuscript entitled “Die Wissenschaftlichkeit, und die Breite,” UB, NL 93: 65. Similarities in wording indicate that it is a draft of remarks on the same theme on pages 14–15 of a Wölfflin memorandum entitled “März 1904” (UB, NL 93: 65; also *TLLA*).

¹³³Wölfflin, “Die Wissenschaftlichkeit.” See also “März, 1904,” 15.

¹³⁴Wölfflin, “Die Wissenschaftlichkeit”: “Hätte der Vf. des Artikels [i.e. *absolvo?*] beobachtet, so hätte er besser geordnet ... und minder Wichtiges weglassen können.”

¹³⁵*Ibid.*: “Wenn die Lexikographen sich zur Aufgabe stellten in jedem Absatze eine größere od. kleinere Beobachtung zu machen, dann würden ihre Artikel gewaltig zusammenschumpfen, was kein Unglück wäre.”

that which sensed in advance which arcs were worth tracing, or, in retrospect, which of the traced arcs deserved attention and analysis. Estimative sight, in other words, did not take the daily measurement. It decided which measurements were to be taken, and how they should be combined. It was the sight not of the forester of 1882, but of the directorate to which the forester passed his material.

How was a philologist to learn to see estimatively in the way that Wölfflin proposed? An early role was accorded, once again, to the *Archiv*: working with the submitted *Fragezettel* slips provided practice at distilling large amounts of lexical material, a task that hinged on an ability “to distinguish the essential from the non-essential.”¹³⁶ It was a shopping basket full of *Archiv* slips that helped prepare Wölfflin’s former student Oskar Hey for a job with the nascent *Thesaurus* in the 1890s: by writing a test lexicon article, he won some familiarity with his new occupation.¹³⁷ As the *Thesaurus* gained footing, Wölfflin clearly believed that the university, too, could provide specialized training. Addressing to the Bavarian ministry terms for installing an editor—a *Generalredaktor*—to run the lexicon, Wölfflin justified linking the position with the Munich university faculty in part “so as to train, in lexicographical exercises, older or younger personnel for the work.”¹³⁸ But in the end, no such exercises materialized.¹³⁹ That left the training ground offered by the Bureau itself: the rooms in the Munich Wilhelminum, seat of the Bavarian Academy, where the *Thesaurus* material had been brought together by the end of 1899.¹⁴⁰ Here a scholarly staff that comprised eight “assistants” at the turn of the century, in addition to a secretary and *Generalredaktor*, began looking to turn material slips into printed lexicon articles.¹⁴¹

Since it was prohibited to take the *Thesaurus* slips elsewhere, the Bureau was necessarily the physical site of the estimative observation found lacking in the lexicon’s early years.¹⁴² The difficulties would have been particularly disappointing, because Wölfflin had touted the training benefits of assembling an on-site staff, envisioning an office environment where “assistants are able to teach each other in daily exchange and get the advice of the director.”¹⁴³ In an early Bureau work plan, he had the *Generalredaktor* making daily rounds to the assistants to offer counsel, conducting instructional hours for the staff, and entering guiding notes in an interleaved exemplar of printed articles meant for staff perusal.¹⁴⁴ At the outset, some general instructional measures along these lines did occur.¹⁴⁵ But they fell

¹³⁶Eduard Wölfflin, “Dritter Jahresbericht der Redaktion,” *ALL* 3 (1886), 595–8, at 597.

¹³⁷Oskar Hey, “Aus den Anfängen des Thesaurus linguae Latinae,” in Krömer and Flieger, *Thesaurus: Geschichten*, 167–72, at 168.

¹³⁸Wölfflin report of 7 June 1898, Bayerisches Hauptstaatsarchiv, MK 11769, vol.1.

¹³⁹Wölfflin to Diels [16 Jan. 1904?], StBB-PK, Sammlung Darmstaedter, 2b 1875 Wölfflin: “Ich stellte mir vor, daß [der Generalredaktor Friedrich Vollmer] in seinen Uebungen Schüler heranziehen werde ... Allein solche Uebungen hat V. weder angekündigt noch gehalten[.]”

¹⁴⁰On the Bureau (*Büro*) see Theodor Bögel, “Beiträge zu einer Historia Thesauri linguae Latinae,” in Krömer and Flieger, *Thesaurus: Geschichten*, 49–53, floor plan of the rooms at 52.

¹⁴¹The *Bericht* of the 13–14 Oct. 1899 Thesaurus Commission meeting (*TLLA*) lists eight assistants, which—with a single substitution—provides a snapshot of the Bureau at the beginning of 1900.

¹⁴²The prohibition is at II(8) in the (*TLLA*) protocol of the Oct. 1899 commission meeting.

¹⁴³Eduard Wölfflin, “Vorschläge Leo. Verzettelung + Excerption,” 25 May 1898, *TLLA*, 2.

¹⁴⁴Eduard Wölfflin, “Arbeitsplan,” 5 Oct. 1899, *TLLA*, 5–6, 8.

¹⁴⁵See the report of 30 March 1900, *TLLA* binder Geschäftsführung I, 144–8, at 146–7.

quickly by the wayside: within months, the production schedule made it “totally impossible” for the *Generalredaktor* to do a detailed check of articles in manuscript.¹⁴⁶ Wölfflin complained in 1904 that the planned “conferences” of assistants and editor were not happening, depriving the former of their “only” opportunity to hone their observational ability.¹⁴⁷ Poor incentives only made matters worse: for instance, honoraria for assistants were being assessed based on the length of what they wrote—a fact that allegedly disinclined them to the leanness of estimation.¹⁴⁸ Then, too, the Bureau represented a kind of *tertium quid*—neither *Gymnasium* nor university—on the map of academic employment, and some assistants were understandably inclined to direct their attention in ways that could lead to more familiar or stable employ. Thus Wölfflin pointed to a lexicon article made overlong in part by the fact that the author had begun it with the intent of turning it into the published habilitation required for university teaching.¹⁴⁹ It was one thing, clearly, to fill a Bureau with philologists and give them material that would have done a forestry official proud. It was another thing to instill the kind of sight that could render that material into a lexicon.

Two pounds of dissertation

One might ask why Wölfflin did not foreground estimative observation more resolutely in the first place. Perhaps, as I have indicated, the arrival of thousands, then millions, of slips made the urgency of the directorate’s selective task more palpable. Or perhaps he meant for estimative sight to have its due all along—the suggestion in Wölfflin’s 1882 forestry remarks was to observe like the official in the garden, but it was, after all, the directorate that managed publication and praise. In this case, the very blurriness of the account, the vagueness of its prescription (whether to emulate forester, directorate, or both?), is worth noting, because in the end there was no easy answer to the question of how to prioritize—and sometimes even to disambiguate—foresters and directors, collative and estimative sight. Consider the quip of a contemporary Göttingen philology student named Arnold Heeren, who, in writing his dissertation, employed a method that he had lifted from the material-gathering methods of the *Thesaurus*—collecting passages with place names in a slip index. As his material piled up, Heeren could joke to his friends that he had “two pounds of dissertation.”¹⁵⁰

Two pounds of dissertation. The joke hinges on the very thin line between absurdity and reality. On the one hand nothing was more absurd than suggesting that a dissertation was just a mound of slips, or that it could be assessed simply by weighing. The world of nineteenth-century *Wissenschaft* had a whole arsenal of

¹⁴⁶Friedrich Vollmer to Bücheler, 3 April [May?], 1900, *TLLA* binder Geschäftsführung I, 150.

¹⁴⁷Wölfflin, “März 1904,” 14–15: “... viel wichtiger als alle Stoffmasse ist die Beobachtung, an der es allerdings noch vielfach fehlt; diese könnte aber nur durch Konferenzen, wie sie einmal versucht worden sind, gefördert werden.”

¹⁴⁸See Bögel, “Beiträge,” 60 n.1.

¹⁴⁹Wölfflin to Diels [16 Jan. 1904?], StBB-PK, Sammlung Darmstaedter, 2b 1875 Wölfflin: “Ursprünglich sollte der Artikel Augustus die Habilitationsschrift für [Walter] Otto werden: eine Verquickung der Interessen, welche nur schaden kann. Otto führte nun seine wissenschaftliche Untersuchung zu Ende + wir zahlen die 15 Monatsgehälter + müssen vielleicht 30 Columnen liefern!”

¹⁵⁰Bögel, “Beiträge,” 31.

abuse for fulminating against just this sort of mistake. Heeren's fixation on the weight of his material was superficial (*äusserlich*): it elevated mere collection (*Sammelarbeit*)—a “mechanical” operation—to the level of the “scientific” (*wissenschaftlich*), the preserve of the scholar.¹⁵¹ On the other hand, sometimes the two ran uncomfortably close together. Whether it was more a feat of material collection or of scientific insight to observe that *avere* occurred predominately in Cicero's letters was hard to say. And in some cases, agreement on such points was not to be had. Faculty and government documents show that the work of Carl Weyman, candidate to replace Wölfflin at Munich, was said during vetting to be not only *äusserlich* und mechanical, but also *matériel*, formalistic, purely bibliographic, formulaic, a “still life,” small, pedantic, and shoddy in method.¹⁵² But not all the deliberators felt this way. Weyman received a professorship.¹⁵³ Whether he was a measuring official or a director, and indeed where his work stood in the firmament of sight and scientific contribution, was not so perfectly clear.

Something of the same ambivalence was written into the *Thesaurus* from the outset. “New in our methods,” read the work's Latin preface, composed by Bücheler in 1900, “is especially the fact that having understood *Thesaurus* in a double sense, we distinguish this book, which we are just now about to publish, from the slips and other resources, which, stored and hereafter increased ... will remain for perpetual use.”¹⁵⁴ Were the printed *Thesaurus* ever to prove insufficient, the preface continued, the collection of *Thesaurus* slips would be there to make good the lack.¹⁵⁵ The implication for our purposes is clear enough: the lexicon sought to embody a kind of double vision, at once a contingent, selective set of volumes produced by the estimative eyes of a given lexicographer in the here and now, and an exhaustively documented, disinterested, and highly durable collative material preserved, in keeping with the era's archival bent, for some directorate future.¹⁵⁶ But the double identity, qua scholarly book and qua collected material, coupled with the conferral of immortality on the latter, was uneasy. It raised questions about just what parts of themselves the assistants in the Bureau were meant to favor: were they, in the end, more like collectors and stewards of material or more like its estimators and processors? Wölfflin, by the time the *Thesaurus* came underway, clearly inclined in the latter direction. Others leading the project did not. One finds Bücheler, on the commission overseeing the lexicon, warning that those authoring articles should limit as much as possible their own exposition while increasing their citations from the material: “for this will endure the

¹⁵¹See n. 129 above. Likewise Hey's description of the “mechanical procedure” employed to collect *Thesaurus* material: the copying of texts that the procedure demanded could be given to those “from the intellectual Proletariat.” Hey, “Aus den Anfängen,” 168, 170.

¹⁵²Gabriel Silagi, “Ludwig Traube und der Münchener Lehrstuhl für Patristik (Mit einem Exkurs: Zur *Thesaurus*-Frage),” *Aevum* 73/3 (1999), 837–90. The adjectives are drawn from a list recounted by the Munich professor Joseph Schick at 871.

¹⁵³Had ministerial elements not favored Weyman (see Silagi, 840–42), the resolution might not have been so felicitous. Still, there were faculty, among them Wölfflin, who contested the dismissive characterization of Weyman's academic record.

¹⁵⁴*Thesaurus linguae Latinae*, vol. 1 (Leipzig, 1900), [iii].

¹⁵⁵*Ibid.*

¹⁵⁶For the archival impulse see Daston, “The Immortal Archive.”

longest and most securely in the printed Thesaurus—the stream flowing from the sources,” whereas the remarks of lexicographers were all too prone to “appear as ballast in the future.”¹⁵⁷ Likewise, the *Generalredaktor* announced that the “first purpose” of the *Thesaurus* was “to bring the stones together, so that others can build with them.”¹⁵⁸ Wölfflin’s exhortations notwithstanding, assistants could be forgiven for wondering if they were not forestry officials after all.

The tension of a dual identity was a feature of contemporary research that resonated both inside and outside the Bureau. We have heard its echoes above in student jokes and faculty deliberations. There were versions of it, too, in the celebration of the scholar who could be at once sovereign “king” and subservient “carter” (*König/Kärner*).¹⁵⁹ We see it in the acknowledgment by the research organizer par excellence Adolf Harnack that *Wissenschaft* was inherently individual and yet always entailed some level of collaboration—just “one of the paradoxes that surround our mental life, as if with an iron ring.”¹⁶⁰ We witness it in Wölfflin, for example, in his stance on matters such as time management: professedly against regimentation, and yet rigidly attentive to the hour. He did not, he said, wish for the Bureau to imitate the practice of writing a lexicon by the clock, yet this very same man emphasized the utility of statistics tracking the productivity of *Thesaurus* assistants and of a comparative “productivity table” (*Fleiss-Tabelle*).¹⁶¹ In short, the vexed dynamic that existed between Wölfflin’s forester and his directorate, his collative and estimative sight, displayed itself on many levels of the intellectual landscape. The crux is that *both* sublime judgment and brass-tacks basics were wanted—at once the free stroke of the individual and the reliable march of the many. Just like the massive material, at once a boon and a hindrance at the foundation of lexical labors, both a collaborative ethic and a regimented quasi-industrial schedule were embraced *and* abhorred. They underpinned even as they undermined.

Conclusion

What was philological observation? I have tried to profile some of its many modes here: the constitutive sight crucial to Wölfflin’s early, manuscript-based editorial efforts, the collative that carried him to prominence, the estimative of an elderly man worried that an eagerly pursued project would not know a timely consummation. I have tried, too, to show a bit of the choreography that existed *between* modes: how constitutive sight could resolve or dissolve the very surface on which collative sight was exercised; how the desire for quick and decisive estimation could arise

¹⁵⁷Bücheler to Vollmer, 26 Dec. 1899, BSB, Vollmeriana I: Bücheler, 21: “Denn dies wird am gedruckten Thes. den längsten u. sichersten Bestand haben, der aus den Quellen fließende Strom, während die Darlegungen des Schreibers, wenn sie nicht Zweifellosestes u. Wichtigstes neu vortragen können, notwendig in Zukunft als Ballast erscheinen müssen.”

¹⁵⁸Friedrich Vollmer, “Vom Thesaurus Linguae Latinae,” *Neue Jahrbücher für das Klassische Altertum, Geschichte und Deutsche Literatur* 17/1 (1904), 46–56, at 52.

¹⁵⁹On the *König/Kärner* ideal see Katharina Manteufel, “A Three-Story House: Adolf von Harnack and Practices of Academic Mentoring around 1900,” *History of Humanities* 1/2 (2016), 355–70, at 365–6; Rebenich, *Theodor Mommsen und Adolf Harnack*, 81, 621–2.

¹⁶⁰Adolf Harnack, “Vom Großbetrieb der Wissenschaft,” in Harnack, *Aus Wissenschaft und Leben*, vol. 1 (Giessen, 1911), 10–20, at 10–11.

¹⁶¹Wölfflin, “Erweitertes Votum,” at 5, 6, and 23; “März 1904,” 10–11 (with 3–4).

from the assiduously collative eye; how estimative concessions could in turn incite the suspicion of those (like Diels) whose notions of the “scientific” tended toward the collative. Recent scholarship has pointed to the university seminar as an important training area for the philological observer.¹⁶² Wölfflin, certainly, would not have disagreed—given the choice, he would have welcomed lexicographical exercises in the university and even a fully fledged “lexicographical seminar” to train *Thesaurus* assistants.¹⁶³ But one of the advantages of letting him show us about is precisely that we are introduced to a wide array of venues and instruments for the development of trained sight, many of them at some remove from university and seminar: Milanese libraries, *Fragezettel* that could turn a *Gymnasium* teacher’s desk into a node in a national observation network, a scholarly journal, a lexicon Bureau full of slip boxes. The scenes of philological observation were many.

It was a practice, too, that could find itself in other sectors of the scientific landscape, one that could reveal commonalities, for instance, between philologists and foresters. To delve into all of Wölfflin’s “crossover” allusions would be the work of another article.¹⁶⁴ But for the sake of conclusion, let us pause briefly to examine one further resemblance, which Wölfflin noted in an article published the very same year as his forestry remarks. The colorful comparison—this time to national statistics—appears in his programmatic essay “On the Tasks of Latin Lexicography.” “Just as one looks for and finds information about the vital questions of a nation in the tables of a census and the statistician’s figures and percentages,” Wölfflin wrote, “we will be in a position to learn no less from the counting and comparison of example citations of different words.”¹⁶⁵

Once more, we do well to appreciate, if only briefly, the proportions of the allusion. The *Statistik* to which Wölfflin gestured was, in the terms of a textbook published in 1895, research of the multitude through “exhaustive mass observation of its elements in number and extent.”¹⁶⁶ Brought to bear practically and politically in the form of the census, it was a way for the state to measure its might and undergird its statecraft—a massive coordinated mobilization of people and paper towards a quantitative collative result, the material and logistical components of which have been set out in recent investigations of the Prussian case.¹⁶⁷ Twenty-nine million Prussian counting cards meant for centralized processing in Berlin, 14,200 intermediate human “counters” employed in Bavaria—these were some of the dimensions of “mass observation” in the first census of the German empire, a decade before Wölfflin’s census-table comparison.¹⁶⁸ It is not absurd to consider the *Thesaurus* lexicographers shuffling their hundreds, thousands, millions of

¹⁶²Spoerhase, “Seminar Libraries,” esp. 112–15; Klausnitzer, “Gemeinsam einsam frei?” esp. 90–92, 95–9.

¹⁶³For the “lexicographical seminar” see Oskar Hey, “Vom ‘Thesaurus linguae latinae,’” *Vossische Zeitung*, 7 Nov. 1895, n.p.

¹⁶⁴See n. 65 above.

¹⁶⁵Wölfflin, “Über die Aufgaben,” 84.

¹⁶⁶See Georg Mayr, *Statistik und Gesellschaftslehre*, vol. 1 (Freiburg im Breisgau and Leipzig, 1895), 5.

¹⁶⁷See Christine von Oertzen, “Die Historizität der Verdatung: Konzepte, Werkzeuge und Praktiken im 19. Jahrhundert,” *NTM* 25 (2017), 407–34; von Oertzen, “Machineries of Data Power: Manual versus Mechanical Census Compilation in Nineteenth-Century Europe,” *Osiris* 32 (2017), 129–50.

¹⁶⁸For the Prussian figure see von Oertzen, “Die Historizität der Verdatung,” 420; for the Bavarian counters see Georg Mayr, *Die Bayerische Bevölkerung nach Geschlecht, Alter und Civilstand auf Grund der Volkszählung von 1871* (Munich, 1875), 15.

lexicographical slips with the census manipulations of millions of German “counting slips” and “counting cards” in mind.¹⁶⁹ It was said of the *Thesaurus* that so big a project could only be realized in a state-organized effort. It was further pronounced, proudly, that if it could be done at all, it would be done in Germany, the world’s leader in the coordination of scientific work.¹⁷⁰ Thus the philological observers at the *Thesaurus* and the statistical observers at work on the census not only conducted analogous kinds of mass observation—tabulating the lives of words and people—using parallel paper technologies. They were alike, too, in sifting with their hands tokens of national power and national prestige, tesserae of a grand mosaic sponsored by the state and constitutive of its grandeur. Philological observation could appear muscular indeed.

And yet we have shown also, I think, that it could be an unstable phenomenon, one liable to be overturned by its own rise. Wölfflin had wished to open a lexical period and to promote the collative observations of the lexicographer, and he had done so, achieving first with the *Archiv*, then with the *Thesaurus*, prominent platforms from which to pursue a lexicography that was not, as he put it, mere “mechanical work” or a “maid” to other disciplines.¹⁷¹ But the very tools created by and for collative sight threatened to undercut the lexicographers meant to wield them. Not only did the slips pose the risk, as we have seen, of paralyzing their handlers, but according to Wölfflin they also threatened to steal the spotlight, as if it were the unprecedented material collection and not its analysis by the lexicographer that deserved scientific laurels. Thus in the *Thesaurus*’s collection stage, Wölfflin felt compelled to warn that material on slips was not the acme of the enterprise. “It’s not helpful,” he argued, “to instill ... the idea that all wisdom stands already on the slips, and that [the lexicographers] have only to press the juice out of the grapes offered to them; on the contrary they need to be fortified in the belief that they, as the highest instance, carry the greatest responsibility.”¹⁷² To his mind, colleagues verged on treating lexicographers as mere copyists.¹⁷³ They failed, in other words, to realize that the principal locus of scholarly value was not the material but the estimating scholar and his supra-material product. The staggering amount of slips not only blunted the sense of the lexicographers; it also confused others’ assessment of their worth.

The rising and undermining dynamic implied here was part of a period phenomenon in its own right—a sort of collective *fin de siècle* second thought about capitalizing on organizational and observational ambitions that Lorraine Daston has compellingly diagnosed as a “melancholy” stalking the era’s formidable scientific achievements.¹⁷⁴ Yet again, the reflections around a narrow philological

¹⁶⁹On the *Zählblättchen* and *Zählkarten* of the Prussian census see von Oertzen, “Die Historizität der Verdattung,” 415–25; von Oertzen, “Machineries of Data Power,” 136–48. For the making and manipulation of the *Zählblättchen* in Bavaria see Mayr, *Die Bayerische Bevölkerung*, 320–28.

¹⁷⁰The pronouncements are Mommsen’s. Mommsen, “Gutachten über das Unternehmen,” 140.

¹⁷¹Eduard Wölfflin, “Zwei Gutachten über das Unternehmen eines lateinischen Wörterbuches (1892),” in Krömer, *WBB*, 145–56, at 147; Wölfflin, “Die neuen Aufgaben,” 95.

¹⁷²Eduard Wölfflin, “Die Form der Lexikonartikel ...,” 23 May 1896, *TLLA*, 25–6.

¹⁷³*Ibid.*, 36.

¹⁷⁴Daston, “The Immortal Archive,” 175–6; Lorraine Daston, “When Science Went Modern,” *Hedgehog Review* 18/3 (2016), 18–32.

concern—how to generate a Latin lexicon—were caught up in a much more thoroughgoing set of interests and anxieties. Sven Dierig has given us a brilliant study of how the Berlin physiologist Emil Du Bois-Reymond built a laboratory empire in lockstep with an industrializing city only to find himself confronted with the nostalgic impression that the industrial regime had not simply amplified the craftsman–scientist’s agenda, but threatened to drown it out altogether.¹⁷⁵ It has been remarked how the contemporary rush of reproducible slides, the ready supply of images at century’s end, at once enhanced the capabilities of art historians and threatened to reduce their status, at worst “relegating the lecturer to a selector of slides and a speaker of captions,” and leading the critic to “begin to wish for a little less to look at.”¹⁷⁶ It has been shown how German foresters came to pay for certain elements of their own Bureaucratized style of observation, abandoning efficiencies of a particular model of state-compatible sight for a renewed embrace of “nature,” and with it some of the very complexities that they had sought to control.¹⁷⁷ Philologists, too, had their collective second thoughts. The very success of the organizational agenda of a towering figure like Mommsen would help advance the corrosion of the comprehensive approach to Roman antiquity that he espoused.¹⁷⁸ In Wölfflin’s case, collative sight had helped guarantee the material he needed to usher in the “lexical period.” But when the material loomed too large, an observational adjustment—elevating estimative sight, with its elements reminiscent of the old *Sprachgefühl*—was needed to maintain the standing of the flesh-and-blood philologist.

Acknowledgments. This article could not have been written without the generous assistance of Manfred Flieger and the staff at the *Thesaurus linguae Latinae*, and of those at the Abteilung Handschriften und Alte Drucke of the Universitätsbibliothek Basel. I wish to thank also Anthony Grafton, Michael Gordin, and *Modern Intellectual History*’s anonymous reviewers for their comments on earlier versions.

¹⁷⁵Sven Dierig, *Wissenschaft in der Maschinenstadt: Emil Du Bois-Reymond und seine Laboratorien in Berlin* (Göttingen, 2006), esp. 15–16, 142–4, 170–75, 257–61.

¹⁷⁶See Fawcett, “Visual Facts,” 458.

¹⁷⁷H. E. Lowood, “The Calculating Forester: Quantification, Cameral Science, and the Emergence of Scientific Forestry Management in Germany,” in Tore Frängsmyr, J. L. Heilbron, and Robin E. Rider, eds., *The Quantifying Spirit in the Eighteenth Century* (Berkeley, 1990), 315–42, at 342; with exposition in Scott, *Seeing Like a State*, 11–52.

¹⁷⁸See Rebenich, *Theodor Mommsen und Adolf Harnack*, 39, and his elaboration of the point in subsequent essays.