What It Meant to Be Linnaean in Revolutionary France

Dena Goodman, *University of Michigan*

Abstract: This essay builds on recent scholarship on Linnaeus to revise our understanding of how and why he became influential in France in the 1790s. It looks in particular at the nontaxonomic writings of Linnaeus (such as the *Amoenitates Academicae*) and the young men associated with two voluntary societies that emerged in Paris early in the Revolutionary decade—the Société d'Histoire Naturelle and the Société Philomatique—drawing on their minutes as well as the correspondence and other writings of their members. The essay focuses on Alexandre Brongniart (1770–1847), who was an active member of both societies, and the younger men he mentored, including Ernest Coquebert de Montbret (1780–1801) and Augustin Pyramus de Candolle (1778–1841). It concludes that to be Linnaean in Revolutionary France was not simply to embrace Linnaean taxonomy and nomenclature; rather, it was to practice natural history as a form of citizenship validated by patriotic arguments for its utility to the nation that were based on Linnaeus's theory of natural and political economy grounded in the land.

> ***We must admit that we, young men, by a natural instinct, we have a great desire for variety and that from it comes great pleasure and that for this reason the study of Natural Science is seen as very much in conformity with our nature.***
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> **—"Curiositas naturalis" (1748), in *Amoenitates Academicae*, Volume 1 (1749)**

Historians have generally explained the failure of Carl Linnaeus's classification system and nomenclature to be adopted in France until the 1790s in terms of a rivalry with Georges-Louis Leclerc, comte de Buffon, whose power and influence as director of the Jardin du Roi

Dena Goodman is Lila Miller Collegiate Professor Emerita of History and Women's Studies at the University of Michigan. She is a specialist in the history of the French Enlightenment, women, gender, and writing and is the author, most notably, of *The Republic of Letters: A Cultural History of the French Enlightenment* (Cornell, 1994). Department of Women's Studies, Lane Hall, 204 South State Street, Ann Arbor, Michigan 48109, USA; goodmand@umich.edu.

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served as a bulwark against Linnaean ideas.[1] In this narrative, the forward march of scientific progress was held back by a despotic ruler who valued literary style over reason and truth. Only the French Revolution, following close on the heels of the death of Buffon in 1788, brought an end to the Old Regime of Buffonian natural history and the beginning of the Golden Age of French science: Buffon's Jardin du Roi became a republic—a Muséum run by its professors—and the Royal Academy of Sciences, which had destroyed a fledgling, protorevolutionary Société Linnéenne in May 1789, was itself shut down four years later as two new societies full of young Linnaeans, the Société d'Histoire Naturelle and the Société Philomatique, rose to take its place.[2]

This narrative of virtuous Linnaeans oppressed and marginalized by powerful elites owes something to Jean-Jacques Rousseau, Linnaeus's most famous French follower before the Revolution. Pascal Duris has called Rousseau "the artisan in France of the popularization of Linnaean ideas," even though Rousseau's writings on botany were not published until after his death in 1778.[3] In the *Confessions* Rousseau called Linnaeus a "great observer" who views botany "as a naturalist and a philosopher," and in 1786 the *Journal de Paris* published a 1771 letter from Rousseau to Linnaeus in which he called himself "the most zealous of your disciples."[4] In the *Rêveries* Rousseau noted that everywhere except Paris Linnaeus had taken botany "out of pharmacy schools and given it to natural history and economic uses." In the introduction to his dictionary of botanical terms he attributed the failure of Linnaeus's nomenclature to be adopted in France to national prejudice. Alexandra Cook has connected Rousseau's embrace of Linnaeus in part to his exile in Switzerland, England, and the French provinces at the moment in the mid-1760s when Linnaean ideas were being adopted there and resisted in Paris.[5] For Rousseau, part of the attraction of Linnaeus was no doubt that the Parisian establishment spurned him.

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[1] For the epigraph see "Curiositas naturalis" (1748), in *Amoenitates Academicae*, Vol. 1 (Leiden, 1749). It was published as "Natural Curiosity," in *Miscellaneous Tracts Relating to Natural History, Husbandry, and Physick*, trans. Benjamin Stillingfleet (London, 1775); my translation is based on the French translation in Carl Linnaeus, *L'équilibre de la nature*, trans. Bernard Jasmin, ed. Camille Limoges (Paris: Vrin, 1972), pp. 125–143, on p. 138 (here and throughout the essay, translations into English are my own unless otherwise indicated).

[2] Roger Hahn, *The Anatomy of a Scientific Institution: The Paris Academy of Sciences, 1666–1803* (Berkeley: Univ. California Press, 1971), pp. 112–113; Charles Coulston Gillispie, *Science and Polity in France at the End of the Old Regime* (Princeton, N.J.: Princeton Univ. Press, 1980); Pascal Duris, *Linné et la France (1780–1850)* (Geneva: Droz, 1993); and Jacques Roger, "Les sciences naturelles dans les premières décennies de la Philomathique," http://www.philomathique.paris/index.php/bicentenaire/10-bicentenaire/7-jacques-roger-les-sciences-naturelles-dans-les-premieres-decennies-de-la-philomathique (accessed 24 Dec. 2018). As Jean-Luc Chappey has pointed out, the politicization of this narrative has tended to invalidate the Linnaeans as scientists, creating a false dichotomy between a "pure" science that rose above politics and an illegitimate opposition driven only by it: their actions may have been politically necessary, but their science was for that very reason invalid. See Jean-Luc Chappey, *Des naturalistes en Révolution: Les procès-verbaux de la Société d'histoire naturelle de Paris (1790–1798)* (Paris: Éditions du Comité des Travaux Historiques et Scientifiques, 2009) (hereafter cited as **Chappey, *Des naturalistes en Révolution***), pp. 15–16.

[3] Duris, *Linné et la France*, p. 105. See also Alexandra Cook, "Propagating Botany: The Case of Jean-Jacques Rousseau," in *The Transmission of Culture in Western Europe, 1750–1850: Papers Celebrating the Bicentenary of the Foundation in Geneva of the Bibliothèque Britannique*, ed. David Bickerton and Judith Proud (Bern: Lang, 1999), pp. 59–82.

[4] Jean-Jacques Rousseau, *Les Confessions*, in *Oeuvres complètes*, ed. Bernard Gagnebin and Marcel Raymond (Paris: Gallimard, 1959), Vol. 1, p. 643; and Jean-Jacques Rousseau to Carl Linnaeus, 12 Sept. 1771, in *La Botanique de J. J. Rousseau* (Paris: François Louis, 1823), pp. 199–200. The letter was provided to the journal by Auguste Broussonet, who the next year went on to found the Société Linnéenne. See Duris, *Linné et la France*, pp. 69–87, 103; and Georgia R. Beale, "Early Members of the Linnean Society of London, 1788–1802: From the Estates General to Thermidor," *Proceedings of the Annual Meeting of the Western Society for French History*, 1991, *18*:272–282.

[5] Jean-Jacques Rousseau, *Les Rêveries du promeneur solitaire*, in *Oeuvres complètes*, ed. Gagnebin and Raymond, Vol. 1, p. 1064; Rousseau, "Réflexions sur la nomenclature botanique," in *La Botanique de J. J. Rousseau*, pp. 302–303; and Alexandra Cook, "Rousseau et les réseaux d'échange botanique," in *Rousseau et les sciences*, ed. Bernadette Bensaude-Vincent and Bruno Bernardi (Paris: L'Harmattan, 2003), pp. 93–114, esp. p. 100.

Rousseau saw his own role not as overturning the Buffonian establishment, however, but as making Linnaean botany accessible to amateurs—and especially to his female friends and readers. For Rousseau, the primary aim of teaching botany (or anything else, for that matter) to young ladies was moral: the study of nature would dull a girl's "taste for frivolous amusements, prevent the tumult of the passions, and nourish her soul by filling it with the most worthy object of its contemplation." "After Rousseau," Duris writes, "women maintained a privileged relationship with the natural sciences and with botany in particular."[6]

The literary character of Rousseau's moralized and feminized Linnaeus has provided a convenient foil for the stylist Buffon in the classic narrative, but it does not explain why young men pursued Linnaean natural history as a career in the 1790s when, as Lynn Hunt has shown, masculinity was so much at stake, or how Linnaeus became for them a model of the patriotic citizen-scientist. In this essay I provide an alternative to the classic narrative by asking not why Linnaean ideas were blocked in eighteenth-century France but, instead, why a practice of natural history associated with Linnaeus was embraced by young men during the French Revolution. Noting the reduction of "Linnaeus" in most histories to his sexual system of classification and binomial nomenclature, I argue that the persona of Linnaeus that emerges from the full range of his writings is central to understanding the Linnaean practice of natural history and why it took off in France in the 1790s. In so doing, I approach the history of science on a lived, biographical level, where, as Marc-Antoine Kaeser has argued, we see "science in action, science lived in the 'entanglement of social logics' that have participated in its construction, as we do justice to the original complexity of the stakes and processes of research."[7] I establish the connection between this Linnaeus and the young Frenchmen through the mediation of two kinds of texts: the occasional and didactic pieces published by Linnaeus primarily in the *Amoenitates Academicae*; and the letters, journals, and memoirs of the young Linnaeans, as well as the *procès-verbaux* of the societies in which they made common purpose in the fraternal spirit of the Revolution.

Earlier challenges to the classic narrative have taken a different approach. The most important of these came from Michel Foucault, who argued that it rested on a false opposition between Linnaeus and Buffon. For Foucault, the common ground of the "classical age" was classification itself, by means of which the natural world was reduced to language; battles about the proper system for organizing and thus representing the natural world and the language used to do so were fought on that common ground. "Buffon was a constant adversary of Linnaeus," he wrote, "yet the same structure exists in his work and plays the same role. . . . Buffon and Linnaeus employ the same grid, their gaze occupies the same surface of contact upon things; there are the same black squares left to accommodate the invisible; the same open and distinct spaces to accommodate words."[8]

Foucault claimed that in dissolving the distinction between Buffon and Linnaeus he was shaking up the standard narrative of French history of science. Recent historiography that focuses on cultural practices of natural history suggests the effectiveness of that challenge. In her important study of the Jardin du Roi, Emma Spary minimizes the differences between the Linnaean

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[6] Rousseau to Madeleine Catherine Delessert, letter 1 (22 Aug. 1771), in *La Botanique de J. J. Rousseau*, pp. 4–5; and Duris, *Linné et la France* (cit. n. 2), p. 182. The affinity of women for botany, however, was already well established in England, without the assistance of Rousseau. See Ann B. Shteir, *Cultivating Women, Cultivating Science: Flora's Daughters and Botany in England, 1760–1860* (Baltimore: Johns Hopkins Univ. Press, 1996).

[7] Lynn Hunt, *The Family Romance of the French Revolution* (Berkeley: Univ. California Press, 1992); and Marc-Antoine Kaeser, "La science vécue: Les potentialités de la biographie en histoire des sciences," *Revue d'Histoire des Sciences Humaines*, 2003, no. 8, pp. 139–160, on p. 146. Kaeser borrows the idea of "entanglements of social logics" from Jacques Revel, *Jeux d'echelles* (Paris: Le Seuil, 1996).

[8] Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage, 1973), pp. 135–136.

and Buffonian systems and shows how, despite jabs by the two principals at each other, French naturalists by and large tried to move the science forward without taking sides. Similarly, Sarah Easterby-Smith minimizes the importance of national rivalries by showing that Linnaeans and Buffonians formed networks of correspondence and exchange across the Channel, regardless of their commitments to competing systems of classification.[9]

These revisionist narratives lead us to ask: Why, then, did anyone claim to be Linnaean at all and what did they mean when they did so? Focusing also on practices, Stéphane Van Damme has suggested that the distinction between Linnaeans and Buffonians was significant but that it was based less on national allegiance to one system of classification and nomenclature or another and more on what he calls "national and cosmopolitan regimes of natural knowledge" that reflected "deep divisions within the Parisian naturalist world." On the Buffonian side was book knowledge: the science of the cabinet, the court, and the salon, of *botanophiles* rather than botanists; on the Linnaean side was the active science of the field, of what Van Damme calls "local natural history in a global city."[10]

When young Frenchmen called themselves Linnaeans and embarked on natural history as a career in the 1790s, they were indeed embracing this field science, but they were also embracing the role of citizen-scientist in which personal ambition, a passion for science, and a commitment to service for the public good were bound up together. For them, natural history was a fraternal, patriotic endeavor of supreme utility that took place in mountains and woods and sociable urban spaces in the company of other men. Their Linnaeus was a model of citizenship as well as science: a man of action who led young men into the field like an intrepid explorer or a general entering the field of battle.[11]

Thanks to recent scholarship on Linnaeus by Lisbet Koerner and Hanna Hodacs, we can now recognize this Linnaeus who permeates the writings of young Frenchmen who came of age during the French Revolution: an inspirational teacher who placed travel, fieldwork, and sociability at the center of both pedagogy and practice and who saw natural history as the science of a political economy based on what he called the "economy of nature."[12] This Linnaeus was not simply a classifier but a broad thinker who fundamentally shaped the meaning and practice of natural history in the context of nation and empire; to inspire students to go into the field was to instill in them a material patriotism grounded in the land, its resources, and its possibilities. In the crucible of the French Revolution, young men saw in the practice of Linnaean natural history a way to mobilize the utilitarian and patriotic values associated with the *Encyclopédie* and the Enlightenment Republic of Letters.[13]

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[9] *Ibid.*, p. x; Emma C. Spary, *Utopia's Garden: French Natural History from Old Regime to Revolution* (Chicago: Univ. Chicago Press, 2000); and Sarah Easterby-Smith, *Cultivating Commerce: Cultures of Botany in Britain and France, 1760–1815* (Cambridge: Cambridge Univ. Press, 2018).

[10] Stéphane Van Damme, "In the Name of Linnaeus: Paris as a Disputed Capital of Natural Knowledge (1730–1789)," in *Linnaeus, Natural History, and the Circulation of Knowledge*, ed. Hanna Hodacs, Kenneth Nyberg, and Van Damme (Oxford: Voltaire Foundation, 2018), pp. 113–135, on pp. 113–115.

[11] On the importance of place see David N. Livingstone, *Putting Science in Its Place: Geographies of Scientific Knowledge* (Chicago: Univ. Chicago Press, 2003); for another take on masculinity and science in France see Carol E. Harrison, "Citizens and Scientists: Toward a Gendered History of Scientific Practice in Post-revolutionary France," *Gender and History*, 2001, *13*:444–480.

[12] Lisbet Koerner, *Linnaeus: Nature and Nation* (Cambridge, Mass.: Harvard Univ. Press, 1999); Hanna Hodacs, "In the Field: Exploring Nature with Carolus Linnaeus," *Endeavour*, 2009, *34*(2):45–49; Hodacs, "Linnaeans Outdoors: The Transformative Role of Studying Nature 'On the Move' and Outside," *British Journal for the History of Science*, 2011, *44*:183–209; and Hodacs *et al.*, eds., *Linnaeus, Natural History, and the Circulation of Knowledge* (cit. n. 10). See also Marie-Christine Skuncke, *Carl Peter Thunberg: Botanist and Physician* (Uppsala: Swedish Collegium for Advanced Study, 2014), a study of one of Linnaeus's students.

[13] Dena Goodman, *The Republic of Letters: A Cultural History of the French Enlightenment* (Ithaca, N.Y.: Cornell Univ. Press, 1994), pp. 23–52; and David A. Bell, *The Cult of the Nation in France: Inventing Nationalism, 1680–1800* (Cambridge, Mass.: Harvard Univ. Press, 2001).

In what follows I first introduce this inspirational Linnaeus who emerges from texts other than his *Systema Naturae* and *Philosophica Botanica*, the canonical handbooks of Linnaean classification and nomenclature. I then turn to the Parisian societies inspired by this Linnaeus, the Société d'Histoire Naturelle (founded in 1790) and the Société Philomatique (founded in 1788), which attracted young Linnaeans and gave them a sense of common purpose that both drew on the optimism of the Revolution and competed with it for their time and energy. The final section focuses on one of these young men, Alexandre Brongniart (1770–1847), who embraced the Linnaean life and inspired and mentored other young men to do so as well.

THE LINNAEUS OF THE *AMOENITATES ACADEMICAE*: ECONOMIST OF NATURE, TRAVELER, AND PATRIOT

On 17 October 1741 Linnaeus delivered his inaugural address at the University of Uppsala, on "The Necessity of Travelling in One's Own Country." In it he declared that

> the natural philosopher, the mineralogist, the botanist, the zoologist, the physician, the farmer, and all others, initiated in any part of natural knowledge may find in travelling through our own country things, which they will own they never dreamed of before. Nay things which to this day were never discovered by any person whatever. Lastly, such things, as may not only gratify, and satiate their curiosity; but may be of service to themselves, their country, and all the world.[14]

Benjamin Stillingfleet suggested the importance of this inaugural address when he opened the volume of selections from the *Amoenitates Academicae* that he published in English in 1775 with it. The *Amoenitates* was a multivolume collection of dissertations written by Linnaeus's students in Latin and Swedish that were meant to defend the master's ideas and that Linnaeus claimed among his own works. After lauding Linnaeus for his system of classification and nomenclature and for all the plants, animals, and minerals he had identified, Stillingfleet gave equal weight to Linnaeus's travels. "Besides his writings, of which I have mentioned but a small part," Stillingfleet wrote, "this indefatigable man, born to be nature's historian, has travelled over Lapland, all Sweden, part of Norway, Denmark, Germany, Holland, England, and France, in search of knowledge."[15]

Linnaeus's travels, and especially his on-the-ground surveys of different regions of Sweden, were fundamental to his interrelated theories of natural history, political economy, and theology. Linnaeus saw in nature a divinely guaranteed order on which social and political order were built. "Nature's economy," he wrote, "shall be the base for our own." As Göran Rydén has argued, "unveiling this *oeconomia natura* was a religious duty and for Linnaeus this required travel. Only by journeying could people discover Creation's wonder."[16]

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[14] Carl Linnaeus, "An Oration Concerning the Necessity of Travelling in One's Own Country, made by Dr. Linnaeus at Upsal, Oct. 17, anno 1741, when he was admitted to the royal and ordinary profession of physic" (1741), in *Amoenitates Academicae*, Vol. 2 (Stockholm, 1751), in *Miscellaneous Tracts*, trans. Stillingfleet (cit. n. 1), pp. 3–35, on p. 15.

[15] Benjamin Stillingfleet, preface to *Miscellaneous Tracts*, trans. Stillingfleet, pp. xiii–xvii. Extracts from the *Amoenitates Academicae* were published in French in 1789, but the complete collection has never been translated into either French or English. See Richard Pulteney, *Revue générale des écrits de Linné*, trans. L. A. [Aubin-Louis] Millin de Grandmaison (London/Paris, 1789). On the authorship of the *Amoenitates* see Camille Limoges, introduction to Linnaeus, *L'équilibre de la nature* (cit. n. 1), p. 8.

[16] Lisbet Koerner, "Purposes of Linnaean Travel: A Preliminary Research Report," in *Visions of Empire: Voyages, Botany, and Representations of Nature*, ed. David Philip Miller and Peter Hanns Reill (New York: Cambridge Univ. Press, 1996), pp. 117–152, on p. 125 (quoting Linnaeus); and Göran Rydén, "The Enlightenment in Practice: Swedish Travellers and Knowledge about the Metal Trades," *Sjuttonhundratal: Nordic Yearbook for Eighteenth-Century Studies*, 2013, *10*:63–86, on p. 69. The main texts in which Linnaeus lays out his theory of the economy of nature are included in Linnaeus, *L'équilibre de la nature*, pp. 29–121.

Linnaeus sent young men out across the globe. In his inaugural address he portrayed the university, with its libraries and collections, as laying the foundation for the fieldwork where natural and economic knowledge was produced; travel through one's own country, in turn, laid the foundation for travel abroad.[17] Linnaeus took up this subject in *Instructio Peregrinatoris*, a guide for how to conduct scientific travel in the eighteenth century that became the model for all subsequent guides.[18] Inspired by him, Linnaeus's students traveled across the globe in search of knowledge. In naming nearly a dozen of Linnaeus's students as unfamiliar to us today as they must have been to his English readers, Stillingfleet drew a map of the world: "C. Ternstrom went into Asia; P. Kalmius to Pennsylvania and Canada; L. Montin into one part of Lapland, D. Selander into another; F. Hasselquist into Egypt and Palestine; O. Toren to Malabar and Surat; P. Osbech to China and Java; P. Loefling to Spain and America; P. J. Berg to Gothland; M. Koehler to Italy and Apulia; and D. Solander to Surinam and St. Eustacia." For Stillingfleet, Linnaeus was above all the master whose "disciples" had spread across the globe. "In this light," he concluded, "Linnaeus must appear like Homer at the head of the poets, Socrates at the head of Greek moralists, and our Newton at the head of the mathematical philosophers."[19] Or, one might add, Columbus at the head of his fleet, Caesar at the head of his army.

Linnaeus believed that nature was improved through human activity. In his theology, technology was the solution to human suffering and the "science of economy" would teach people how to use and improve nature for human benefit. As Lisbet Koerner argues, for Linnaeus "economics did not mean the study of the allocation of scarce resources. . . . It denoted a principled search for advances in agriculture, mining, and manufactures." A thorough natural historical knowledge of the land and its resources was thus the necessary basis of a cameralist economic theory and policy that aimed at national self-sufficiency through technocratic control of nature and technological innovation. When Linnaeus produced a list of his most important works on how to "apply nature to economics and vice versa," he omitted his taxonomic works and included all the publications of his travels throughout Sweden.[20]

But Rousseau read only Linnaeus's *Systema Naturae*, which he carried with him on his daily botanizing walks in order to identify the wildflowers he came across.[21] Even as he proclaimed himself one of Linnaeus's disciples, Rousseau ignored Linnaeus's understanding of nature and the relationship of botany to it. Whereas Linnaeus argued for the utility of natural history, Rousseau called botany "a study of pure curiosity that has no other real utility than that which a thinking and sensible being can draw from the observation of nature and the wonders of the universe." Whereas Linnaeus believed that nature was created for the use of humanity and that

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[17] Linnaeus, "Oration Concerning the Necessity of Travelling in One's Own Country" (cit. n. 14), pp. 7–12.

[18] Silvia Collini and Antonella Vannoni, introduction to Carl Linnaeus, *Les instructions scientifiques pour les voyageurs: XVIIe–XIXe siècle*, trans. Marc Rives (Paris: L'Harmattan, 2005), pp. 26–27. Spary notes that whereas Buffon simply gave La Pérouse a set of his own *Histoire naturelle* when asked how to go about collecting specimens, André Thouin trained those who collected for him in his capacity as head gardener at the Jardin du Roi by preparing journals and lists for them and advising them to read Linnaeus's *Amoenitates*. See Spary, *Utopia's Garden* (cit. n. 9), p. 82. On the challenges of collecting, preserving, and transporting specimens in the eighteenth century see Thérèse Bru, "Plus vrai que nature: Conversion de l'information scientifique en objets, conversion des objets en informations dans les correspondances en sciences naturelles (XVIIIe–XIXe siècle, mondes britanniques et français)," in *Matière à écrire: Les échanges de correspondance du XVIe au XIXe siècle*, ed. Bru and Solène de la Forest d'Armaillé (Saint-Denis: Presses Univ. Vincennes, 2017), pp. 179–203.

[19] Stillingfleet, preface to *Miscellaneous Tracts*, trans. Stillingfleet (cit. n. 1), pp. xvii–xviii.

[20] Koerner, "Purposes of Linnaean Travel" (cit. n. 16), pp. 121–127. In turn, Linnaean natural history was adopted as a firm foundation for German cameralism in the last decades of the eighteenth century. See David F. Lindenfeld, *The Practical Imagination: The German Sciences of State in the Nineteenth Century* (Chicago: Univ. Chicago Press, 1997), pp. 28–33.

[21] Rousseau, *Rêveries* (cit. n. 5), p. 1043. My reading of the *Rêveries* is indebted to Pierre Saint-Amand, *The Pursuit of Laziness: An Idle Interpretation of the Enlightenment*, trans. Jennifer Curtiss Gage (Princeton, N.J.: Princeton Univ. Press, 2011), pp. 65–75.

botany was part of an economy of nature that, through human art and action, was the foundation of the economy of the nation, Rousseau saw human intervention in nature as a violation, a "deformation" of nature for human purposes.[22] Finally, for Rousseau, nature was a refuge from the masculine world of competition, striving, knowledge, and achievement; botany's value was primarily moral and aesthetic, not political, economic, or intellectual. It was "a study for an idle and lazy solitary person," as he declared in the *Rêveries*. For Rousseau, the only reason to study nature was to love it, and the best way to do so was simply to stroll about one's neighborhood picking flowers.[23]

Linnaeus promotes a more active and purposeful type of fieldwork in his *Amoenitates* and travel writings. Among the dissertations in the *Amoenitates* is one describing the Herbationes Upsalienses, eight field trips in the area around Uppsala on which Linnaeus took his students at the end of each spring term. Here is how the historian Hanna Hodacs describes these expeditions:

> They arrived in the early morning—as many as two or three hundred students—with horns, banners and drums. The cold May air and dew-damp ground would be offset by the excitement and anticipation of the growing crowd. Even at the last minute, there was much to do: the sharp-shooters tended their guns, someone had to be appointed to write the protocol, others to supervise the crowd—to lead the way and to marshal the stragglers—and in the centre of everything was Carolus Linnaeus himself. . . .
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> And so off they went, the drums driving them on like a search-party, scanning the landscape for material, eyes on the ground, uprooting plants and shooting birds and any other wild animals unfortunate enough to cross their paths. They collected minerals and insects too. Every half-hour they stopped and gathered around Linnaeus, to hear a lecture on the samples the neophytes had harvested. . . . At the end of the day, students and professor would return together, processing through the streets of Uppsala, now in a tighter pack, drums beating louder, horns sounding more clamorously than ever. Le final: an endless chorus outside Linnaeus' house: "Vivat Linnaeus."[24]

THE SOCIÉTÉ D'HISTOIRE NATURELLE AND THE SOCIÉTÉ PHILOMATIQUE

This was the Linnaeus who inspired the members of the Société d'Histoire Naturelle and the Société Philomatique, Parisian voluntary associations with overlapping memberships that welcomed young men with a passion for natural history in the 1790s.[25] The minutes of these two societies show how the activities in which they engaged were inspired by Linnaeus's practice as much as by Linnaean ideas and how such practice was framed in patriotic terms, even as the radicalization of the Revolution made it more dangerous.

On 11 November 1791, fifteen months after its founding, the Société d'Histoire Naturelle approved Aubin-Louis Millin's "Discours sur l'origine et les progrès de l'histoire naturelle, en France," which was to serve as preface to the first volume of the society's published *Actes*. Millin

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[22] Rousseau to M. C. Delessert, letter 7, in *La Botanique de J. J. Rousseau* (cit. n. 4), p. 59. See also Rousseau, *Rêveries*, p. 1064. Linnaeus's argument for the utility of natural history is laid out in the dissertation "Cui bono?" which I discuss below.

[23] Rousseau, *Rêveries*, pp. 1066–1069.

[24] Hodacs, "In the Field" (cit. n. 12), p. 45. See also Richard Pulteney's description and discussion of *Herbationes Upsalienses*, which is dissertation no. 49 from Vol. 3 of *Amoenitates Academicae* (Stockholm, 1756), in *A General View of the Writings of Linnaeus*, 2nd ed. (London: J. Mawman, 1805), pp. 389–391.

[25] For the history of these two societies see Chappey, *Des naturalistes en Révolution*; Jonathan Renato Mandelbaum, "La Société Philomathique de Paris de 1788 à 1835: Essai d'histoire institutionnelle et de biographie collective d'une société savante parisienne" (Ph.D. diss., École des Hautes Études en Sciences Sociales, 1983); and Mandelbaum, "Science and Friendship: The Société Philomathique de Paris, 1788–1835," *History and Technology*, 1988, 5:179–192.

had been one of the founders of the partisan Société Linnéenne, so it is not surprising that his narrative provided the template for the one historians have elaborated ever since, in which the Linnaeus who brought order to the botanical Tower of Babel was the hero. "National pride, *esprit de corps*, and the repugnance of supremely accomplished botanists for abandoning ideas to which they were attached" were blamed for thwarting Linnaeus's conquest of France, but with the death of Buffon "the new generation, leaving to the former one its old errors and its prejudices, embraced the true principles, those of the Linnaean school." However, the culmination of this narrative, which amounted to a prospectus for the Société d'Histoire Naturelle, showed the influence of the Linnaeus of the *Amoenitates*. "Natural history in general will thus be the object of the work of the Society," Millin declared; "but it will pay particular attention to that of France, and above all to that of the Paris region; it will make this its principal occupation." Field trips would be organized weekly, a topographical map mounted on the wall of the meeting room would be annotated with the discoveries made, and a "general and systematic catalogue" based on the Linnaean system would be drawn up to record everything observed and collected.[26]

In the meetings that followed approval of Millin's text, the society began to organize the weekly expeditions around the Paris region. Each member signed up for one of the realms of nature (seventeen mineralogists, eighteen botanists, thirteen zoologists), and leaders were designated for each team. The first excursion took place on 27 November 1791, and at the following meeting the leaders presented their reports and deposited and discussed their finds. Although not always weekly, the excursions continued until July 1792. In October the members voted to start them up again, and they continued sporadically through July of the following year.[27]

If the excursions around Paris were inspired by the Herbationes Upsalienses, the society also found inspiration in Linnaeus's *Instructio Peregrinatoris*. In January 1791 the society began a campaign to launch an overseas expedition whose primary purpose would be to find Jean-François de Galaup, comte de La Pérouse, who had set off from France in 1785 at the head of a scientific expedition with which all contact had been lost. This new expedition would, moreover, have its own scientific aims, cast in a Linnaean mold. "If the search for this navigator does not succeed," the society wrote in its petition to the National Assembly, "it will be more than compensated for by the nautical and astronomical discoveries that one can expect from this new voyage, by the transplantation of useful plants that France will be able to cultivate with success, by the commercial ties that it will be easy to establish." Astronomical and nautical purposes had been central to scientific voyages sponsored by the Academy of Sciences throughout the eighteenth century, but the idea of naturalizing foreign plants to redress an imbalance of trade was all Linnaeus. "Linnaeus understood voyages of discovery as the necessary precondition for a cameralist policy of import substitution, the success of which was guaranteed because of the way God had constituted nature," Koerner explains.[28] When the expedition was approved, the society drew up detailed instructions for the naturalists who would participate. Building on the *Instructio*

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[26] Aubin-Louis Millin, "Discours sur l'origine et les progrès de l'histoire naturelle, en France," *Actes de la Société d'Histoire Naturelle de Paris*, 1792, *1*:vi–xiii, xv–xvi. See minutes of 11 Nov. 1791 in Chappey, *Des naturalistes en Révolution*, p. 127, for reading and approval of this document.

[27] Minutes of 18 Nov., 25 Nov., and 2 Dec. 1791, in Chappey, *Des naturalistes en Révolution*, pp. 129–130; for the relevant portion of the *règlement*, "Des courses et de leur but—titre 5," see *ibid.*, pp. 324–325. Reports on thirty-five excursions were recorded in the minutes between December 1791 and July 1793, but sometimes there were two or three excursions on the same day, as each realm of nature was explored separately by a different team.

[28] Chappey, *Des naturalistes en Révolution*, p. 31 (quoting the petition); and Koerner, "Purposes of Linnaean Travel" (cit. n. 16), p. 138. On the earlier type of scientific voyages see, e.g., Neil Safier, *Measuring the New World: Enlightenment Science and South America* (Chicago: Univ. Chicago Press, 2008).

Peregrinatoris, they prepared a guide for each branch of natural history, beginning with preparations for the voyage and moving on to the collection, preservation, identification, and transportation of specimens. In September the Entrecasteaux expedition set off in search of La Pérouse, with several members of the society on board.[29]

The Société Philomatique was also inspired by Linnaeus and in 1793 took up as a collective project the translation of the *Amoenitates*.[30] Despite Linnaeus's fame and influence, most of his works had not been translated into French. In 1788 Auguste Broussonet had bemoaned in particular the fact that Linnaeus's "*Amoenitates Academicae* are not well-known; hardly anyone has read his different voyages, his beautiful prefaces full of such beautiful views of nature, and never soiled with obviously false assertions."[31] Millin echoed Broussonet the following year in his preface to the translation of Richard Pulteney's *A General View of the Writings of Linnaeus*: "The name of Linnaeus is often repeated among us, but few people have read his *Voyages*, his *Amoenitates Academicae* and his prefaces, full of such beautiful views of nature." And rather than making the case for the utility of natural history himself in his preface to the *Actes* of the Société d'Histoire Naturelle, Millin referred the reader to the *Amoenitates*.[32] In taking up the project to translate the *Amoenitates* the Philomaths aimed to make the Linnaeus who inspired them—the citizen, the traveler, the broad thinker, the inspiring teacher—available to the French public. In the context of the French Revolution, the value of such a project was as patriotic as it was scientific; indeed, making Linnaeus's ideas about the economy of nature and the utility of natural history widely known could only contribute to the cause of the Republic and thus advance the claims to patriotism and utility of the society itself.

Millin joined the Société Philomatique in April 1793, two months after the members instructed their secretary, Augustin-François Silvestre, to draw up a list of all the *Amoenitates Academicae* dissertations and a plan for translating them. The first four assignments were made on 28 February. Charles-Étienne Coquebert de Montbret, a visitor who would soon join the society, volunteered to translate "Cui bono?"—a key dissertation on the utility of studying natural history to which Millin had alluded in his preface to the first volume of the *Actes*.[33] Since nature was created by God for the use of human beings, Linnaeus's student had written, studying it was obviously useful. Nevertheless, he continued, the ignorant often ridiculed those who were engaged in observing nature, asking "What purpose does it serve?"—especially since they could point out that natural history was absent from most curricula. "These people believe that this Science is nothing but *pure curiosity*, an amusement to pass the time for the carefree and idlers," he complained. It was to this affront to all those who were dedicated to the study of natural history that he sought to respond. He began with the food chain: grains and insects that human beings do not

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[29] Regarding the guides see Chappey, *Des naturalistes en Révolution*, pp. 31–32. The manuscripts of these various guides, itemized by Chappey, are in the Bibliothèque Centrale du Muséum National d'Histoire Naturelle (BCMNHN) and the minutes of the society record discussions of them over the course of 1791. A version of the guide for "Zootomie" by the botanist Louis Claude Marie Richard was published in the *Actes Soc. Hist. Nat. Paris*, 1792, *1*:61–69. On the Entrecasteaux expedition see Carol E. Harrison, "Projections of the Revolutionary Nation: French Expeditions in the Pacific, 1791–1803," *Osiris*, 2009, N.S., *24*:33–52.

[30] Regarding the influence of Linnaeus on the Philomaths see Mandelbaum, "Société Philomathique de Paris" (cit. n. 25), pp. 46–51.

[31] Quoted in Duris, *Linné et la France* (cit. n. 2), p. 117. Duris notes that not a single work by Linnaeus was found in the five hundred Parisian libraries (1750–1780) studied by Daniel Mornet. As late as 1797, the minutes of the Société d'Histoire Naturelle note that no copy of the last (twelfth) edition of the *Systema Naturae* was for sale in Paris: minutes of 18 messidor an 5 [6 July 1797], in Chappey, *Des naturalistes en Révolution*, p. 299.

[32] L. A. [Aubin-Louis] Millin de Grandmaison, preface to Pulteney, *Revue générale des écrits de Linné* (cit. n. 15), Vol. 1, p. i; and Millin, "Discours sur l'origine et les progrès de l'histoire naturelle" (cit. n. 26), p. i.

[33] Minutes of 21 and 28 Feb. 1793, Bibliothèque de la Sorbonne (hereafter cited as **Sorbonne**), MS 2082. Coquebert was elected to membership in the society on 14 Mar. 1793.

eat provide nourishment for animals that we do eat or that serve us in some way, such as the worms eaten by fish and birds. Birds of prey, mosses, lichens, fungi, and seashells all serve human purposes, he went on. And if all of nature is at least of indirect utility, knowledge of nature is too. The author set out to show the utility of applying such knowledge, beginning with the most obvious application, agriculture. "Whoever wishes to conduct agriculture profitably must certainly learn to recognize all plants and to know which species grow best in which soil; certain species must be planted in full sunlight, others in shade, others in arid places, others in humid ones, others in sandy soil, others in clay," and so forth. Technology and invention were of course important, he concluded, "but the knowledge of these inventions is not sufficient, so long as the farmer does not concern himself with plants that are harmful to the fields, to the nature to which agriculture must adapt itself in each locale. In this way, the necessity of natural history is evident."[34]

Inspired by the Linnaeus of the "Cui bono?" Coquebert de Montbret and Silvestre developed and taught a course on rural economy at the Lycée Républicain for several years. In 1794 both men were hired by the new Agence des Mines, Coquebert as editor of the *Annales des Mines* and Silvestre as administrator in charge of educational programs. Silvestre went on to a career in public administration devoted to agriculture, both as a bureau chief in the Interior Ministry and as permanent secretary of the Société d'Agriculture for forty years. These were Linnaean careers through which public policy was grounded in knowledge of natural history understood as a natural resource.[35]

Claims for the utility of science, and of natural history in particular, were not self-evident, especially as the Revolution progressed. As Rousseau's star rose, his championing of botany as "a study for an idle and lazy solitary person" and the appointment of his disciple Jacques-Henri Bernardin de Saint-Pierre as intendant of the new Muséum in August 1792 would only have made the translation of "Cui bono?" more important.[36] In October 1793, a month after the Convention declared terror to be "the order of the day," a naturalist was told by a public official that "natural history is nothing but a luxury science, which is no longer in season." That same month Silvestre wrote to the local authorities on behalf of the Société Philomatique, requesting funds to support publication of the society's *Bulletin* on the grounds that it qualified as a work "useful to the arts." The society, he explained, "has been occupied for the past five years with work relevant to the arts, and . . . has in its archives a great number of papers that it would be very useful to make known to the public."[37]

Two weeks earlier, Millin had written to his Philomath colleagues from the prison where he had just been detained. Optimistically declaring that it was all a mistake and that he would soon

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[34] "Cui bono?" (1752), in *Amoenitates Academicae*, Vol. 3. My translation is based on the French translation in Linnaeus, *L'équilibre de la nature* (cit. n. 1), pp. 145–167. Brongniart later laid out the same argument, though somewhat less elegantly, in the introductory lecture to the natural history course he taught at the École Centrale. See Brongniart, Cours d'Histoire Naturelle, École Centrale, BCMNHN MS 2323/1.

[35] On Coquebert's career see Isabelle Laboulais-Lesage, *Lectures et pratiques de l'espace: L'itinéraire de Coquebert de Montbret, savant et grand commis d'état, 1755–1831* (Paris: Champion, 1999). There is no comparable study of Silvestre's career, but he lays out his aims in A. F. Silvestre, *Essai sur les moyens de perfectionner les arts économiques en France* (Paris: Madame Huzard, an IX [1800–1801]). On the course on rural economy see François Silvestre to Alexandre Brongniart, 24 brumaire an 2 [14 Nov. 1793], BCMNHN MS 1989/881; Silvestre to A. Brongniart, 24 floréal an 2 [13 May 1794], BCMNHN MS 1989/887; and "Lycée Républicain," in Bibliothèque Nationale de France (BNF) NAF 2676, p. 66.

[36] See Spary, *Utopia's Garden* (cit. n. 9), pp. 194–195, although she argues that naturalists proved their citizenship by embracing Rousseauism.

[37] Pierre-Yves Lacour, *La République naturaliste: Collections d'histoire naturelle et Révolution française (1789–1804)* (Paris: Publications Scientifiques du Muséum National d'Histoire Naturelle, 2014), p. 16 ("nothing but a luxury science"); and Silvestre to Citizens composing the Directory of the Department of Paris, 1st day of the 2nd month of the 2nd year of the Republic [22 Oct. 1793], Sorbonne Carton 128 (copy).

be freed, he volunteered to translate something, since, he noted, although he had the time, in his current situation he had neither the space nor the instruments to engage in any experiments. Silvestre suggested that he translate the dissertation on apes and monkeys from Volume 6 of the *Amoenitates*.[38]

In the minutes of the meeting in which Millin's offer was discussed, Silvestre noted that the society had asserted that "it placed the translation of the *Amoenitates* of Linnaeus among its most important works." But in the discussion of Millin's translation three months later it became clear that the actual science, some of it now fifty years old, was too dated to be useful.[39] In the end, the project to translate the *Amoenitates* was abandoned as contrary to the society's goal of keeping abreast of and contributing to current research, but the project had served its purpose of giving the society a collective aim and its members the sense that they could do useful scientific work even during challenging times. Rather than translating Linnaeus, they would emulate him.

And Linnaeus's spirit continued to inspire Millin. He now sent his colleagues at both societies a translation of an excerpt from the Norwegian travels of the Danish naturalist Johann-Christian Fabricius (the text had been provided to him by his fellow Philomaths). Along with it came an introduction and a proposal to translate more if they were interested. In his introduction Millin echoed Linnaeus's observation that it was foolish to travel to distant lands before mastering the natural history of one's own country and observed that "the northern naturalists have provided examples that deserve to be followed more than southern ones, after having cited on this point Linnaeus (about whom it has been announced that the voyages of this famous naturalist have just begun to be translated, part of which is ready to be published)." Millin closed by informing his colleagues that "once he had regained the liberty to travel around the Republic as an *observateur naturaliste*," he planned to begin "in the departments that are not in the theater of war."[40]

LINNAEAN NATURAL HISTORY, PATRIOTISM, AND WAR

Although the claims made for the utility and civic value of science could not save individual scientists from the Terror, the value of science to the Republic only increased when it went to war.[41] Between some members fleeing Paris to escape the Terror or, like Millin and Lavoisier, being imprisoned by it, and the services of others being requisitioned by various commissions to assist in the war effort, attendance at meetings of the Société d'Histoire Naturelle and the Société Philomatique dropped off significantly by the end of 1793.[42] The case of Alexandre Brongniart, one of the most active members of both societies, suggests yet another reason for this drop in attendance: the day before the *levée en masse* was voted into law, the twenty-three-year-old

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[38] Aubin-Louis Millin to Société Philomatique, 5 Oct. 1793; and [Millin] to Silvestre, 7 Oct. 1793: Sorbonne Carton 133. Silvestre suggested that Millin translate "Dissertatio Academica, in qua Anthropomorpha," in *Amoenitates Academicae*, Vol. 6 (Stockholm, 1763). On Millin's imprisonment see G. Matthew Adkins, "The Renaissance of Peiresc: Aubin-Louis Millin and the Postrevolutionary Republic of Letters," *Isis*, 2008, 99:675–700, esp. pp. 688–689.

[39] For the remarks on the importance of translation of the *Amoenitates* see minutes of 5 Oct. 1793, Sorbonne MS 2082; for the realization that the science was in fact dated see minutes of 23 nivôse [12 Jan.] [1794], Sorbonne MS 2082.

[40] Société d'Histoire Naturelle, minutes of 11 pluviôse an 2 [30 Jan. 1794], in Chappey, *Des naturalistes en Révolution*, pp. 231–232; and Société Philomatique, minutes of 13 pluviôse an 2 [1 Feb. 1794], Sorbonne MS 2082.

[41] See Nicole Dhombres and Jean Dhombres, *Naissance d'un pouvoir: Sciences et savants en France (1793–1824)* (Paris: Payot, 1989); and Patrice Bret, *L'état, l'armée, la science: L'invention de la recherche publique en France, 1763–1830* (Rennes: Presses Univ. Rennes, 2002). On futile claims for the value of science see, e.g., the letter of support for Lavoisier that Silvestre wrote to the Revolutionary Tribunal on behalf of the Bureau de Consultation des Arts et Métiers, of which Lavoisier was a member and Silvestre was the secretary: "Rapport du Bureau de consultation," 4 floréal an 2 [23 Apr. 1794], in *Oeuvres de Lavoisier: Correspondance*, Vol. 7: *1792–1794*, ed. Bret (Paris: Hermann for the Institut de France, Académie des Sciences, 2012).

[42] See minutes of the Société Philomatique for 13 nivôse [2 Jan. 1794], 23 nivôse [12 Jan. 1794], Sorbonne MS 2082; and minutes of the Société d'Histoire Naturelle, 1 pluviôse [20 Jan. 1794], in Chappey, *Des naturalistes en Révolution*, pp. 229–230.

Brongniart sat for an oral examination for a position as pharmacist with the Army of the Pyrenees; less than a month later he was on the road to Bayonne to serve his country—but with the tools of the naturalist, rather than the weapons of war, in his pack.[43] Joining the army as a pharmacist allowed him not only to avoid being drafted as a soldier but to put his expertise in the service of his country and to pursue Linnaean travel in one of the regions of France richest in natural history at a time when such expeditions in Paris had become virtually impossible.[44]

In August, as the Convention was debating the *levée en masse*, Brongniart had organized a three-day botanizing expedition in the Forest of Fontainebleau. The Société d'Histoire Naturelle had suspended its excursions the month before, after the mineralogist Nicolas Gillet de Laumont reported on the "unpleasantness" that several members had encountered when they were unable to present passports authorizing their movements. Because such passports had to indicate "the exact location where one proposed to go, it would be very annoying and perhaps impossible to obtain a passport soon enough for another [excursion]," he noted, and recommended that the society request a blanket authorization for its members to "freely conduct their business of searching for different natural history objects anywhere within twenty-five leagues of Paris."[45] Such authorization was apparently not forthcoming, and no more excursions were scheduled until 1796.

So Brongniart could not have been surprised when, on their second day in the woods, he and his companions were asked to show their passports. It was the day of the Fête de la Fédération, and the local National Guard was on its way to the capital of the district to celebrate it. The guard, Brongniart told his father, "placed us in their midst and conducted all three of us, knapsacks on our backs and drums beating, to the city of Nemours, two leagues distant from the place where we were arrested." This description mimics that of Linnaeus's Herbationes Upsaliensis, an ironic ending to a botanical excursion that ran into a political revolution. But the Linnaean resonances do not end there. The Forest of Fontainebleau was a Linnaean site: when Linnaeus visited Paris in the summer of 1738, he had botanized there with Antoine and Bernard de Jussieu; the dissertation on the Herbationes Upsalienses later published in the *Amoenitates* cited these walks as a model and inspiration.[46] When the Société d'Histoire Naturelle defined the area they would study around Paris they measured out the distance to Fontainebleau and then drew a circle using it as the radius. Brongniart had already led two expeditions there for the society, one in May 1792 and the other in February 1793.[47]

Brongniart knew that he was taking a risk in going to Fontainebleau in the summer of 1793, but he went anyway, perhaps because such excursions had become essential to his well-being. In May he had written to his father: "I am still very busy, but I am getting everything done. I did not think I was capable of working this hard. I still have time to botanize on Sundays. And this is really useful for helping me to relax my mind. I wanted to stop, but I was so used to doing it

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[43] A. Brongniart to his father, Alexandre-Théodore Brongniart, 24 Aug. 1793, an 2, and 9 Sept. 1793, an 2: Archives Nationales (AN) AP suppl. 668 AP [AP/ (NC) 3/32]; this is the source for all letters between Brongniart and his father. On the *levée en masse* see Isser Woloch, "Napoleonic Conscription: State Power and Civil Society," *Past and Present*, 1986, *111*:101–129. For another example of a naturalist who turned journeys for the military state into Linnaean expeditions see Madeleine Van Strien-Chardonneau, "André Thouin (1747–1824), un commissaire de la République en voyage dans les Provinces-Unis (1794–1795)," in *La République en voyage, 1770–1830*, ed. Gilles Bertrand and Pierre Serna (Rennes: Presses Univ. Rennes, 2013), pp. 299–310.

[44] A. Brongniart to A.-T. Brongniart, 24 Aug. 1793. See also Martyn Lyons, *The Pyrenees in the Modern Era: Reinventions of a Landscape, 1775–2012* (London: Bloomsbury Academic, 2018).

[45] Minutes of 30 July 1793, in Chappey, *Des naturalistes en Révolution*, p. 199.

[46] A. Brongniart to A.-T. Brongniart, 16 May 1793, 19 Aug. 1793; Van Damme, "In the Name of Linnaeus" (cit. n. 10), p. 114; and Pulteney, *General View of the Writings of Linnaeus* (cit. n. 24), p. 390.

[47] Millin, "Discours sur l'origine et les progrès de l'histoire naturelle" (cit. n. 26), p. xv; and minutes for 15 June 1792, 15 Mar. 1793, in Chappey, *Des naturalistes en Révolution*, pp. 152, 184.

that I got bored and couldn't do much of anything."[48] Perhaps the time he spent in the woods (and in jail) helped him to convert the threat of conscription into an opportunity to conduct fieldwork. As he told his father once he got home: "I certainly wish to fulfill my duties as a pharmacist to the letter. . . . But even so, I'm sure I'll find time to do some natural history, and the country where I'm being sent is so rich that it would be impossible not to do something worthwhile no matter how little time I can put into it." Moreover, he continued, the war had to end sometime, and the peace that followed would allow him to continue his travels. Rather than returning directly to Paris, he looked forward to doing fieldwork in the Pyrenees—and maybe even the Alps. Those who sent him there, some of whom were his colleagues in the Société d'Histoire Naturelle, had the same idea: according to Brongniart, "they considered that in sending me to a region that was interesting for natural history, I could, in serving the republic, acquire new knowledge that could someday perhaps become equally useful." The Philomaths devoted most of their meeting of 14 September to advising Brongniart "on the country he is going to traverse and the means of making his voyage useful to the advancement of the sciences."[49] He would serve his country while serving science and himself, seeking glory near rather than on the battlefield through the practice of Linnaean fieldwork.

Brongniart tried as much as possible to impose a Linnaean framework on an expedition whose purpose was primarily military. He tried to go south on a *fourgon* (a military van), because, he said, he "would have the pleasure of going on foot and collecting natural history all along the route, since it goes only two leagues a day."[50] But the army was in a hurry, so he was forced to take the *diligence* as far as Bordeaux. From Bayonne in early November he complained to Silvestre that he was not finding any new species of fish to dissect at the local port and had little free time to explore the countryside. Instead, he proposed translating Linnaeus's *Instructio Peregrinatoris* for the Société Philomatique.[51]

Following Linnaeus's dictum to write every day rather than relying on memory, Brongniart filled notebooks with his observations and wrote letters reporting on them to his colleagues back in Paris.[52] In late November he sent Silvestre a box of plants he had collected along the road from

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[48] A. Brongniart to A.-T. Brongniart, 27 May 1793. Notebooks from Brongniart's voyages are BCMNHN MSS 2336–2354. The earliest is from a trip to Dieppe in 1786, when he was sixteen. From 1795 to 1802, when Brongniart did not travel, he kept what he called a "journal sédentaire." Philippe Lejeune has suggested that the idea for such a journal may have come to him during his stay in the Pyrenees, when his "voyage" became a "séjour." Philippe Lejeune, "Le journal retrouvé d'Alexandre Brongniart (1790–1802)," www.autopacte.org (accessed 23 Aug. 2014), pp. 3–4. The journal itself is BCMNHN MS 3358. On the importance of these botanizing excursions for Brongniart see Stéphane Van Damme, *Métropoles de papier: Naissance de l'archéologie urbaine à Paris et à Londres (XVIIe–XXe siècle)* (Paris: Belles Lettres, 2012), pp. 53–55.

[49] A. Brongniart to A.-T. Brongniart, 24 Aug. 1793; and minutes of 14 Sept. [1793], Sorbonne MS 2082. Two weeks earlier Gillet de Laumont had made a presentation to the Société Philomatique of his own guide for traveling in the Pyrenees, whose mines he had explored in 1788: minutes of 31 Aug. [1793], Sorbonne MS 2082. See also Franck Giraud, "Le voyage de Gillet de Laumont et de Lelièvre dans les Pyrénées à la veille de la Révolution française," *ABC Mines*, May 2008, Bull. 29, pp. 41–46, http://www.annales.org/archives/x/lelievre.html (accessed 14 Aug. 2018).

[50] A. Brongniart to A.-T. Brongniart, 9 Sept. 1793. Louis-Augustin-Guillaume Bosc took the route from Paris to Bordeaux entirely on foot in 1796 on his way to board a ship bound for the United States, where he continued to travel on foot and to naturalize whenever possible. See Georgia Robison Beale, "Bosc Afoot," in *Proc. Annu. Meeting West. Soc. French Hist.*, 1984, *10*:130–140. On Bosc's role in promoting Linnaeus in France, as well as discussion of his trip to Bordeaux and America, see Augustin-François Silvestre, *Notice biographique sur M. Louis-Augustin-Guillaume Bosc, membre de l'institut et de la société royale et centrale d'agriculture; lue à la séance publique de la société, le 28 avril 1829* (Paris: Madame Huzard, 1829), pp. 6, 11–13. On foot travel see also Hodacs, "Linnaeans Outdoors" (cit. n. 12), pp. 195–196.

[51] Brongniart to Silvestre, 8 Nov. 1793, BCMNHN MS 1989/880.

[52] Brongniart's correspondence with Silvestre is BCMNHN MS 1989/873–888; the minutes of both societies record Silvestre reading Brongniart's letters aloud. Brongniart's *Journal du voyage aux Pyrenées* is BCMNHN MS 3357. On the importance of note-taking see Marie-Noëlle Bourguet, "A Portable World: The Notebooks of European Travelers (Eighteenth to Nineteenth Centuries)," *Intellectual History Review*, 2010, *20*:377–400.

Bordeaux to Bayonne and in the environs of the city itself. "The numbers assigned to each one correspond to my journal," he explained, "and I would appreciate it if you would make sure that they don't go astray." When they arrived, Silvestre should ask their botanist colleagues

> to identify them and tell you which ones they judge interesting, so that I can collect more of them. And if you would send me the list of numbers with the names at the bottom and the observations that will have been made about them, I would be very pleased. And since I have kept a small specimen of each of these plants I will in this way learn to recognize them and I will thus know a large part of the plants that grow in the area around Bayonne in this season.[53]

By spring Brongniart had gotten himself transferred to Bagnères, high up in the mountains, where his intention was to do extensive fieldwork before heading back to Paris. His companion on these expeditions would be Broussonet, now on the run after having been imprisoned in Montpellier on a charge of federalism. Over the winter Brongniart and Broussonet had dissected various animals they were able to get their hands on, but they planned to explore the mountains together come spring.[54] On one of these expeditions Brongniart was again arrested, this time because Broussonet had taken the opportunity to escape over the Spanish border. After spending nearly a month in prison in Pau (during which time Robespierre fell and the Terror came to an end), Brongniart returned home on 7 September, almost a year after his departure.[55]

The Committee of Public Safety had recalled Brongniart to Paris on behalf of Coquebert de Montbret, who was now head of the agency charged with implementing the new metric system. Coquebert appealed to Brongniart's patriotism, his commitment to the noble aims of science, and his desire for glory. Imagine, he asked, how great it would feel to say, "I have had a part in executing what every country has always wanted to do and has never been done anywhere; I have facilitated the education of everyone; finally, through my efforts, the most lasting sort of monument has been built that any man could hope to build."[56] But Brongniart chose to join the Corps des Mines as an inspector so that he could continue to travel and do fieldwork with colleagues, most of whom were members of the Société Philomatique or the Société d'Histoire Naturelle. In 1795 he made several trips into the Alps with the geologist Déodat de Dolomieu, thereby fulfilling the goal he had set for himself on leaving Paris for the Pyrenees two years earlier.[57]

As Isabelle Laboulais has shown, education, public service, and the advancement and application of science were at the heart of the mining agency's identity. At the same time, the agency believed that the natural resources of the nation, while remaining in private hands, had to be

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[53] A. Brongniart to Silvestre, 23 Nov. 1793, BCMNHN MS 1989/882.

[54] A. Brongniart to A.-T. Brongniart, 19 Oct. 1793, 5 floréal an 2 [24 Apr. 1794].

[55] A. Brongniart to A.-T. Brongniart, 19 thermidor an 2 [6 Aug. 1794], 27 thermidor an 2 [14 Aug. 1794], 22 fructidor an 2 [8 Sept. 1794].

[56] A. Brongniart to A.-T. Brongniart, 22 fructidor an 2 [8 Sept. 1794], 18 vendémiaire an 3 [9 Oct. 1794]; and Isabelle Laboulais, *La Maison des mines: La genèse révolutionnaire d'un corps d'ingénieurs civils (1794–1814)* (Rennes: Presses Univ. Rennes, 2012), pp. 36–37, 47–53. Coquebert's undated letter encouraging Brongniart to join the Agence Temporaire des Poids et Mesures is quoted in Laboulais-Lesage, *Lectures et pratiques de l'espace* (cit. n. 35), p. 299.

[57] A. Brongniart to A.-T. Brongniart, 26 fructidor an 2 [12 Sept. 1794] (decision to join the Corps des Mines). On Brongniart's forays into the Alps with Dolomieu see his letters to his father between August and November 1795 and his journal, in the form of eighteen letters addressed to his family: BCMNHN 2351. See also Alix Cooper, "From the Alps to Egypt (and Back Again): Dolomieu, Scientific Voyaging, and the Construction of the Field in Eighteenth-Century Natural History," in *Making Space for Science: Territorial Themes in the Shaping of Knowledge*, ed. Crosbie Smith and Jon Agar, with Gerald Schmidt (New York: St. Martin's, 1998), pp. 39–63, esp. pp. 49–53. On the tours undertaken by the mining inspectors see Laboulais, *Maison des mines*, pp. 134–138.

managed by the state, informed by expertise, in the interest of the nation. Its thoroughly Linnaean mission included training engineers, producing and disseminating scientific and technical knowledge, promoting best practices, and in general encouraging and managing the exploration and exploitation of France's mineral resources. Inspectors like Brongniart functioned both as intermediaries between the state and the private operators of mines and mills and as the "pivot" between science and administration.[58]

Between tours of inspection, Brongniart continued to be active in the Société Philomatique and the Société d'Histoire Naturelle; he also picked up some teaching at the École des Mines, the Lycée, and the École Centrale, where he organized field trips with his students and planted a botanical garden for them, as Linnaeus had in Uppsala.[59] When the scientific mission to Egypt was being organized in the spring of 1798, Brongniart enthused about it in the Coqueberts' salon with "the ardor that [the expedition] inspires in everyone who is passionate about the sciences." But it was the Coqueberts' son, seventeen-year-old Ernest, who signed on as a naturalist's assistant.[60]

Ernest had been raised a Linnaean. He had embarked on his first Linnaean expedition at the age of eight when he accompanied his father on a trip from Paris to Dublin, where Charles-Étienne Coquebert was to take up a diplomatic post as France's trade representative.[61] According to his friend Augustin Pyramus de Candolle, it was on this trip that Ernest's passion for botany emerged.[62] On his family's return to Paris in 1791, he took up the formal study of natural history at the Jardin des Plantes, where the founders of the Société Philomatique had met as students in the 1780s and the Société d'Histoire Naturelle had been organized in 1790. He was also reading Linnaeus, especially the travel writings. In March 1794 Coquebert read parts of his son's translation of Linnaeus's account of a voyage to West Gothland at a meeting of the Société Philomatique. Two years later Ernest himself attended a meeting of the society, where he observed that a machine for polishing marble similar to one that had just been announced as a new invention had been described by Linnaeus years earlier in recounting another of his Swedish voyages.[63] But what Candolle, who was two years older than Ernest, remembered most fondly was the pleasure they shared in natural history excursions around Paris. "Will I ever forget those solitary botanizing walks [*herborisations*], where, united by a shared passion, we tasted at once the charms of the countryside, study, and friendship? . . . It was through this intimate connection that I learned to appreciate the spirit of observation, exactitude, and perseverance that characterized his judgment, as well as the frankness and firmness of his character."[64] Rousseauian as this pleasure in

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[58] Laboulais, *Maison des mines*, pp. 28, 62–64.

[59] On the garden see Alexandre Brongniart, *Journal sédentaire*, 1795–1802, BCMNHN MS 3358, entries for 18 Mar., 19 Mar., 23 Mar., 23 Apr., 10 Aug., 12 Aug., 13 Aug., 14 Oct. 1798; on the field trips see the entries for 19 May and 3 June 1798.

[60] Charlotte Coquebert de Montbret to Aimée Steck, 21 germinal [10 Apr. 1798], in *Correspondance adressée à Mme Steck, née Aimée Guichelin, par la famille Coquebert de Montbret (1797–1821)*, transcribed and ed. by Bernard Poujeaux and Pauline Poujeaux from MSS in the Bibliothèque de la Bourgeoisie de Berne, Archives familiales Steck. I am grateful to Madame Poujeaux and Catriona Seth for sharing this typescript with me. It is unclear why Brongniart chose not to go on the expedition to Egypt, but on 23 Apr., as he was seeing various young friends off, he wrote a long entry in his journal on the importance of "resolution" and "strength of character," working hard, finishing what you start, and not procrastinating: Brongniart, *Journal sédentaire*, entries for 21–24 Apr. 1798, BCMNHN MS 3358.

[61] Charles-Étienne Coquebert de Montbret, *Voyage de Paris à Dublin à travers la Normandie et l'Angleterre en 1789*, ed. Isabelle Laboulais-Lesage (Saint-Étienne: Publications Univ. Saint-Étienne, 1995). On Ernest Coquebert's education see *Biographie universelle (Michaud) ancienne et moderne*, Vol. 9 (1854), pp. 164–165.

[62] Augustin Pyramus de Candolle, "Notice historique sur A. F. E Coquebert de Montbret lue à la séance générale de la Société Philomatique le 12 brumaire an 12 [4 Nov. 1803]," BCMNHN MS 2352/4. The minutes of the Société Philomatique record Candolle's reading of the eulogy on 15 brumaire an 12 [7 Nov. 1803], Sorbonne MS 2083.

[63] Minutes of 13 ventôse an 2 [3 Mar. 1794], Sorbonne MS 2082; and minutes of 3 germinal an 4 [23 Mar. 1796], Sorbonne MS 2082.

[64] Candolle, "Notice historique sur A. F. E Coquebert de Montbret" (cit. n. 62). In this passage Candolle alludes to the motto of the Société Philomatique: "Etude et Amitié."

botanizing was, it was the Linnaeus of the travels who inspired Ernest. As Candolle recalled, "Instead of limiting himself to following the ideas of Linnaeus, he wanted to imitate him through a voyage undertaken for botany."[65]

Madame Coquebert at first saw only the dangers that her young son would face, but like her husband she came to understand the expedition as the capstone of Ernest's education.[66] Within a couple of weeks Ernest had set off for Lyon, where he met up with Brongniart's mentor Dolomieu and Louis Cordier, a recent graduate of the École des Mines.[67] Ernest's first opportunity to botanize came in the mountains on the road to Avignon. "You can imagine how excited I was," he wrote to his parents, "above all when I saw that I was in a country fertile with plants that were interesting and new to me." Climbing into the hills, he was overcome by the scent of thyme and lavender. "At each step," he enthused, "a new treasure appeared before me. I was in a state difficult to express: the pleasure made me forget myself; it was as if I was in a state of fever."[68]

Finally arriving in Alexandria in July, Ernest spent most of that month and the next as part of an eighteen-member team in Rosetta. "We divide our time between hiking and hunting, reading and writing up our notes, swimming and tending to the specimens we collect," he told his parents. The botanizing, however, was both dangerous and disappointing. Like the intrepid naturalist disparaged by the crowd in Linnaeus's "Cui bono?" he declared proudly: "It is not without risks that one can botanize here, and those who strive for the title of 'Martyrs of Natural History,' could not find a more conducive place."[69] And even if his knowledge of natural history had not increased significantly, Ernest believed that he had made great strides in his education because what he had known only through books he now had "as they say, at my fingertips."[70]

Ernest took pride in his newfound toughness. For him and his parents the scientific expedition was meant to be part of his broader education: just as important as developing knowledge and skills as a botanist was the development of his character as a man. "My thoughts are on the things that attract your attention," Coquebert had written in his first letter to his son back in April. "I imagine seeing them with you, I dream about the recognition you will receive, the reputation which must be the fruit of a well-conducted voyage, about the friends you will make for life, of how you will learn to live with other men, to fly on your own wings, and, as our excellent Brongniart said, to form strong resolutions and execute them with courage and perseverance."[71]

Whatever the expedition may have meant for Bonaparte and the savants who led it, for Ernest and his fellow students it was a field school under the mentorship of the leading savants of the day that would turn them into men as well as scientists, distinguish them from their peers, and launch their careers. Ernest's letters are filled with references to the "good comrades" who shared his passions and ambitions.[72] For them, as for Linnaeus, "the field was also a social place, in which

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[65] *Ibid.*

[66] Charlotte Coquebert to Aimée Steck, 21 germinal [10 Apr. 1798].

[67] Cafarelli, Général de Brigade du Génie, to Ernest [Coquebert] de Montbret, 29 germinal an 6 [18 Apr. 1798], "Ordre de départ pour l'Egypte," in Doë de Maindreville, "La mission d'Ernest Coquebert de Montbret, botaniste attaché à l'Armée d'Egypte (1798–1801), *Carnet de la Sabretache*, June 1956, no. 414, pp. 43–86. All citations from Ernest Coquebert's letters come from this edition.

[68] Ernest Coquebert de Montbret to Charles-Étienne Coquebert de Montbret, 9 floréal an 6 [29 Apr. 1798].

[69] E. Coquebert to C.-E. Coquebert, 2 floréal an 8 [1 May 1800]; and "Cui bono?" (cit. n. 34), p. 148.

[70] E. Coquebert to his parents, M. et Mme. Coquebert, 6 pluviôse an 7 [26 Jan. 1799].

[71] C.-E. Coquebert to E. Coquebert, 4 floréal an 4 [23 Apr. 1798], quoted in Laboulais-Lesage, *Lectures et pratiques de l'espace* (cit. n. 35), p. 339.

[72] E. Coquebert to M. et Mme. Coquebert, 5 thermidor [an 6] [24 July 1798]; see also letters of 28 floréal an 6 [8 May 1798], 20 messidor [an 6] [9 July 1798]. On the meaning of the expedition for the savants see Marie-Noëlle Bourguet, "Science and Memory: The Stakes of the Expedition to Egypt (1798–1801)," in *Taking Liberties: Problems of a New Order from the French Revolution to Napoleon*, ed. Howard G. Brown and Judith A. Miller (Manchester: Manchester Univ. Press, 2002), pp. 92–109.

relationships could be established between novices en route to becoming naturalists."[73] In the context of the French Revolution, that social place was political, as the Egypt expedition itself merged the glory of war and empire with that of science, forging bonds between citizens in the service of the nation through the practice of natural history.

Ernest expected to be gone for a year or two at most. In September 1798 he was looking forward to gathering a wealth of plants over the winter and then returning home. In January he still thought he would be home by the end of the summer.[74] However, the following month Bonaparte led his troops into Syria to head off an Ottoman attack, only to encounter the British; in July the French suffered defeat at the hands of Lord Nelson at Aboukir; and in August 1799 Bonaparte secretly returned to Paris, arriving in time to lead the coup d'état of 18 brumaire that brought an end to the Directory and inaugurated the Consulate. The defeated army and the scientists who accompanied it were left stranded. In January 1801 Ernest expressed his sense of betrayal in a letter to his mother: "Now, I ask you in good faith, all partiality aside, if when the Scientific Commission left Paris, it thought its purpose was to found a colony or rather if this was a scientific voyage, purely and simply?"[75] Like Brongniart before him, Ernest had learned the hard way that the pursuits of war and natural history were not fully compatible. Three months later he succumbed to the plague in Cairo as his comrades boarded ships for home.

Candolle, who read a eulogy of his friend at a meeting of the Société Philomatique in November 1803, had met him on his first visit to Paris, when he was eighteen. Although he stayed only a few months, Candolle made friends with two young men—Ernest Coquebert and François Silvestre's nephew, Henry Bonnard—who shared his passion for natural history. He returned to Paris in April 1798, just as the Egypt expedition was about to set out.[76] That June Brongniart organized another expedition to Fontainebleau, this time with passports in order, and invited Candolle to join the party. On the afternoon of their arrival they followed Linnaeus's advice always to pay one's respects to local savants and called on Louis-Charles-Henri Macquart, a Philomath, mineralogist, and professor of natural history at the École Centrale de Fontainebleau. Macquart showed them his collection and botanical garden, and the next day he and three of his students joined the expedition, providing helpful local knowledge.[77] The group included both Philomaths, such as Georges Cuvier, and students, among them Henry Bonnard, who was a student at the École Polytechnique, and Ernest Coquebert's cousin Barthélémy de Cressac, a student at the École des Mines.

Brongniart was their leader, and Linnaeus, who once referred to himself as the "general" of an army composed of "Officers of Flora," was Brongniart's model. "Brongniart was the leader of the group," Candolle recalled. "Each morning we left Fontainebleau under his orders; we crossed the forest methodically, guided by hunting maps and responding to the whistles of our supreme leader. We attacked every branch of natural history simultaneously." Like Linnaeus, Brongniart

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[73] Hodacs, "In the Field" (cit. n. 12), p. 48.

[74] E. Coquebert to M. et Mme. Coquebert, 26 fructidor [an 6] [13 Sept. 1798]; E. Coquebert to C.-E. Coquebert, 2e jour complémentaire [an 6] [21 Sept. 1798]; and E. Coquebert to M. et Mme. Coquebert, 6 pluviôse an 7 [26 Jan. 1799].

[75] E. Coquebert to Charlotte Coquebert, 2 pluviôse an 9 [22 Jan. 1801]. On Dolomieu's sense of betrayal see Cooper, "From the Alps to Egypt (and Back Again)" (cit. n. 57), pp. 53–58. See also Jeremy D. Popkin, *A Short History of the French Revolution* (Upper Saddle River, N.J.: Prentice-Hall, 2002), pp. 106–107, 110.

[76] Augustin Pyramus de Candolle, *Mémoires et souvenirs* (Geneva/Paris: Joël Cherbuliez, 1862), pp. 43–44, 55–56. Candolle was elected to the Société Philomatique in October 1800 on the nomination of Brongniart. See Mandelbaum, "Société Philomathique de Paris" (cit. n. 25), p. 198.

[77] Brongniart, *Journal sédentaire*, BCMNHN MS 3358, entries for 8 and 9 June 1798; and Carl Linnaeus, "Instructions for Naturalists on Voyages of Exploration," in *The Linnaeus Apostles: Global Science and Adventure*, Vol. 1: *Introduction*, ed. Lars Hansen (London: IK Foundation, 2010), pp. 201–207.

had divided the group into teams: Candolle and Bonnard were assigned to plants, Cressac to birds. Brongniart kept a record of the expedition in his journal. Day 3 included a "pond rich in microscopic insects" and ended in Linnaean fashion: "We returned to Fontainebleau from the direction of the Vallée de la Chambre in single file and marching in step."[78] Drawing on the fraternal military model that formed so many young men in the 1790s, this Linnaean expedition was meant to mold Candolle and the other students into citizens as well as scientists.

Echoing Ernest Coquebert's reflections on his more ambitious but ultimately tragic Linnaean expedition, Candolle saw the experience as formative.

> I had left on this excursion as a young student, unknown and isolated; I returned having heard distinguished men reasoning about their studies, and I had won something of their friendship. I had seen them observing nature and I had thereby learned from them through practice the difficult art of observation. Nothing was lost on me, neither the botanizing nor the conversation, and today it is to this excursion that I am tempted to say that I owe my career in science.[79]

CONCLUSION

Even as his scientific theories were coming under scrutiny, Linnaeus's persona, his call to action, and his belief in the value of natural historical knowledge for the modern state found increasingly receptive ears. Young Frenchmen declared themselves Linnaeans in the 1790s not to break down the walls of the old Buffonian fortress but because Linnaeus spoke to them in a way that resonated with revolutionary culture and aspirations. He provided them with a model of leadership and purpose equal to that of storming the Bastille or marching off to war in defense of the *patrie*. But he also validated their passion for natural history as a form of citizenship by providing arguments for its utility based on a theory of natural and political economy grounded in the land. Bringing that Linnaeus into focus helps us to understand not only young men like Candolle, Brongniart, and Ernest Coquebert, but how what has been called the "Golden Age" of French natural history could emerge out of the French Revolution.

Although Ernest Coquebert died before he could make his mark, Candolle made major contributions to botany and Brongniart to geology. At least as important as their scientific work were their careers in public administration, where they joined fellow Philomaths such as François Silvestre, Charles-Étienne Coquebert de Montbret, and Jean-Antoine Chaptal in bringing the Linnaean spirit into the heart of the new French state.[80] For Brongniart, this entailed serving as director of the Sèvres porcelain manufactory from 1800 until his death in 1847. In that capacity he was responsible not only for restoring the glory and financial stability of one of France's iconic state institutions but also for developing new materials and industrializing production, including introducing coal power.[81] Moreover, if Linnaeus was, in Stillingfleet's words, "nature's historian," Brongniart became in his image the first systematic historian of ceramics. Less than

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[78] Koerner, *Linnaeus* (cit. n. 12), p. 49; Candolle, *Mémoires et souvenirs* (cit. n. 76), p. 67; and Brongniart, *Journal sédentaire*, BCMNHN MS 3358, entry for 12 June 1798.

[79] Candolle, *Mémoires et souvenirs*, pp. 67–68.

[80] See, e.g., Jean-Claude Perrot and Stuart J. Woolf, *State and Statistics in France, 1789–1815* (Chur: Harwood Academic, 1984); Jeff Horn and Margaret C. Jacob, "Jean-Antoine Chaptal and the Cultural Roots of French Industrialization," *Technology and Culture*, 1998, 39:671–698; and Laboulais, *Maison des mines* (cit. n. 56).

[81] Tamara Préaud and Derek E. Ostergard, eds., *The Sèvres Porcelain Manufactory: Alexandre Brongniart and the Triumph of Art and Industry, 1800–1847* (New Haven, Conn.: Yale Univ. Press, 1997). See also Alexandre Brongniart, *Traité des arts céramiques: Ou des poteries, considérées dans leur histoire, leur pratique et leur théorie* (Paris: Bechet Jeune, 1844); and Brongniart and Denis Riocreux, *Description méthodique du musée céramique de la manufacture royale de porcelaine de Sèvres* (Paris: A. Leleux, 1845).

two years into the job, Brongniart proposed to Interior Minister Chaptal the establishment of a study collection similar to the mineralogical collection of the École des Mines or the plants and animals of the Jardin des Plantes. "I believe it will be useful to the progress of the ceramic arts and their history, to assemble in a methodical way, in the national establishment that has been a school of one branch of this art and which ought to be that of the art as a whole, all the objects of art and science that might serve as the history of fine and ordinary pottery," he wrote. The collection would include "samples of all pottery clays, both French and foreign, [and] a set of specimens of all known porcelains and potteries."[82]

As Linnaeus sent his "disciples" across the globe to collect and classify nature for the economic benefit of Sweden and the world, Brongniart drew on his scientific and administrative networks to collect and classify ceramics and the materials from which they were made throughout time and across the globe, beginning with each French *département*. He created his own *Instructio Peregrinatoris* for collecting these materials and gave it to ship's captains, physicians, and savants shipping out on French scientific expeditions, along with empty crates and 200 francs each to cover their costs. Meticulously labeled specimens arrived from all over the world to fill the cabinets of the world's first scientific museum of ceramics, which Brongniart proceeded to organize according to a taxonomy of his own devising.[83] One of the first specimens to arrive was Wedgwood clay, collected in Cornwall in 1803 by Henry Bonnard, now a mineralogist and mining engineer who was on his own Linnaean tour of English mines and mills with the aim of bringing back knowledge of the latest industrial processes for the benefit of France.[84] In this he, like Brongniart, embodied the Linnaean spirit that emerged during the French Revolution and shaped French science and the French state in the nineteenth century.

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[82] A. Brongniart to Jean-Antoine Chaptal, 10 thermidor an 9 [29 July 1801], Archives de la Manufacture Nationale de Sèvres, Register Vc 2. On Brongniart as the first systematic historian of ceramics see Sylvie Millasseau, "Brongniart as Taxonomist and Museologist: The Significance of the Musée Céramique at Sèvres," in *Sèvres Porcelain Manufactory*, ed. Préaud and Ostergard, pp. 123–147; and Julia A. Carr-Trebelhorn, "From Geology to Art History: Ceramist Alexandre Brongniart's Overlooked Contribution to the Developing Science of Art History in the Early Nineteenth Century" (M.A. thesis, Univ. Kentucky, 2014). Dissertation no. 50, from Vol. 3 of *Amoenitates Academicae*, concerned the importance of museum collections for natural history and how to organize them. See Pulteney, *General View of the Writings of Linnaeus* (cit. n. 24), p. 391.

[83] Béatrice Pannequin, "Clay, Pedagogy, and Progress: The History of the Enquête des Préfets, 1805–1810," in *Sèvres Porcelain Manufactory*, ed. Préaud and Ostergard, pp. 157–163; and Millasseau, "Brongniart as Taxonomist and Museologist," pp. 125–127.

[84] Silvestre to Henry Bonnard, 25 messidor an 11 [14 July 1803], AN 352 AP 43. Bonnard published two important papers based on this tour: A. H. Bonnard, "Note sur le gisement, l'exploitation et le traitement de l'Etain, dans le duché de Cornouailles," *Journal des Mines*, Fructidor an 11, *14*(84):443–454; and Bonnard, "Sur les procédés employés en Angleterre pour le traitement du fer par le moyen de la houille," *ibid.*, Nivôse an 13, *17*(100):245–296. A full account of the tour was published by Bonnard's Swedish traveling companion: Eric T. Svedenstierna, *Svedenstierna's Tour of Great Britain, 1802–3: The Travel Diary of an Industrial Spy*, trans. E. L. Dellow (Newton Abbot: David & Charles, 1973).