

SPECIAL ISSUE

## Bureaucracy as Knowledge

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In this introduction we explain the overall approach taken in this special issue. It is the collective result of a working group of historians who focus on very different periods and regions, such as the medieval Latin West, Spanish America, Qing China, and the Ottoman Empire. We show, firstly, how bureaucracy has worked as a term of critique and how, in fin-de-siècle Europe, it became an analytical concept used for world-historical comparison with a strong Western bias. Against this background, we then develop our group's new approach to analyzing bureaucratic procedures as knowledge processes, a method we term "bureaucracy as knowledge." This approach builds on the history of science and technology and aims to recover actors' ways of organizing social and material worlds rather than judge them by modernist, Western standards. Third, we discuss if there is such a thing as "bureaucratic knowledge" sui generis and, based on the experience of our authors, suggest ways of studying plural knowledges that cut across different domains. Finally, we argue that historical bureaucracies merit close investigation because they have demonstrated the power to both make and break social and material worlds. The approach proposed in this issue can therefore help make better sense of the dynamics by which bureaucracies exert such power in situations otherwise studied by political, cultural, and social historians.

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Bureaucracy was meant to be a joke. In 1764, the journalist Melchior von Grimm reported that a strange disease was going around France: an obsession with regulation called "bureaumania." The French, Grimm explained mockingly, turned this disease into "a fourth or fifth form of government, under the name of bureaucracy."<sup>1</sup> In this first appearance in print, bureaucracy was the mortal enemy of reason and, without question, an aberration of the mind.<sup>2</sup> The word itself, a portmanteau that creaked at the joint (*le bureau + κρατία*), captured this well. What could be more laughable than talking about the rule of office furniture and placing pathetic little clerks in the company of tyrants and kings? Yet bureaucracy was a joke that touched on some bitter truth. When the writer Louis-Sébastien Mercier picked up the old pun after the demise of the French monarchy, the tone had become exasperated: "This mania for the quill, which dates to Monsieur Colbert," he wrote in 1799, "has only reached such a scandalous degree over the last three years. Clerks, papers, details have absorbed everything."<sup>3</sup>

Born as a *bon mot*, bureaucracy has made its career both as a term of critique and as a concept. It has served to mock and to model, to provide explanations and to vent indignation. Coiled up in the word are over two hundred years of political deliberation and over one hundred years of social analysis, most

<sup>1</sup> Grimm, *Correspondance littéraire*, 6:30 (our translation).

<sup>2</sup> Here, *Bureaucratie* was being pitted against *physiocratie* (or rule of nature), a rationalist approach to political economy that was developed by reading about, and misunderstanding, Chinese agricultural policies. Jacobsen, "Physiocracy," 12–34.

<sup>3</sup> Quoted in Kafka, *Demon*, 82. Jean-Baptiste Colbert (1619–1683) was minister of state and controller of finances under the French King Louis XIV.

prominently pursued by Max Weber and his followers. The thing itself may be humdrum, but rarely has the word been used without affect. Today, critics worry that data-driven companies and social media make us fill out more forms and harvest more data than any state has done before, while organizations such as the World Bank, the International Monetary Fund, and the International Organization for Standardization pull strings in the background.<sup>4</sup> These concerns are resonant with a recent outpouring of historiography on empires, companies, and religious institutions in which data collection, information processing, and asymmetries of knowledge take center stage.<sup>5</sup>

In this collection, we use “bureaucracy” deliberately because it allows us to challenge modernist notions of the term when studying the history of entities such as churches, companies, and states. We understand bureaucracies as socio-material structures in perpetual motion, which constantly adapt their procedures to meet shifting goals as they regulate state, economic, or religious affairs. The chapters in this issue analyze such procedures by placing the focus on their epistemic dimensions. They employ an approach that has been used to historicize science and technology and analyze bureaucratic actions as knowledge practices. Aiming to recover actors’ ways of organizing the social and material worlds, this special issue examines historical bureaucracies on their own terms. What were the concepts and the cognitive practices that underpinned bureaucratic rule in historically specific settings? The following nine articles respond to this question in tightly argued case studies, bringing a broad range of historiographies in the conversation with each other. They discuss the medieval Latin West, Chosŏn Korea, Spanish America, the Dutch East India Company, the Ottoman Empire, Saxony, Qing China, Prussian colonial expansion into Poland, and German New Guinea. Together, they make the compelling case that understanding bureaucracies in the past is best done by attending to the knowledge processes they have enabled and through which they have been sustained.

In this introduction we will first explain how bureaucracy has worked as a term of critique, and how around 1900 it became an analytical concept used for world-historical comparison. Next, we will lay out our own approach of studying socio-material structures that regulate human life by attending to their procedures as knowledge processes. We term this approach “bureaucracy as knowledge.” In Section 3, we ask if there is such a thing as “bureaucratic knowledge” *sui generis* and suggest ways to study plural knowledges that historians encounter once they venture beyond the once well-delimited realms of science and scholarship. Finally, in Section 4, we argue that historical bureaucracies merit close investigation because they have demonstrated the power to both make and break social and material worlds. The method proposed here can therefore help make better sense of the dynamics by which bureaucracies exert such power. Taken together, the articles do not seek to contribute to a world history of bureaucracy. Rather, we aim to enrich the emerging field of the history of knowledge and, at the same time, demonstrate how historical epistemology (an approach developed primarily by historians of science) offers a productive new approach to areas otherwise well known to political, social, and cultural historians.<sup>6</sup>

## Bureaucracy as Critique and Theory

Born from French *esprit*, bureaucracy developed a particular power as a term of critique. Conservative reformers and revolutionary liberals, libertarians and Leninists, anarchists and nationalists have all used the term to condemn structures that alienate governments from electorates, citizens from their nation, human being from human being, workers from their work, investors from their dividends.<sup>7</sup> The term soaked up an older European discourse on Oriental despotism to express discomfort with something larger than human life, an ominous force, an ill-defined enemy that is distinctly modern.<sup>8</sup> For Theodor Adorno and Max Horkheimer, an “administered world” was one of the dark shadows of the Enlightenment.<sup>9</sup> For Hannah Arendt, the Shoah was not brought about by sadists and psychopaths but by papershufflers.<sup>10</sup> For right-wing nationalists from Greece to Greenwich, the European Union is a monster composed of “unelected

<sup>4</sup> For references, see the following section.

<sup>5</sup> Head, *Making Archives*; Brendecke, *Empirical Empire*; Dover, *Secretaries and Statecraft*; Elman, *Civil Examinations*; Rule and Trotter, *World of Paper*; Raman, *Document Raj*; Friedrich, *Lange Arm Roms*; Soll, *Information Master*; Ogborn, *Indian Ink*; Brendecke, M. Friedrich, and S. Friedrich, *Information*; Gardey, *Écrire*; Desrosières, *Politics of Large Numbers*; Yates, *Structuring the Information Age*; Higgs, *Information State*; Becker and Clark, *Little Tools*; Scott, *Seeing Like a State*; Bayly, *Empire of Information*; Porter, *Rise of Statistical Thinking*.

<sup>6</sup> Rheinberger, *Historicizing Epistemology*; Nasim, “Was ist historische Epistemologie?”

<sup>7</sup> Kafka, “Hunting the Plumed Mammal”; Wunder, “Bürokratie”; Kamenka and Krygier, *Bureaucracy*.

<sup>8</sup> Minuti, “Oriental Despotism”; and Wunder, “Bürokratie,” 285.

<sup>9</sup> Horkheimer, *Verwaltete Welt?*, 28–30; Horkheimer and Adorno, *Dialektik der Aufklärung*.

<sup>10</sup> Arendt, *Eichmann in Jerusalem*. See also Lozowick, *Hitler’s Bureaucrats*; and Bauman, *Modernity*.

bureaucrats.”<sup>11</sup> For leftist critics like David Graeber, we long ago arrived in an “era of total bureaucratization” where Facebook, smartphone banking, Amazon, PayPal, and countless handheld devices “reduce the world around us to maps, forms, codes, and graphs” while “genuinely planetary bureaucratic institutions” run the real world in the background.<sup>12</sup> The old French pun, with its cognates and synonyms in various European languages (*бюрократия*, *υραφειοκρατία*, *burograzia*, *Amtsstubenherrschelei*), has channeled indignation against a mode of governance that seems inhumane, illegitimate, and steadily on the rise. It has occasioned political inquiry and sometimes stirred up action and reform. Bureaucracy is still used as a term of political deliberation, but the critique it allows takes strange forms, not least because the term itself is highly ambivalent, being as it is a vexing image of modern organization.<sup>13</sup>

Bureaucracy as theory has flourished since the nineteenth century.<sup>14</sup> Prompted by a desire to critique yet also seeking distance from political debate, social scientists and historians have transformed the term into a tool that serves scholarly knowledge production. As such, it has mobilized research in comparative sociology and world history. Those who employ it as an analytical term usually adopt Max Weber’s “laundry list” approach: bureaucracies can be distinguished from other forms of domination because they have a hierarchical organization with fixed areas of responsibility; use paper-based, rule-bound communication; employ qualified, salaried, full-time staff; and have office spaces that are separated from the homes of their employees.<sup>15</sup> Historical states, companies, or churches have been measured against this ideal type, which Weber termed bureaucratism. He was explicit about his intention that the term be applicable to all eras and areas of human history but designed it to explain what was closest at hand. The Prussian civil service fits bureaucratism like a glove because it helped Weber to define it: it was hierarchical, had clear chains of command, and so forth. In other words, Weber’s ideal type is arguably a sublimated version of the Prussian Railway Administration around 1900.<sup>16</sup>

Weber’s typology of domination was itself part of the complex global history of comparative analysis. Governments, administrators, scholars, and reformers around the world were prompted to use such an analysis by conflicts that were understood as violent struggles between civilizations and their administrative systems, such as the Sino-Japanese War (1894–95), the Second Boer War (1899–1902), the Russian Revolution (1905), the Russo-Japanese War (1904–1905), and the Xinhai Revolution in China (1911).<sup>17</sup> Weber became deeply absorbed in the turmoil in Russia and kept himself abreast of current affairs in China, mostly through the writings of the diplomat Otto Franke (1863–1946), who had served as a translator during the hostile take-over of Jiaozhou Bay (胶州湾) in 1897 and its transformation into a German colony the following year.<sup>18</sup> Franke also reported on the imperial court in Beijing, which entered a hot phase of reform in 1905.<sup>19</sup> China’s efforts to change education, the military, government, and public administration had led its high officials to visit various parts of the world, but, according to Franke, they considered fast-industrializing Germany the most important of all countries to see.<sup>20</sup> Non-Western observers recognized the promise of bureaucracy (and, after the Great War, also its dangers), while their own forms of governance were systematically disqualified in Western discourse.<sup>21</sup>

Bureaucracy as theory was the product of European imperialism in more than one way: as other imperialist theories, it had served or resulted in scholarly gatekeeping. Improved communication around 1900 helped shuttle facts about non-Western societies to German newsrooms, studies, and lecture halls. Weber used such information to work out what the West had and the Rest did not. To his mind, this included science, harmonic music, parliaments, cities, political parties, and capitalism.<sup>22</sup> This perspective infused his methodology. For example, he wrote in a letter of 21 June 1914 to the historian Georg von Below, “that which was specific to the medieval town ... can only be developed by determining what other cities (ancient,

<sup>11</sup> Good, *Attitudes*.

<sup>12</sup> Graeber, *Utopia*, 35.

<sup>13</sup> Du Gay, *In Praise of Bureaucracy*; Cancik, “Zuviel Staat.”

<sup>14</sup> Wunder, “Bürokratie”; Cancik, “Zuviel Staat,” 6–7.

<sup>15</sup> For a compilation of Weber’s criteria, see Derlien, Böhme, and Heindl, *Bürokratietheorie*, 19–20.

<sup>16</sup> Süle, *Preußische Bürokratietradition*.

<sup>17</sup> Karl, *Staging the World*.

<sup>18</sup> Weber, *Zur russischen Revolution*; Weischenberg und Kaesler, *Max Weber*. For Franke’s role in Jiaozhou Bay, see Steinmetz, *Devil’s Handwriting*, 53.

<sup>19</sup> Franke, “China auf dem Wege.”

<sup>20</sup> Franke, “Die chinesische Kommission.” For the tradition of such inquiries into foreign countries, see Huangfu Day, *Qing Travelers*.

<sup>21</sup> For East Asia, see Tang, *Global Space*; Kwong, *Mosaic*; Pyle, “Meiji Conservatism”; Gordon, *Modern History of Japan*. See also Dykstra, “Crises of Competence,” and Wang, “Chosŏn’s Office of Interpreters,” this issue.

<sup>22</sup> Weber, *Lebensbild*, 349.

Chinese, Islamic) *lacked*.<sup>23</sup> Like many other scholarly projects of the time, Weber's interests were global in a biased, inward-looking way because he wanted to explain what he perceived to be unique achievements of Western rationality. He transformed the Prussian Civil Service into an ideal type, which then served as the basis for studying cases from the Middle Kingdom of Egypt to the Middle Kingdom of China. Ever since, bureaucracy as theory has been exceedingly productive across the social sciences, area studies, and history, yet critics increasingly point out that it has produced the wrong kind of knowledge.<sup>24</sup>

## Bureaucracy as Knowledge

In this special issue, we propose to study bureaucracy as knowledge. By this we mean to study states, colonialism, companies, capitalism, churches, religion, and other socio-material structures that have organized human life by attending to the knowledge processes embedded in their administrative procedures and routines. The aim of this approach is not to engage in world-historical comparison using European modernity as the (implicit) standard, but instead to understand how institutions, and people serving in them, made sense of their own worlds. In keeping with this aim, we consciously refrain from defining bureaucracy in reference to the Weberian ideal type, not even as a stripped down or modified version of his laundry list of features.<sup>25</sup> Instead, we use bureaucracy as a heuristic to find ideals and practices that were meaningful to historical actors.

But if we diverge from how bureaucracy is conventionally used as an analytical tool, why do we retain the loaded term? The word has accumulated great power through its long use for critique and scholarly analysis; our authors wish to harness this power in order to challenge master narratives within their respective fields. Sixiang Wang employs the term to explore the workings of early modern Korean diplomacy, an activity, place, and period not supposed to "have" bureaucracy.<sup>26</sup> He focuses on the Office of Interpreters, which from 1392 to 1894 was in charge of diplomatic relations between the Chosŏn court and the much more powerful Ming and Qing empires. Initially, interpreters used their linguistic and cultural deftness to pursue interests of their own. Bureaucracy in this case was a strategy employed by the Chosŏn court to formalize the training—and to control the social reproduction—of its interpreters. By explicitly embracing the term bureaucracy, Wang makes this story legible within a comparative and world-historical tradition in diplomatic and East Asian history in order to dispute the casual conflation of bureaucratization with modernization that informs narratives of Korean history and non-Western experiences of diplomacy.

Renée Raphael uses Max Weber's typology of bureaucratic knowledge to unpack the precise ways in which local authorities in sixteenth-century Potosí handled issues regarding proposals for new refining techniques.<sup>27</sup> Current accounts of "Iberian Science" portray the Spanish Crown and its administrative bodies as strong patrons of empirical science and technological innovation. Raphael reconsiders this narrative by paying close attention to the scribal practices of colonial officers in Potosí, a mining district essential for the empire's silver production. She finds that when reporting on the details of technical innovation, officials were not interested in reporting artisanal expertise or experience as "useful" knowledge to the Crown. Rather, they felt compelled to demonstrate their competency in bureaucratic rule-following. Historians of technology and science, she concludes, should expand the notion of "useful" knowledge production to the specific epistemology of administrative writing and pay attention to these processes when using archival records.

Maura Dykstra mobilizes connotations of bureaucracy as critique in her revisionist account of late Qing rule.<sup>28</sup> Historians generally portray the period from the second half of the eighteenth century to the 1911 Xinhai Revolution as an era of decline, referring to a multitude of historical sources that discuss corruption within the lower ranks during China's golden age of bureaucracy. Dykstra emphasizes that from early on in the Qing, officials used the phrase *ji xi* 積習 (literally, accumulated practices) as a decidedly negative characterization of all the quotidian routines, ad hoc regulations, and administrative formulae that local offices relied on to produce the work demanded by the central court. Translating this often-used phrase as "bureaucratic custom," Dykstra conveys some of the panic that imperial officials felt but, at the same time, deflates it. She argues that this discourse was born out of a campaign to establish greater central control over the local state. The successful installation of a new system of administrative oversight delivered

<sup>23</sup> Weber, *Briefe*, 724 (emphasis added). See also Bright and Geyer, "Globalgeschichte"; Hardtwig and Müller, *Vergangenheit*.

<sup>24</sup> Woodside, *Lost Modernities*; Sivin, "Chinese Science."

<sup>25</sup> This is how Weber is often salvaged. See, for example, Lai, "Patrimonial Bureaucracy"; and Crooks and Parsons, "Empires."

<sup>26</sup> Wang, "Chosŏn's Office of Interpreters."

<sup>27</sup> Raphael, "Pursuit of 'Useful' Knowledge," this issue.

<sup>28</sup> Dykstra, "Crisis of Competence."

unprecedented amounts of information to central authorities, which in turn fostered the impression that corruption was everywhere. When this information system had matured in the nineteenth century, Dykstra concludes, the imperial bureaucracy experienced a golden age. As these three examples show, our approach to bureaucracy as knowledge can help revise master narratives in very different areas of study.

Bureaucracy as knowledge aligns with a number of approaches in history, anthropology, and media studies. First, it builds on a rich literature on note-taking and “paper technologies” that analyzes material practices of common-placing, filing, list-making, clipping, or pasting.<sup>29</sup> Historical administrators employed similar “tools of knowledge” to those used by scientists and scholars.<sup>30</sup> Indeed, one condition for bureaucracies to thrive—anywhere and at any time—seems to be a scribal culture that can accommodate complex forms of information gathering and record-keeping.<sup>31</sup> Many words in the semantic field of bureaucracy highlight such a scribal culture and its socio-material practices, such as the German invectives “*Vielschreiberei*” and “*Amtstubenherrschaft*” and, of course, “bureaucracy” itself.<sup>32</sup> Our approach is equally inspired by a growing body of work on archives in the (early modern) state and in the sciences.<sup>33</sup> No longer merely depositories of facts or a theoretical concept, archives are now considered structures that are recursively embedded in action, provide coherence of action across individuals, space, and time, and also function as a self-image of a bureaucracy.<sup>34</sup> Finally, we build on historians who have shown, following Michel Foucault’s work on biopower, how states “made up people.” The overt aims of these schemes (e.g. changing the size of a population) never worked, as Ian Hacking has argued, but the labels tended to stick. This has been their subversive, insidious power.<sup>35</sup>

This special issue takes these historiographies as entry-points to pushing the study of bureaucracy further toward a history of knowledge. The essays investigate the worlds that bureaucracies made for themselves by formulating goals, inventing traditions, appealing to ideals, devising guidelines, aligning practices, and encouraging the people serving in them to develop a certain persona. By describing these—often mundane—practices, we show how bureaucracies defined themselves through their own ideals and how they worked out relationships with other domains of human life. The standard against which our authors measure bureaucracies lies within the respective institutions themselves, carefully excavated from references and analytical categories that emerge from within the sources.

## Bureaucratic knowledge?

If we approach bureaucratic procedures as knowledge processes, what kinds of knowledge do they yield? Our authors encounter a whole gamut of “knowledges”: empirical, procedural, practical, technical, expert, local, useful, public, purposeful, embodied, good-enough, academic, and scientific.<sup>36</sup> This plurality echoes what other historians of science and technology have found when they studied sites of early modern statecraft, such as offices, laboratories, and cabinets of curiosity, especially during the age of cameralism.<sup>37</sup> Working with such a complex mix of knowledges is typical of the field that this journal is helping to establish. How is this plurality best approached in historical research?

In a recent dialogue, Martin Mulsow and Lorraine Daston explained two different (though not mutually exclusive) methodological stances on how to study situations where many types of knowledge come together.<sup>38</sup> Mulsow suggests a relativist definition of knowledge, claiming that historians should take

<sup>29</sup> Bittel, Leong, and Von Oertzen, *Working with Paper*; Leong, *Recipes and Everyday Knowledge*; Jardine, “Paper Tools,” 53–63; Yeo, *Notebooks*; Te Heesen, *Newspaper Clipping*; Charmantier and Müller-Wille, “Paper Slips”; Krämer, *Zentaur in London*; Blair, *Too Much to Know*; Daston, “Taking Note(s)”; Te Heesen, “Notebook”; Klein, *Experiments, Models, Paper Tools*; Gitelman, *Paper Knowledge*; Krajewski, *Paper Machines*.

<sup>30</sup> Becker and Clark, *Little Tools*.

<sup>31</sup> Some instructive counterexamples are the Assyrian state managing with minimal archives, the Inca bureaucracy using knotted strings, and the military-mining complex of pre-colonial Benin operating in an oral mode: Fales, *Impero assiro*; Given-Wilson, “Bureaucracy”; and Osadolor, “Military System.”

<sup>32</sup> Wunder, “Bürokratie.”

<sup>33</sup> Head, *Making Archives*; Daston, *Science in the Archives*; Corens et al., *Social History of the Archive, Archives and Information*; Friedrich, Müller, and Riordan, “Practices of Historical Research.”

<sup>34</sup> Hull, *Government of Paper*; Friedrich, “Archive und Verwaltung”; Siegert and Vogl, *Europa*; Soll, *Information Master*; Mukerji, “Great Forestry Survey”; Stoler, *Along the Archival Grain*; Langenmayr, *Organisational Memory*.

<sup>35</sup> Hacking, *Historical Ontology*; Hacking, “Biopower,” 279–95. See also Handelmann, “Cultural Taxonomy,” and Porter, *Genetics*. For many more examples of the power of classification in modern life, see Bowker and Leigh Star, *Sorting Things Out*.

<sup>36</sup> Knowledge *tout court* may be too vague for historians to study anyway. Only when they add qualifiers such as “practical” can they make it into a research object that yields analytical narratives. Valleriani, *Structures*.

<sup>37</sup> See Klein, *Nützliches Wissen*; Fors, *Limits*; Keller, *Knowledge*; Klein, *Humboldts Preußen*; Schleiff and Konečný, *Staat*; Ash, *Expertise*; Wakefield, *Disordered Police State*; Nummedal, *Alchemy*; Carroll, *Science*; Ash, *Power*; Smith, *Business*; and Felten, “Saxon Mining.”

<sup>38</sup> Mulsow and Daston, “History of Knowledge.” See also Dupré and Somsen, “Future.”

knowledge as what actors thought it was. Unfettered by the explicit and implicit hierarchies of the history of science and technology, the historian of knowledge can appreciate the full complexity of situations in the past and give thick descriptions of “knowledge cultures” and their interactions. For Daston, the work only begins when such rich constellations have been recovered by historical analysis. She calls for an analytical definition of knowledge derived from actors’ practices, inviting historians to look for “knowledge systems,” the hierarchy of knowers that these systems espouse, and their dynamics of change, all of which only become visible through the *longue-durée* and comparative inquiry.<sup>39</sup> These two concepts seem to be shorthand for two different, if complementary, approaches in the history of knowledge: A thick, contiguous, synchronic, locally-bound *histoire totale* (knowledge culture) versus a more abstract, comparative, diachronic perspective best done by several scholars looking at different cases (knowledge system).<sup>40</sup>

Our authors combines both approaches. They engage in open-ended research and delve deeply into concrete situations. They offer thick descriptions in which the contours of specific bureaucratic knowledge cultures come into view. Wang calls Chosŏn Korea’s bureaucratized diplomacy a knowledge culture that thrived in a socio-economic niche and perpetuated unique values and practices of knowledge production.<sup>41</sup> He studies this culture through textual compendia in which interpreter-bureaucrats collected and commented on knowledge they treasured: from canned replies to Ming officials to penal law, conversions of weights and measures, exemplars of present-mindedness, treatments for flea bites, and a laundry detergent recipe. Their knowledge hierarchy differed markedly from those of the official-literati and aristocrats with whom they dealt daily. Required for the labor of diplomacy, their knowledge of both protocol and practicalities rested on the cultivation of erudition as well as on skills accumulated over years of experience.

Sebastian Felten describes a peculiar bureaucratic knowledge culture that flourished in eighteenth-century Saxony.<sup>42</sup> Using a late-eighteenth-century encounter between Dutch merchants and cameralist officials in charge of managing Saxony’s world-renowned silver mines, Felten unpacks how rules about ownership and accountability shaped knowledge practices, such as inspecting, reporting, map-making, collecting, and collating. Institutionalized in the Freiberg Mining Academy (f. 1765), this knowledge culture inhabited a specific niche which favored “hybrid” knowledge combining administrative, technical, and scientific knowledge in daily practice. Saxon officials developed a distinct rationality, termed *Nachhalt*, or sustainability, that allowed them to see profit even in mines that lost money. Sustainable thinking of this kind is best explained through the archival practices of the mining bureaucracy: officials collected information from yield sheets and local lore in order to calculate long-term outputs, speculate about untapped deposits, and disburse as little profit as possible. When the Dutch eventually understood this rationality, they withdrew. Saxony’s early modern mining bureaucracy was dismantled by liberal reforms in the 1850s, but its brand of long-term sustainability, which sought to extract resources at almost any cost, likely survived the dawn of industrial capitalism because young engineers and administrators became versed in it at the Freiberg Academy.

Long-term temporal regimes enforced by bureaucracies could also take a quite different form. Harun Küçük shows how Ottoman officials restored a sense of the “forthcoming” in seventeenth-century Istanbul, a period when the Ottoman Empire was struck by crisis in every imaginable way.<sup>43</sup> Reacting to the climatic, social, and political disasters of the Little Ice Age, a small number of astrologers-cum-tax collectors introduced almanacs, or *ruznames*, to recreate the foundation for prognosis. As properly trained astronomers were not available, tax collection was organized with astrological calendars, which set due dates for centuries to come. Küçük concludes that while officials were able to create a wider temporal horizon for the Ottoman state, their chosen method led to “epistemic foreclosure.” The new tax regime drew on bureaucratic knowledge that was “good enough” for survival, which means that higher registers of certainty or accuracy were simply not pursued.

While each case offers insight into a specific epistemic culture, we also discovered many structural affinities that merit systematic investigation. For example, we noted a dynamic between crisis and routine that propelled bureaucracies into action (Dykstra, Friedrich, Küçük, Raphael, Wang) as well as alternations between internal processing and making knowledge public that shaped the relationship bureaucracies had with the populations they governed (Sabapathy, Echterhölter, Küçük, Olesko). The following paragraphs

<sup>39</sup> See similar suggestions in Daston, “History of Science,” 131–54, esp. 142–50.

<sup>40</sup> See Martin Mulsow’s micro-historical studies, *Prekäres Wissen*; and *Unanständige Gelehrtenrepublik*; and the collaborative volumes Daston and Lunbeck, *Histories*; and Daston, *Things*.

<sup>41</sup> Wang, “Chosŏn’s Office of Interpreters.”

<sup>42</sup> Felten, “Sustainable Gains,” this issue.

<sup>43</sup> Küçük, “Bureaucratic Sense,” this issue.

discuss in more detail one such affinity that strikes us as particularly interesting for future debate because it seems to touch on an unresolvable yet epistemically productive tension in the core workings of bureaucracy. We want to call it the “dialectics of rules and responsiveness.”

Throughout the chapters, the authors note a tension between the urge to make rules (in order to make the actions of bureaucrats more predictable) and the need to grant autonomy (to make these rules “fit” the exigencies of officials’ working practices). As our cases show, this tension prompted knowledge production. In Wang’s story, it led to the compilation of precedents and exemplars and helped shape a specific expert persona.<sup>44</sup> These compendia defined an epistemic culture that reconciled the strictures of protocol with an “apt response,” that is, a present-mindedness and the ability to adapt to circumstances on the spot.<sup>45</sup> However, such creative responses looked dangerously similar to treason, and superiors were suspicious of competent underlings who were able to use routines for their own profit. The Qing *yamen* clerks in Dykstra’s chapter are a case in point. They performed the important and largely unseen work of making imperial policies “click” with realities on the ground. This turned the local *yamen* into a site of power that could potentially undermine central authority in Beijing. As Dykstra’s story suggests, the clerks’ apt response on the ground was increasingly perceived as corruption; as “corruption,” it was both a result of and a trigger for more bureaucratic knowledge production.<sup>46</sup>

The dialectics of rules and responsiveness could also have different outcomes, bolstering the defense of central authorities and established procedure. Susanne Friedrich reveals one such case when she analyzes a voluminous, humanist-style *descriptio* of the Dutch East India Company (VOC), compiled by the company’s top-level administrator Pieter van Dam.<sup>47</sup> Commissioned in 1693 by directors concerned about the company’s decreasing profitability and illicit behavior of those in their service, van Dam’s work went hand in hand with a Herculean effort to unite and structure the VOC’s sprawling archives. Van Dam saw no reason to change the company’s rules, as he deemed them strict and precise; instead, failure had occurred where they had not been followed. Built on archival evidence and his own decade-long experience in the company’s service, van Dam’s compilation refuted the directors’ impression that the company was inefficient. In doing so, the manuscript reinforced the power and resilience of the VOC’s bureaucracy.

Rules are a surprisingly underdeveloped theme in Weber’s sociology of bureaucratic power. He mentions them only in passing, as if it was a topic too trivial to dwell on: “The execution of the office follows general, more or less fixed, more or less exhaustive rules that can be learned. Knowledge of these rules therefore constitutes a particular theorised art [*Kunstlehre*] (jurisprudence, administrative theory, or commercial science, respectively) that officials have in their possession.”<sup>48</sup> Weber’s examples are interesting because lawyers (just like doctors, psychoanalysts, and Catholic priests hearing confession) always apply rules to particular cases.<sup>49</sup> Like life scientists and social scientists, they seek to understand a complex reality with carefully chosen examples of engagement with that reality rather than by imposing it onto freestanding laws.<sup>50</sup> “Shared examples,” the philosopher of science Thomas Kuhn wrote, “can serve cognitive functions commonly attributed to shared rules.”<sup>51</sup> They align scientists’ ways of engaging the world and thus make research possible.

This certainly resonates with the knowledge produced in interaction with bureaucratic rules. But what is the nature of this knowledge? In an Aristotelian schema, it would hardly qualify for the highest status of episteme.<sup>52</sup> Bureaucracies, at least in the cases discussed in this issue, do not deal in universals about which certain knowledge can be obtained. Instead, their concerns mobilize knowledge about particulars: how to make things and make things work (*techne*) and how to act in specific situations (*phronesis*).<sup>53</sup> Our cases suggest that knowledge of rules was neither trivial nor cognitively sterile; it propelled actors to ask probing questions and to do important intellectual labor. By exploring such practices, the chapters reconstruct the

<sup>44</sup> See also Becker “Überlegungen”; Krajewski, *Diener*; and Daston and Sibum, “Introduction.”

<sup>45</sup> Wang, “Chosön’s Office of Interpreters.”

<sup>46</sup> Dykstra, “Crisis of Competence.”

<sup>47</sup> Friedrich, “Caveat from the Archive,” this issue.

<sup>48</sup> Weber, *Wirtschaft und die gesellschaftlichen Organisationen und Mächte*, 159 (emphasis added). He put more emphasis on *Fachkenntnis*, or expertise, and *Dienstwissen*, or experience (“the knowledge of facts that is acquired by practice or by reading files”). See Weber, *Grundriss der verstehenden Soziologie*, 1:165–166. Compare Weber, *Wirtschaft und die gesellschaftlichen Organisationen und Mächte*, 157–234, 726–45. The expertise and experience of state actors have attracted considerable attention from historians of science and technology (see note 40). See also Weber’s ideas on rules in his “R. Stammers ‘Ueberwindung.’”

<sup>49</sup> Forrester, “Thinking in Cases.”

<sup>50</sup> Creager et al., *Science without Laws*.

<sup>51</sup> Kuhn, “Second Thoughts,” 319. In fact, “shared example” was the original meaning of Kuhn’s well-known concept of paradigm.

<sup>52</sup> Aristotle, *Nicomachean Ethics*, bk. 6, edited by Barnes, *Complete Works*, 1797–1808 (1138b–1145a). Parry, “Episteme.”

<sup>53</sup> In Scott, *Seeing Like a State*, episteme is used loosely to critique bureaucratic visions of the world, though it is debatable whether administrations ever strive for this type of knowledge in the Aristotelean sense.

mechanisms that allowed bureaucracies to apply rules to real-world problems in durable ways. They trace feedback loops that eased the tension between the need for consistency and apt response, and they uncover the epistemological values and tools of knowledge that this tension brought forth.

John Sabapathy investigates how inquisition became a wide-spread administrative technique in thirteenth-century Europe, used by the church as much as by secular rulers.<sup>54</sup> He shows how inquisition worked in different domains by looking at the single life of Gui Foucois (d. 1268), who inquired for the church and state first as a French lawyer and administrator and, ultimately, as Pope Clement IV. The details varied, but the constituent elements of an inquisition were similar: they normally involved questionnaires, local interrogation, recording and archiving, abbreviation, and review. This particular form of knowledge production could serve an impressively diverse range of goals: proving sanctity, heresy, or ownership or restoring wrongs done by those in power. In the process, inquisitors distinguished *scientia*, certified by due process, from mere *fama*, or public knowledge. This distinction aligned with a social hierarchy between university-trained inquisitors and the interrogated. Classification and proving that their classification was correct became the bread and butter of the medieval inquisitor. The expert execution of a questionnaire, turning *fama* into *scientia* through rigorous juridical routines as well as re-engaging the “public” with the results made inquisition a versatile tool of the powerful. In the “long” thirteenth century, the age-old governance technique of men moving about asking questions coalesced into a distinct form, the descendants of which are still with us, for example, in the form of parliamentary inquiries.

Anna Echtermöller’s analysis of German colonial rule in the Pacific echoes Sabapathy’s findings. She examines the different approaches German colonial officials and scholars of law took to reflect and act on modes of governance in New Guinea.<sup>55</sup> She explores how knowledge of local customs and currencies became a crucial component of colonial rule. Prussian bureaucrats co-opted local leaders for indirect rule, hijacked local currencies for implementing fines and taxes, and launched a series of questionnaires. Each of these approaches reveals how knowledge was created and put to use in a complex interplay between colonizers and their subjects and between academic and bureaucratic institutions. Colonial officers on the ground explored the types of authority in use among local populations and noted their observations in questionnaires; legal scholars puzzled over what the proper categories should be for the legal structures they encountered in their surveys; and anthropologists obsessively taxonomized indigenous money as a basis for creating new standards of colonial authority and power.

Other chapters testify equally to the longevity of the questionnaire, at least in the Western bureaucratic tradition, suggesting that questionnaires were a powerful and flexible tool for producing bureaucratic knowledge.<sup>56</sup> As Sabapathy argues from his case, the detail of investigations “could flex according to agendas or resources, varying not just from procedure to procedure but from case to case. They could be industrial or made-to-measure, according to the demands of the investigator, the investigated, or the public.”<sup>57</sup> The questionnaire is only one, if instructive, genre of bureaucratic knowledge production. Additionally, Raphael and Felten discuss visitations and inspections, Friedrich the humanist *descriptio*, Olesko maps, Küçük calendars, and Wang the compendium. These genres were flexible but provided consistency for the involved actors, and thus helped to produce what bureaucracies needed to pursue their aims: from thoroughly vetted *scientia* that settled an issue once and for all to good-enough knowledge that allowed officials to muddle through difficult times.

## Making and breaking worlds

Why, one might ask, should we study bureaucratic routines as knowledge producing processes at all? The chapters in this issue demonstrate that doing so leads to a more precise understanding of how such bureaucracies shaped the worlds around them. Karl Marx, embittered by the slow response of the Prussian government in helping winefarmers during a severe harvest failure, pointed out that while everybody suffered in the “real reality,” civil servants experienced a “bureaucratic reality” in which that suffering did not exist or was not acute enough to act upon, even if officials otherwise were committed to a moral obligation towards those they governed.<sup>58</sup> Our authors provide evidence that such verdicts were not specific to industrializing Europe. Dykstra quotes a critic of the Qing civil service who observed a similar phenomenon: “It is said regulations are for governing the empire. ... But the more complicated and detailed regulations become,

<sup>54</sup> Sabapathy, “Making Public Knowledge,” this issue.

<sup>55</sup> Echtermöller, “Shells and Order,” this issue.

<sup>56</sup> For epistemic genres, see Pomata, “Recipe”; and Daston and Lunbeck, *Histories*.

<sup>57</sup> Sabapathy, “Making Public Knowledge,” 8.

<sup>58</sup> Marx and Engels, *Werke*, 186.



the more likely they are to leave the realm of reality and rationality. Ultimately, they become completely unrelated to one another."<sup>59</sup> High-modernist states, James Scott has argued, have often failed to do what they set out to do (usually improving the world) because their descriptions of a complex and unwieldy reality were too "thin." Catastrophic policies on the ground undermined the very rule that bureaucracies were supposed to establish.<sup>60</sup> Such understandings of bureaucracy are wedded to a concept of power that elicits or enforces obedience. They align roughly with Weber's understanding of bureaucracy as a modern form of domination that manifests in situations where some people (the dominated) act as if they made the order of others (the dominators) the maxim of their actions.<sup>61</sup>

The authors in this issue, in contrast, understand bureaucratic power not only as a coercive force but also as a responsive organizational technology that constitutes power by combining coercive and enabling mechanisms.<sup>62</sup> Echterhölter describes how colonial officials believed in working with forces already in play. Instead of using military violence, they enlisted local notables, explored indigenous law, and imposed fines in local shell money. Medieval inquisitors, Sabapathy shows, sought the consent of the publics which provided the raw material for inquisitorial knowledge (and which often consumed it too). Here and in the other cases, our authors study knowledge practices that shaped social reality through logistics and infrastructure, coercion and consent.

Kathryn Olesko shows the mechanics of bureaucratic world-making through logistical power by exploring how Prussia colonized a large space after the Polish partitions of 1772 and 1795.<sup>63</sup> She teases apart two complementary aspects of this process: one human-sized and indoors and the other one larger-than-human and outdoors (our terms, not hers). She describes how architects, engineers, and surveyors created an aesthetic vision of geometric regularity and how they took concrete measures to match it with the physical world—for the dubious benefit of the ruled populations. The *Indaganda*, an obscure but widely used survey taken between 1793–1804 in 251 cities and towns in the frontier province South Prussia, was the beginning of a reality created on paper. The information generated about the populations, the urban economy, material conditions of urban life, natural resources—in short, the natural and the human-built world—was filed in an archive. Here, it occasioned follow-up documentation and led to policies that intervened in the land and people's lives. Olesko demonstrates that each step in this record-keeping process increased the work of the bureaucracy and extended the realm of what was administratively possible but also that Polish land, the Polish built world, and the Polish way of life was systematically excluded as allegedly useless and disorderly. The *Indaganda* thus shaped a specific version of the future, as bureaucrats brokered between the paper world in the archive and the physical world outside.

The indoors of bureaucratic world-making can be approached with the notion of the "lifeworld," which is used in science studies to explore the immediate working environment (models, inscriptions, apparatus, lab architecture) that allows scientists to explore Nature with a capital N.<sup>64</sup> Historians and sociologists have used a similar approach for understanding state-making: bureaucrats work with "models of reality" and exercise power from "epistemic settings" (such as map rooms) that were populated with "cosmograms" (such as world maps), that is, tangible objects that represent the world.<sup>65</sup>

World-making, world-breaking, and the clash of different cosmologies have been driving narratives in the history of science and science studies since the beginning of these disciplines. Thinking about world-making itself has rarely been innocent of political context, as the history of these disciplines teaches us.<sup>66</sup> In his afterword, Theodore Porter jogs our imagination as to how histories of bureaucratic knowledge can open up fresh angles on contemporary issues. He unpacks the changing features of the (Western) bureaucratic persona from the late eighteenth to the twenty-first century and reflects on how numbers and quantification changed the bureaucratic ideal when statistical reasoning came into its own.<sup>67</sup> Bureaucracy around 1900

<sup>59</sup> Dykstra, "Crisis of Competence," 11.

<sup>60</sup> Scott, *Seeing Like a State*, esp. chap. 9.

<sup>61</sup> Weber, *Wirtschaft*, 135.

<sup>62</sup> Adler, "Sociological Ambivalence"; Adler and Borys, "Two Types"; Mann, "Autonomous Power"; Mukerji, "Territorial State."

<sup>63</sup> Olesko, "Indaganda Survey," this issue.

<sup>64</sup> Knorr-Cetina, *Epistemic Cultures*. See also Latour, "Circulating Reference."

<sup>65</sup> For "models of reality," see Ellwein, *Staat als Zufall*, 73. For more on this topic, see von Krosigk, "Thomas Ellweins." See also Latour, "How to Think"; Latour, *Making of Law*; Rose and Miller, "Political Power"; Bredecke, *Praktiken*, 174–226; Brakensiek et al., *Herrschaft*; Sardet et al., *Verwalten*; Stolberg-Rilinger and Krischer, *Herstellung*; Blockmans, Holenstein, and Mathieu, *Empowering Interactions*; Brakensiek and Wunder, *Ergebene Diener*. On epistemic settings, see Bredecke, *Empirical Empire*, chap. 3; on cosmograms, see Tresch, "Technological World-Pictures."

<sup>66</sup> Fleck, *Entstehung*; Koyré, *From the Closed World*; Elkana, "Alexandre Koyré"; Kuhn, *Structure*; Blum et al., *Shifting Paradigms*.

<sup>67</sup> Porter, "Revenge of the Humdrum," this issue.

promised a bright future and, at the same time, caused deep concerns (not unlike digitization today). Porter's afterword concludes with reflections on our current data-driven era, which may require a new bureaucratic conformity or a new cultivation of expertise within relationships of informed oversight and skeptical trust.

Our main contribution is not to provide new empirical material for comparative sociology or world history (although we do this too) or help to refine the theory of bureaucracy. Instead, we aim to develop a new approach for studying bureaucracies, one that is based on historical epistemology. Studying bureaucracy as knowledge signals a commitment to recover actors' own ways of molding their social and material worlds. Unmoored from the idealtype, bureaucracies and their power appear as self-referential, contextual, and recursive. This view, we hope, will pave a path towards non-Eurocentric theory building and open up entirely new avenues of critique.

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The authors have no competing interests to declare.

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