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Malthus and the Philanthropists, 1764–1859: The Cultural Circulation of Political Economy, Botany, and Natural Knowledge

J. Marc MacDonald

Department of History, University of Prince Edward Island, 550 University Avenue, Charlottetown, PE C1A 4P3, Canada; jmamacdonald@upei.ca; Tel.: +1-902-569-4865

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Abstract: Modernity does not possess a monopoly on mass incarceration, population fears, forced migration, famine, or climatic change. Indeed, contemporary and early modern concerns over these matters have extended interests in Thomas Malthus. Yet, despite extensive research on population issues, little work explicates the genesis of population knowledge production or how the process of intellectual transfer occurred during the eighteenth and early nineteenth centuries. This paper examines the Delessert network's instrumental role in cultivating, curating, and circulating knowledge that popularized Malthusian population theory, including the theory's constitutive elements of political economy, philanthropy, industry, agriculture, and botany. I show how deviant, nonconformist groups suffered forced migration for their political philosophy, particularly during the revolutionary 1790s, resulting in their imprisonment and migration to America. A consequence of these social shifts was the diffusion and dissemination of population theory—as a pursuit of scientific knowledge and exploration—across both sides of the Atlantic. By focusing on the Delesserts and their social network, I find that a byproduct of inter and intra continental migration among European elites was a knowledge exchange that stimulated Malthus's thesis on population and Genevan Augustin Pyramus Candolle's research on botany, ultimately culminating in Charles Darwin's theory of natural selection and human evolution.

Keywords: knowledge circulation; nature; political economy; philanthropy; population; botany; translation; network

1. Introduction

Contemporary concerns over migration, population, and the environment contribute to an enduring interest in Thomas Robert Malthus (1766–1834). However, such preoccupations are not restricted to the modern period. In the late eighteenth century, before Malthusian became an adjective, there were debates on population, unease over migration, immense ecological changes affecting human civilization, and the initial developments of the Industrial Revolution, which led to humanity impacting global climate. Concerns over hunger and revolution, both influenced by global climate shifts during the Little Ice Age (1300–1850), increased in the early nineteenth century. As a consequence, Europeans developed a widespread interest in Malthus, political economy, botany, and philanthropy.

The Malthus family failed to preserve international distinctions bestowed upon T. R. Malthus, a practice that was continued by their descendants. Malthus's great-great nephew, Robert Malthus (1881–1972), was thus surprised, when travelling as a youth in the late nineteenth century, that their name was still renowned on the Continent [1]. The great Malthus biographer and scholar Patricia James reflects: “the remote uncle nobody had talked about at home was regarded as a great man

abroad" ([1], p. 362). This interest in Malthus on the Continent was part of wider Enlightenment cultural exchange, which encompassed political economy and its relation to the natural world.

The historiographical debate has, like Malthus's family, struggled to expand the perspective beyond a British context. The Enlightenment thrived before culture became nationalized, science became specialized, and economics became individualized. We must thus move outside such limits to understand how knowledge circulated in this period. The Republic of Letters used Huguenot printing centers to diffuse knowledge across Europe. These refugee communities formed after intolerant political policies forced nonconformists to the social periphery or into exile. Many nonconformists thereby developed a liminal character uniquely suited for international Enlightenment exchange.

The nonconformist British-Franco-Swiss network popularized Malthus's work as one of several late-Enlightenment reforms. The network originated in the 1760s and 1770s. Members seeking alternative education for their children embraced Jean-Jacques Rousseau's (1712–1778) system. This included both the Malthus family and the Delesserts, a Franco-Swiss banking family, who each partook in botanical exchange with Rousseau. The primary basis of Rousseauist learning, in form and content, was nature. This acutely shaped the work of various network members. In the 1780s, they expanded knowledge transfer through education, science, and technology. Revolution and war dispersed many nonconformists and moderates, disrupting the diffusion of Enlightenment. These events and dearth in the late 1790s inspired diverse reform. The *hôtel Delessert* in Paris was a clearinghouse facilitating meetings of leading savants, transmission and translation of political economy texts, sponsorship of botanical publications and transoceanic voyages to improve their massive herbarium, founding of societies to encourage welfare and industry, and establishment of manufactories that married agriculture and industry. Knowledge exchange by this network had a significant but unheralded influence on nineteenth-century thought, forming a direct and intellectual bridge among J.-J. Rousseau, T. R. Malthus, and Charles Darwin (1809–1882). Late-Enlightenment circulation of knowledge among philanthropists, naturalists, and political economists responded to cultural and climatic instability and ultimately impacted Darwinian science.

2. Methodology and Literature Review

The methodology of this paper relies on historical research and manuscript analysis—of neglected and newly available material—from British, French, Swiss, and American archives. I approach the Enlightenment not simply in a philosophical or national context, but as an international and cosmopolitan movement. Cultural connections allowed the Delessert network and *hôtel* to become central nexus for the dissemination of late-Enlightenment knowledge on political economy, botany, industry, and philanthropy.

There is extensive scholarship on Malthus's influence on political economy and European history. Yet, symbiotic links between Malthus and the British-Franco-Swiss network remain little known. Historiography has focused on his reception across Europe and Continental influences upon Malthus. This includes limited discussion of the role of transmitters and translators in work on Malthus and published editions of his papers.

Scholarship on Malthus and his impact on political economy began during his life and expanded after his death. An early memoirist was his close friend and travelling companion, William Otter (1768–1840) [2]. Both he and Malthus had been educated by tutors, belonged to England's aristocracy, attended Cambridge University together later becoming fellows, and joined the Anglican establishment after taking religious orders. Rev. Malthus filled a curacy at Albury and Otter served various religious posts, including Bishop of Chichester (1836–1840) [2–4]. One of Otter's primary motivations for writing the memoir was that nineteenth-century critics "all came hastily to the conclusion that Mr. Malthus was a cold and heartless, if not an impious man" ([2], p. xvii).

Another early and sympathetic scholar to write on Malthus was the Cambridge economist John Maynard Keynes (1883–1946). Otter's memoir was an early attempt to separate Malthus from his works—like an *Essay on the Principles of Population* (1798) and radical conclusions

stemming from them—whereas Keynes’ tried to recover Malthus *the economist* from the neglect of *Principles of Political Economy* (1820). Keynes christened Malthus “the first of the Cambridge economists” ([3], p. 90), and championed his more practical approach over the theoretical economic system of David Ricardo (1772–1823). “But it was Ricardo’s more fascinating intellectual construction which was victorious,” Keynes concludes, “and Ricardo who, by turning his back so completely on Malthus’s ideas, constrained the subject for a full hundred years in an artificial groove” ([3], p. 103). Early works set the tone for literature on Malthus, as biographies and Malthusian economics represent significant portion of this scholarship.

Biographical and economic concerns were united in the work of Patricia James. She became one of the most prominent Malthus scholars, working for decades to make material on Malthus public. James edited *The Travel Diaries of Thomas Robert Malthus* (1966), which includes Malthus’s accounts of Scandinavian (1799), Continental (1825), and Scottish (1826) tours. James also wrote a comprehensive and laudatory biography, *Population Malthus, His Life and Times* (1979) [1,5]. It was the result of much research, including family archives. James’s primary intention, in this first full-length biography of Malthus, was to correct oversights and misconceptions that persist despite an excess of material written on Malthus and his theory [1]. Finally, James was editor of the scholarly and variorum edition of Malthus’s *An Essay on the Principle of Population* (1990) [6].

Another element of this scholarship focuses on criticism of Malthus and negative aspects of his ideas. Attacks on Malthus’s *Essay* and principle of population emerged soon after its first publication, before he was publically acknowledged as the author, and continue to the present. Early criticism, from both religious and progressive scholars, was diverse and extensive. It included, logically, responses from writers Malthus had attacked in various editions of his *Essay*—like William Godwin (1756–1836) and utopian socialist Robert Owen (1771–1858)—critiques by Lake Poets Samuel Taylor Coleridge (1772–1834) and Robert Southey (1774–1843), and attacks by political economists, physicians, philanthropists, and social critics [1,7,8]. In the late nineteenth century, two of the most scathing Malthusian critics were Karl Marx (1818–1883) and Friedrich Engels (1820–1895) [9,10]. Recent scholarship has provided critical assessments and re-readings of debates ranging from economics and philosophy to Malthus’s influence on modern scientific racism. In *The Legacy of Malthus* (1977) Allen Chase goes so far as to label Malthus (in the section “From Malthus to Hitler”), as the “founding father of scientific racism,” for his criticism of poor relief, birth control, and health reforms ([11], p. 6).

Examinations of Malthus’s reception in Europe, and the influence of Continental writers on him, have formed only a minor part of the historical literature. They include discussions of the roles of translators and transmitters—specifically Dr. Pierre Prévost (1751–1839) and Dr. Alexandre Marcet (1770–1822)—in *Population Malthus* [1]. There are also published editions of some Malthus-Prévost correspondence [12,13]. Such works feature a brief analysis of the links between Malthus and intermediaries—such as Marcet and Prévost—as have publications focused on their wider circles [14–18]. Finally, scholars have examined the French economists, the *Physiocrats*, as predecessors of and crucial influences on Malthus [19,20]. Yet, the cultural context that nurtured lasting knowledge transfer between Malthus’s circle and the British-Franco-Swiss network remains obscure.

Scholarship relating to environmental history has underscored vital motivations for knowledge circulation on population and dearth. Historians working on ecological shifts typically examine the modern period, but a particular strand of this research has focused on early modern topics. Appropriately, this is a result of interdisciplinary and international scholarship. In the late 1930s, Euro-American glaciologist François Matthes (1874–1948) created the term “The Little Ice Age” to identify the period—succeeding the medieval warm period (800–1250)—of excessive cold and variability. Matthes believed that some modern glaciers formed in this period, which he distinguished from the great prehistoric ice ages. In the 1950s, Swedish economic historian Gustaf Utterström (1911–1985) adopted this term to explain early modern Scandinavian population and economic crisis. The effects of climate on history were first neglected by leading social historians,

but by 1970 had attained favor with Emmanuel Le Roy Ladurie of the French *Annales* School. His work *Times of Feast, Times of Famine* (1971) helped popularize the Little Ice Age [21–23]. This period has subsequently received significant attention from natural and social scientists who have examined its ecological and cultural effects [21,24–27].

Recent work on the Enlightenment by cultural historians is germane to this topic. Margaret Schabas examines political economy's close ties to nature and its subsequent nineteenth-century denaturalization. Peter Jones explores the cultural circulation of agricultural knowledge that facilitated improvement across Europe. Fredrick Albritton Jonsson investigates natural history and political economy projects—pursued in the name of improving the Scottish Highlands—that anticipated modern environmentalism. Jan Golinski charts the expansion of British recording of weather and cultural connections to climate [28–31]. This scholarship has significantly expanded our understanding of nature and climate during the Enlightenment. My work seeks to add to this research by focusing on how members of the British-Franco-Swiss network were compelled by corresponding motivations to circulate analogous knowledge.

3. Early Connections to Malthus and Knowledge Circulation

Successive dispersals and persecution of Huguenot and Dissenter groups paradoxically benefited the Delessert's network. Nonconformists had been forced—since the sixteenth-century Reformation and ensuing wars of religion—to migrate across Europe or to the Americas [32]. There were many Huguenots in the British-Franco-Swiss network. Their history intersected widely with the Enlightenment, which began in the 1680s, concurrent to the Huguenots' flight from France with the Revocation of the Edict of Nantes (1685). The expulsion of thousands of Huguenots damaged French industries, depriving them of many skilled workers and much technical knowledge. French rivals benefitted immensely from this influx. Geneva's population had declined by almost a quarter in the early seventeenth century from famine, smallpox, and plague. Huguenot emigration helped the small republic develop and revive prosperous trades and wealth. By 1750, it enjoyed a disproportionate influence on European science, education, commerce, and politics. In the 1780s, political revolutions in Geneva and several Swiss states sent further waves of Protestant exiles across Europe and beyond [33–35]. The liminal Huguenot and Swiss refugee communities were essential nodes in the exchange of Enlightenment knowledge.

French and British desires for stability resulted in divergent policies in the 1680s. British measures intended as a compromise, to bring Presbyterians into the Anglican fold, led to moderate toleration for all Dissenters in 1688 [36–38]. Several Protestant faiths represented English Dissenters including Baptist, Unitarian, Quaker, Presbyterian, and Congregationalist. Consequently, their place in eighteenth-century British society was considerably better than that of Huguenots in France. Dissenters became leading natural philosophers, educators, manufacturers, and physicians by 1760 [39,40]. These affinities unified philosophical societies, especially the Lunar Society of Birmingham [40–42]. Conversely, Huguenots fled persecution, settling in states neighboring France, or hid their religion. The Delesserts were Huguenots and are believed to have fled sixteenth-century intolerance in France to settle in the Swiss canton of Vaud. In 1725, Etienne Delessert's (1735–1816) father moved from Geneva to Lyon, and opened a banking house. Etienne moved his family to Paris in 1777, but maintained connections with contacts in Geneva, Swiss cantons, and Lyon [43]. The family used banks, industries, and salons to forge ties to prominent figures throughout Europe. Bankers by profession, the Delesserts employed banking houses, in Paris and Lyon, as sites of scientific sociability, collection, and transmission [43–47]. This developed simultaneous to the expansion of the British-Franco-Swiss network, within the greater infrastructure of the Republic of Letters.

J.-J. Rousseau had an enduring influence on and was the primary link between the Malthus family and the Delessert network. This began in 1764—two years before the birth of T. R. Malthus—when his

father Daniel Malthus (1730–1800) visited Rousseau in Môtiers ([48], vol. 20, pp. 1–2).¹ In 1762, furor created by Rousseau’s writings *Émile* and *Du contrat social* led to his exile from his adopted France and from his native Geneva. Rousseau fled warrants for his arrest and book burnings for refuge in Yverdon ([48], vol. 11, pp. 261–302); [49]²). This came from his old friend, Daniel Roguin (1691–1771), a Swiss retired from a banking career in Paris where he had met and aided Rousseau. It was through Roguin that Rousseau became connected to the Delessert family. Roguin’s niece Julianne Boy de la Tour (1715–1780), who operated a bank in Lyon, and her daughters stayed with Roguin during Rousseau’s visit. Rousseau was most charmed by the eldest, Madeleine-Catherine (1747–1816). In July Rousseau fled Yverdon, ruled by the republic of Berne, after its senate banned he and *Émile* [49]. With France and Geneva closed—and offers of refuge in England and Zürich too uncertain—Rousseau found asylum through Madame Boy de la Tour. She let him stay at her house in Môtiers-Travers, in the principality of Neuchâtel, ruled by Prussian king Frederick II (1712–1786). His liberalism ensured that Rousseau was free from religious persecution ([48], vol. 12, pp. 1–3)³; [49–51]).

Rousseau’s stay in Môtiers led to the formation of connections and learning that fundamentally shaped Enlightenment knowledge circulation. He spent three years in the bucolic Jura Mountains composing writings, receiving visitors, and cultivating a love of botany. These matters were interconnected. Rousseau received Genevan friends—at times by covert means—including Charles Pictet (1713–1792), Jacques-François Deluc (1698–1780), and François-Henri d’Ivernois (1722–1778) ([48], vol. 20, pp. 81–83)⁴; [49]). Their sons became vital members of the Delessert network. Marc-Auguste (1752–1825) and Charles Pictet (1755–1824) disseminated Malthus’s work—introducing it to a broad *lingua franca* French audience—by publishing parts of Pierre Prévost’s translation of *Essay on Population* in their periodical *Bibliothèque britannique* [17,52]. Jean-André (1727–1817) and Guillaume-Antoine Deluc (1729–1812) helped Benjamin (1773–1847) and Stephen Delessert (1771–1794) finish their education—providing key introductions in Britain—and assisted the sons of Lunar men complete their education on the Continent [53]. François d’Ivernois (1757–1842) helped propagate the *Bibliothèque britannique* and Rousseau’s complete works, and was a leader of Geneva’s 1782 revolution [17,34,53,54].

Rousseau’s Genevan friends provided his introduction to both Daniel Malthus and botany. There were several British admirers who travelled to see Rousseau in Môtiers. They included Malthus in May 1764, and James Boswell (1740–1795)—who visited as part of his Grand Tour and effectively introduced himself—in December [50,55]. Malthus arrived in Geneva with a recommendation to Charles Pictet’s brother Jacques (1705–1786). F.-H. d’Ivernois referred to Malthus as an “Englishman of esteem,” provided a letter of introduction to Rousseau (in case he did not locate Charles Pictet on route to Môtiers), and believed Malthus “came directly from his country to have the honor of knowing” Rousseau ([48], vol. 20, pp. 1–3).⁵ Malthus travelled in devotion to Rousseau, but only spent one day at Môtiers. Rousseau regretted that this scarcely allowed him to show his goodwill to Malthus, whom he thought to have merit and a sound education ([48], vol. 20, p. 53).⁶ D’Ivernois’s cousin, Swiss physician and naturalist Jean-Antoine d’Ivernois (1703–1765), also visited Rousseau at Môtiers. Dr. d’Ivernois, versed in the region’s flora, taught Rousseau the basics of botanical classification. Rousseau botanized on walks with Dr. d’Ivernois as well as with the Boy de la Tours ([49,56]; [57], pp. 82–88).⁷ Rousseau’s passion for botany and education significantly influenced this family and that of Malthus.

¹ 3246. François-Henri d’Ivernois à J.-J. Rousseau [1 Mai 1764] [48].

² LXXVI. “Condamnation de l’Emile à Paris.” LXXVII. “Condamnation de Rousseau à Genève” [48].

³ 1976. J.-J. Rousseau à Frédéric II, roi de Prusse [10 ou 11 Juillet 1762] [48].

⁴ 3288. Lieutenant-colonel Charles Pictet à J.-J. Rousseau [24 Mai 1764] [48].

⁵ 3246. François-Henri d’Ivernois à J.-J. Rousseau [1 Mai 1764] [48].

⁶ 3270. J.-J. Rousseau (Môtiers) à F.-H. d’Ivernois (Genève) [13 Mai 1764] [48].

⁷ XXXV. [Troisième lettre sur la Botanique] J.-J. Rousseau à M.-C. Delessert [16 Mai 1772] [57].

Madame Boy de la Tour and Rousseau maintained a mutually beneficial relationship, which profoundly influenced the direction of the Delessert family and network. She aided Rousseau with asylum and by organizing his finances and he returned her kindness in several ways. In 1762, he helped Madame Boy and Madeleine avert an unwanted marriage to her much elder cousin col. Georges-Augustin Roguin (1718–1788). Madeleine found a desirable match in the young banker Etienne Delessert in 1766. After Rousseau escaped to England in early 1766, she wrote to him (before members of her family) to inform him of the marriage ([57], pp. 219–22).⁸ Rousseau remained an intimate of the family, personally helped them educate their children, and inspired their study of botany.

Refuge in England solidified Rousseau's bond with the Malthus family. He fled there to escape conflicts over Genevan politics and his writings. Rousseau's travelling party consisted of several people, including his enduing companion Thérèse Levasseur (1721–1801), and Scottish historian and philosopher David Hume (1711–1776). Hume was one of numerous Britons seeking to be of service to Rousseau. Daniel Malthus was even more eager. He did much travelling in this period—in addition to visiting Môtiers—in spite of a young and growing family. Malthus's devotion led him to invite Rousseau and Thérèse to stay at his estate “The Rookery” near Dorking after their arrival in England. Malthus also worked to find a place for them to settle nearby in Surrey. They visited the Malthus home for a day with Hume, about three weeks after Thomas Robert's birth, but settled instead in Derbyshire. Yet, Daniel Malthus desperately tried to prove his devotion to Rousseau and to assist the two foreigners adjust to England ([1,58,59]; [48], vol. 30).

Rousseau's English sojourn was brief—about eighteen months—but had a lasting impact on the Malthus family. In June 1766, Daniel and several family members visited Rousseau in Derbyshire. They joined him on botany walks, inculcating in them a passion for amateur botanizing ([1]; [48], vol. 35, pp. 53–56).⁹ Daniel Roguin and the Boy de la Tours stayed in contact with Rousseau while he was in England and Malthus, like them, maintained friendship with Rousseau despite his frequent conflicts. By July, a break began between Rousseau and Hume. The private matter, sparked by misunderstandings and fuelled by Rousseau's paranoia, became public and malicious. Malthus, nevertheless, remained on good terms with both men ([48], vol. 30, pp. 112–13¹⁰; [51,59]). Malthus's family, including his cousin and ward Jane Dalton (1742–1817) and children, continued to botanize. Rousseau and Malthus maintained a correspondence and a botanical exchange. This involved sending accounts of the Malthus family's passion for botany inspired by Rousseau, fulfilling Rousseau's requests for English botanical books, and Rousseau sending French books and plants to Malthus ([1]; [48], vol. 20, 30, 35).

Botany remained a popular interest in the Malthus household. Rousseau studied plants for years, despite a nomadic lifestyle, but suspended it as a sedentary sexagenarian in Paris. With “strength for extensive plant excursion beginning to fail me,” Rousseau explained he “abandoned this pastime which I no longer needed” and “sold my herbarium and my books” ([56], p. 57). He divided his herbarium among friends and sent parts of it to Daniel Malthus who also purchased his botanical books [60]. This was around 1770, but was a temporary hiatus. Rousseau returned to botany with renewed vigour in his last years, possibly stimulated in part by Madame Delessert's request for botanic lessons to instruct her children [61].¹¹ Daniel Malthus in turn left all his “Botanical Books in which the name of Rousseau is written, and a Box of Plants given to me by Monsr. Rousseau” to Jane Dalton [62,63]. The pair continued to study botany after Rousseau's visit and became well versed. Dalton lived in Paris in 1788, becoming acquainted with Jacques-Henri Bernadin de Saint-Pierre (1737–1814), a friend of Rousseau, botanist, and later director of the *Jardin botaniques*. She corresponded with

⁸ XXIII. M. Boy de la Tour (Vichy en Bourbonnais) à J.-J. Rousseau (Wotton en Derbyshire) [4 Mai 1766] [57].

⁹ 6218. D. Malthus à J.-J. Rousseau [24 Janvier 1768] [48].

¹⁰ 5292. D. Malthus (Dorking) à J.-J. Rousseau [18 Juillet 1766] [48].

¹¹ J.-J. Rousseau to M.-C. Delessert [16 May 1772 and 22 August 1771] [61].

Saint-Pierre and translated his novel *Paul et Virginie* (1788), published with the aid of Daniel Malthus, as *Paul and Mary* (1789). In the notes Dalton included detailed information about the novel's setting (Ile-de-France/Mauritius), including proper Linnaean names of its flora and fauna [63].

Rousseau's refuge in England resulted in scandal, myth, and practical botany. He developed a botanical exchange with Margaret Cavendish, Duchess of Portland (1715–1785). This was more intense than that with Malthus, but both continued after Rousseau returned to France in 1767 [1,64,65]. Charles Darwin claimed that his grandfather, Dr. Erasmus Darwin (1735–1802), corresponded with Rousseau for several years, after they had supposedly met in a cave whilst pursuing their mutual love of botany. Both men lived in the English Midlands at this time and were devoted botanists, yet there is no extant evidence of their encounter or an epistolary exchange [66]. It is doubtful that Rousseau cultivated ties with Dr. Darwin or any other Lunar Society member, as did the Delesserts in the 1780s. Rousseau did, however, influence the educational methods of several Lunar men, in addition to those of the Delessert and Malthus families. Daniel Malthus declared, revealing flattery in his last known letter to Rousseau, "if I am ever known it will be as the friend of Rousseau" ([48], vol. 35, pp. 53–56).¹² The fame of this name instead, of course, resulted from the work in political economy by Malthus's son Thomas Robert.

4. Educational Exchange: Rousseau, Botany, Tutors, and Political Economy

In the 1760s Jean-Jacques Rousseau—ostracized by governments and many former friends—relied on the Delessert and Malthus families for aid. In turn, he instilled in them passion for education and botany. The long-term results in each case were unorthodox approaches and nonconformist education, ultimately resulting in extraordinary outcomes.

Daniel Malthus's devotion to eighteenth-century writers, especially Rousseau, led to Thomas Robert receiving an education that was unconventional for English gentlemen. After selling the Rookery in 1768, the family travelled widely for almost two decades, across Britain and the Continent. Daniel used Rousseau's *Émile* as a guide to educate his children [1,3,19,48,58]. Other British gentlemen undertook similar approaches, including Richard Lovell Edgeworth (1744–1817) and Thomas Day (1748–1789). These Lunar men escaped criticism from polite English society by travelling to France to pursue respective Rousseauist educational experiments. Day moved to Avignon, in 1769, with two English orphaned girls he adopted to educate, hoping one would later make a suitable wife. In 1771, Edgeworth, after visiting Rousseau in Paris, moved to Lyon with his son Richard (1764–1796), who Edgeworth was educating using Rousseau's system [41,42,67]. While in Lyon, Edgeworth became acquainted with the Delesserts [68].¹³ There is little known about the Malthus family in this period. Yet, Daniel explained in 1768 (in a letter to Rousseau) that he was seized by *Émile*, his children botanized in their local region, went on nature walks, did farm work and little experiments, and the family would soon be travelling to Dijon ([48], vol. 35, pp. 53–56).¹⁴ In this period, France became a sort of laboratory for English gentry conducting experiments employing Rousseau's pedagogy.

Daniel Malthus taught Thomas Robert until the age of six, when he began formal but still unconventional education. Malthus studied with Rev. Richard Graves (1763–1829) from 1773 to 1782 at Claverton Manor close to Bath. Graves, a liberal who had to resign as an Oxford fellow in 1749, was alienated from his family for taking a wife of low status. From 1782 to 1784 Malthus studied under Gilbert Wakefield (1756–1801), first at Warrington Academy and privately after it closed. It was one of England's most renowned Dissenting schools, founded as a result of nonconformists being barred from Anglican schools. Joseph Priestley (1733–1804)—prolific chemist, Unitarian, and Lunar Society member—had taught there in the 1760s. English gentry did not typically choose schools

¹² 6218. D. Malthus à J.-J. Rousseau [24 Janvier 1768] [48].

¹³ R.L. Edgeworth (Edgeworthstown) to M.-A. Pictet (Geneva) [22 December 1801] [68].

¹⁴ 6218. D. Malthus à J.-J. Rousseau [24 Janvier 1768] [48].

like Warrington, or tutors such as Wakefield, for their sons' education. Wakefield, a young notable Cambridge fellow, had lost this position after he married and became a Unitarian. He was later jailed (in 1799 for publishing work arguing that England's low orders had such dismal lives that they would likely not oppose a French invasion) and died of typhus soon after leaving prison. In 1784, Wakefield helped establish Malthus at Jesus College Cambridge, as a mathematics student, to study with William Frend (1757–1841). Frend was also a talented mathematician, a friend of Priestley, and by 1787 a Unitarian convert. In 1793, Frend was banished from Cambridge for criticizing the war with France and establishment practices, including barring non-Anglicans from taking university degrees. These tutors significantly influenced Malthus. He formed close ties with them, especially Graves to whom he administered last rites. Yet, Malthus did not embrace revolutionary causes, as did others in these circles, such as S. T. Coleridge [1,58,69–71].

Malthus attained a high degree of learning, which ultimately fulfilled his father's objective. In 1787, as Malthus neared completion of his Cambridge studies, Daniel wrote, praising Frend's tutorship, and noting his longstanding desire for Malthus to "have a love of letters," be "independent of mean and trifling amusements," pursue physical exercise, and reject idle company ([1], p. 31). Such aspirations reveal Daniel's lasting dedication to Rousseau's *Émile*. Malthus's education succeeded better than the early failed experiments by Edgeworth and Day, which intended to instill these same values.

The influence of Rousseau's educational system was greater on the Continent. Famous French and Swiss parents had mixed results with his methods and it was often mothers, not fathers as in Britain, attempting these experiments. Manon Roland (*née* Philpou 1754–1793), *salonnière* and wife of inspector of manufacturers in Lyons Jean-Marie Roland (1734–1793), failed in her Rousseauist educational experiment. Full devotion to it led to her daughter Eudora (1781–1858) having limited intelligence and discipline problems. The Rolands, leading figures of the French Revolution, did not have time for this system. Suzanne Necker (*née* Curchod 1739–1794), *salonnière* and wife of Swiss banker and French finance minister Jacques Necker (1732–1804), was a less strict Rousseauist. She educated her daughter, Anne-Louise Germaine (1766–1817), who after her marriage became known as the celebrated writer Madame de Staël. A mutual reverence for Rousseau, as well as other interests, naturally linked both families to the Delesserts [72–75].

Botanical instruction became a major part of Rousseau's philosophical project against human denaturalization. In the 1740s, Rousseau had befriended other young *philosophes* in Paris, attended natural philosophy lectures, and contributed articles to the *Encyclopédie* [49]. However, he gradually broke with the dominant Enlightenment view championing progress and civilization. Rousseau later claimed that *Discourse on the Arts and Sciences* (1750), *Discourse on the Origin of Inequality* (1753), and his treatise on education *Émile* (1762) were a single united work demonstrating that man was naturally good but corrupted by society's institutions [76].¹⁵ His time in Môtiers included mountain walks with the Boy de la Tours, which reawakened his passion for botany and outdoor exercise [49,50]. In the 1770s, Madame Delessert asked Rousseau's aid in instructing her daughter Madeleine (1767–1839) in the study of plants. He agreed, "persuaded that at any age, the study of nature dulls the taste for frivolous amusements, prevents the tumult of the passions," and focused the mind on worthwhile objects of study ([61], p. 130).¹⁶ In the letters—published as *Lettres élémentaires sur la botanique* (1781)—Rousseau instructs them to follow nature's course and study plants by season through observation outside. They were to begin by studying the flower wherein "nature has enclosed the summary of her work, it is by this that she perpetuates it" ([61], p. 131).¹⁷ A primary element of Rousseau's pedagogy, in *Émile* and *Lettres élémentaires*, was that children should first learn to observe what they discover instead of instruction in signifiers and memorization.

¹⁵ J.-J. Rousseau (Montmorency) à C.-G. Malesherbes [12 Janvier 1762] [76].

¹⁶ J.-J. Rousseau to M.-C. Delessert [22 August 1771] (Letter I) [61].

¹⁷ J.-J. Rousseau to M.-C. Delessert [22 August 1771] (Letter I) [61].

The Delesserts benefitted from Rousseau's works and personal direction. In 1772, he sent them a herbarium, part of the *Lettres élémentaires* to help Madame Delessert educate her children. In the nineteenth century, the family expanded it into one of Europe's largest private botany collections [53,77–79]. This was largely the work of Benjamin an amateur botanist and the only one of Madame Delessert's eight children born during her botanical exchange with Rousseau. She was dedicated to her children's education—teaching them literacy, morality, and botanical knowledge—and requested Rousseau's direction in these matters, notably, in selecting a proper tutor ([44]; [57], pp. 168–69).¹⁸

The Delesserts wisely hired Genevan polymath Pierre Prévost as tutor. Prévost studied law, languages, literature, and philosophy, and later physics as well as political economy. He received his doctorate in law in 1773, from the *Académie de Genève*, and briefly tutored in Holland, before traveling for several months in England. Prévost began tutoring the Delessert children in Lyon in 1774, relocated with the family to Paris in 1777, and continued instructing them until 1780. In Paris, Prévost befriended Rousseau (through Madame Delessert) and recorded an account of his last pursuits, such as botany. Prévost accepted a professorship in Berlin in 1780, where he later published his first work on political economy [80–82]. In 1784, Prévost returned to Geneva and over decades served its *Académie* as professor of belles-lettres, philosophy, and physics. He was Geneva's first instructor of political economy, and also translated British works and wrote tracts on this subject [12,80]. Prévost interest likely began in Paris through Etienne Delessert, a banker linked to *Physiocrats* and fascinated by British political economy.

The Delesserts as Huguenots faced greater restrictions than English Dissenters and could not send their children to schools in France. They instead hired tutors and sent their sons to college in Geneva to study a theological and classical curriculum. This did not instruct practical skills for business and trade [44]. As a consequence of this and Etienne Delessert's admiration for British works—particularly Adam Smith's (1723–1790) *Wealth of Nations* (1776)—he sent his two eldest sons to Britain to finish their education [44,83]. In 1783, natural philosopher J.-A. Deluc helped Stephen and Benjamin Delessert and their tutor Abraham Guyot (1743–1794) settle in Birmingham. For a year, they learned English, observed mechanical industry, and befriended Lunar men, especially James Watt (1736–1819) and Matthew Boulton (1728–1809). This was followed by two years at the University of Edinburgh [53]. Dugald Stewart (1753–1828) taught political economy in his moral philosophy lectures, but not as a distinct course until 1800 [84,85]. Guyot and the Delesserts took Stewart's mathematics course [53,84], likely attended Stewart's moral philosophy course [15,86],¹⁹ and he may have introduced them to Adam Smith [77]. The Delesserts and Guyot also studied logic, chemistry, and natural history, which was of particular significance. Men who later emerged as leading British botanists—including James Edward Smith (1759–1828) and Robert Brown (1773–1858)—attended this class in the 1780s [53,87]. The Delesserts' British sojourn was critical for expanding knowledge transfer among manufacturers, naturalists, and political economists.

Works by French economists or *Physiocrats* likewise had a significant impact on T. R. Malthus. This influence derived from his father, an admirer of French and British liberal thinkers. Like Malthus, *Physiocrats* argued that the true wealth of nations came from nature by cultivating land not from empire, trade, or industry. However, he rebelled against his father's general liberalism and did not, like his tutors, become a Unitarian or suffer in the 1790s. Though Malthus did first publish his *Essay* with Joseph Johnson (1739–1809), a radical publisher who published the liberal works of Coleridge, Godwin, Edgeworth, Priestley, and Wakefield. Johnson was jailed for printing Wakefield's tract [1,71,88]. However, Malthus ultimately took Anglican orders and served as a clergyman. In 1805, Malthus was named chair of political economy, the first in England, at the East India Company's

¹⁸ LII. J.-J. Rousseau (Paris) à M.-C. Delessert (Lyon) [23 Août 1774] [57].

¹⁹ MS 3219/4/123. J. Watt, Sr. (Birmingham) to G. Hamilton [25 August 1784] [86].

College [19,58]. It is significant that Dugald Stewart, the first to teach a political economy course in Britain, and Pierre Prévost, the first instructor of that subject in Geneva [12,84], were also vital knowledge transmitters within the Delessert network.

Botany and the study of nature were part of T. R. Malthus's education. During his time at Cambridge (1784–1788) he was encouraged by his father to study mathematics and natural sciences. Mathematics was most revered at Cambridge in this period and Malthus excelled in it. He told his father that he would practically apply knowledge, was known “in College for talking of what actually exists in nature,” and promised that by following his “own plan of reading” he would become “a decent natural philosopher” ([13], pp. 41–42).²⁰ Malthus collected plants while at Warrington and Cambridge, which he identified by their Linnaean Latin names [13].²¹ It is unclear if he studied botany at Cambridge, but Malthus would have been familiar with the course matter. Thomas Martyn (1735–1825), Cambridge Professor of Botany, published *Letters on the Elements of Botany Addressed to a Lady* (1785). It was a translation of Rousseau's eight letters on botany to Madame Delessert and introduction to his botanical dictionary, enlarged with twenty-four letters to better inform readers of the Linnaean system [89]. This work promoted Rousseau's botanical works and contributed to a wider passion for botany [90].

Rousseau employed a garden analogy in these letters of elementary instruction to champion nature over civilization. A thrust of his philosophy was that we had denatured both plants and men. In the final letter on botany to Madame Delessert he declares:

It is not necessary, dear friend, to give to botany an importance it does not have; it is a study of pure curiosity and which has no other real utility than that which a thinking and sensitive being can draw from the observation of nature and the marvels of the universe. Man has denatured many things in order to convert them better to his use, in that he is not at all to be blamed; but it is not less true that he has often disfigured them and that when in the works of his hands he believes he truly studies nature, he deceives himself. This error occurs especially in civil society; it likewise occurs in gardens. These double flowers that people admire in flower-beds be monsters deprived of the faculty of producing their like with which nature has endowed all organized beings ([61], pp. 156–57).²²

Rousseau notes that double flowers and grafted fruit trees were infertile. One could only come to know nature's productions in forests, not by observing them in gardens. Natural fruit were less succulent and smaller, but their seeds reproduced and ripened better, producing trees that were considerably taller and heartier [61]. Malthus and Rousseau each employed garden analogies to defend nature against contemporary threats and views of progress.

Malthus's career and enduring fame resulted from his rejection of Enlightenment writings promoting perfectibility. *An Essay on the Principle of Population, as it Affects the Future Improvement of Society with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers*, was published anonymously in 1798. Malthus began the preface: “The following Essay owes its origin to a conversation with a friend” ([88], p. vii). The friend was in fact Daniel Malthus and the essay's targets—the works of William Godwin and Marie-Jean-Antoine-Nicolas de Caritat, Marquis de Condorcet (1743–1794)—were a radical culmination of the Enlightenment philosophy he championed [58]. Their conclusions of perfectibility and progress leading to an almost infinite human lifespan inspired Malthus. He replied: “I say, that the power of population is indefinitely greater than the power of the earth to produce subsistence for man. Population, when unchecked, increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio” ([88], p. 4). For Malthus

²⁰ T. R. Malthus (Cambridge) to Daniel Malthus [11 February 1786] [13].

²¹ T. R. Malthus to Daniel Malthus [26 April 1783] [13].

²² J.-J. Rousseau to M.-C. Delessert [late March/early April 1774] [61].

nature's laws prevented production of sufficient food to sustain ever-expanding populations, thereby prohibiting human perfectibility [88].

Natural history influenced Malthus's political economy. In *Essay on Population*, he employs knowledge and experience to refute the argument of indefinite perfectibility in plants and animals: "The progress of a wild plant, to a beautiful garden flower, is perhaps more marked and striking, than anything that takes place among animals yet even here, it would be the height of absurdity to assert, that the progress was unlimited or indefinite." The increase in flower size through cultivation is one of the clearest marks of improvement. If progress was in fact infinite, then growth would increase ad infinitum. Yet, Malthus doubts that a carnation could "by cultivation be increased to the size of a large cabbage." He notes that he knows from experience that a carnation stalk would not support such growth. Malthus concedes that some improvement was possible, but uses examples from natural history and human history to distinguish between undefined and unlimited progress. Furthermore, Malthus concludes: "any approach in man towards immortality on earth" would cause "very great additional" pressure on population. Ultimately, Malthus rejects the possibility of "organic perfectibility" as natural law has placed limits on the improvement of plants, animals, and humans ([88], pp. 164–72).

Rousseau argued that in humans, like plants, denaturalization led to degeneration. In 1749, he found his epistemology by taking the position that "progress of the sciences and arts" had "done more to corrupt morals" ([49], p. 327). In *Lettre a d'Alembert sur les spectacles* (1758), he rejected the positions of Paris *philosophes*—articulated by Jean de la Rond d'Alembert (1717–1783) in the *Encyclopédie* article "Genève" (1757)—that Geneva required a theatre [91]. Rousseau feared that republicanism would perish if Genevan citizens adopted the debauched customs of Paris. He instead wanted them to retain their ancient customs (like republicans in Rome and Sparta) for rural life, breathing pure air, hunting, exercising, and allowing their children to run, play, and wrestle outside [92]. Rousseau feared that the civilizing process had enervated modern man: "We are fallen in everything. Our Painters & Sculptors complain that they can no longer find models comparable to those of antiquity. Why is that? Has man degenerated? Has the species a physical decrepitude just as does the individual?" ([92], p. 191). In the 1750s, a popular movement influenced by Rousseau and reformist Swiss physicians worked to counter degeneration and depopulation. Physicians entered political culture, employing tracts to comment on topics not usually connected with medical care: beauty, manners and morals of the elite, sexual hygiene, educating children, and women's place in society. Reformers alarmed by degeneration saw evidence of it in the losses by French forces in mid-century wars. Swiss physicians and Rousseau attacked French decadency out of concern that it caused—and would spread—degeneration and depopulation [93].

Malthus feared overpopulation not degeneration, but, like Rousseau, based his rejection of theories of improvement and progress on natural law. Malthus asserts that Condorcet's views were not unique, as his *Esquisse d'un tableau historique des progrès de l'esprit humain* (1794) represented the opinion of "many of the literary men in France, at the beginning of the revolution." ([88], p. 172). Malthus relied on uncredited evidence from Benjamin Franklin (1706–1790) [30], to argue that the population of the United States doubled in twenty-five years. In comparing this to Britain, Malthus explains that even a fourfold arithmetic increase in food production, that in "a few centuries it would make every acre of land in the Island like a garden," would not match the geometric growth in population, leaving millions of people hungry ([88], pp. 22–25). Malthus rejected the view that problems from overpopulation were "at a great and almost immeasurable distance," as "every period during the progress of cultivation, from the present movement, to the time when the whole earth was become like a garden, the distress for want of food would be constantly pressing on all mankind" ([88], pp. 142–43).

Challenges by Rousseau and Malthus—championing nature over the artifice of civilization—were linked despite being separated by five decades. These were not esoteric intellectual works, but a product of knowledge circulation and direct cultural connections. Rousseau tried to protect his native Geneva from the degeneration stemming from French cultural progress promoted by Paris *philosophes*, especially d'Alembert, a mathematician. Malthus tried to protect his native Britain from

theories of perfectibility by British and French savants. This included Condorcet (a mathematician and protégé of d’Alembert) who assumed leadership of the Paris *philosophes* championing progress through the arts and sciences [94–97]. In 1798, Malthus took the counter position, as Rousseau had in 1750. Malthus’s *Essay* rejected perfectibility arguments made by writers favored by Daniel Malthus, but also relied on natural law and mathematical arguments, which Malthus had learned in his unorthodox Rousseauist and Cambridge education.

By the late 1790s, popular fears over degeneration and depopulation had shifted to concerns of overpopulation. During the French Revolutionary and Napoleonic Wars, Britain struggled from trade blockades and feared external threats of invasion as well as internal ones, such as famine and popular revolt [30]. Matters were compounded on the Continent by revolutionary violence, political instability, enduring war, meager harvests, and famine. Swiss physicians promoted Rousseau’s ideas in the eighteenth century to counter degeneration. In the early nineteenth century, Genevan savants promoted ideas by Malthus and other political economists in response to widespread dearth and unrest.

5. Revolution, Imprisonment, Migration, Philanthropy, and Reform

British, French, and Swiss moderates had to flee violence and revolution in the 1790s. Many families migrated to America, hoping to find safety as well as to establish colleges, industries, or utopian colonies. These shifts considerably influenced early nineteenth-century reform measures in Europe and the Americas, which included importing British industrial methods and translating works by political economists, such as T. R. Malthus.

British nonconformists were the target of monarchist ‘Church and Kings’ mobs in the 1790s. Joseph Priestley’s house was destroyed, as he and other Lunar men were threatened in the Birmingham Riots (1791). The Priestleys fled first to London and then to Pennsylvania in 1794. They failed in attempts to found an asylum—for British liberals fleeing religious or political persecution—and a college. Nonconformists remained targets of ‘Church and King’ mobs in Britain through the early 1790s ([86]²³; [98–100]²⁴).

In France moderates were threatened by antimonarchist and Jacobin mobs during the French Revolution. Many members of the Delessert network defended the monarchy despite being liberals or Huguenots. In 1792, the Jacobins denounced Stephen Delessert for leading a National Guard section defending an attack on the *Tuileries*. This dispersed his family. Stephen fled to London and Hamburg, relying on friends made through their network to survive. Etienne Delessert was jailed during mass arrests in 1793, leading to the flight of his sons Stephen and Alexandre (1776–1833) to America ([86]²⁵; [101]²⁶). They pursued banking and agriculture in New York aided in part in the latter by the Du Ponts [102].²⁷

Pierre Samuel du Pont de Nemours (1739–1817), French political economist and philanthropist, was an admirer of Malthus. Du Pont has been called “the last Physiocrat” ([103], p. 257; [104], p. 4), and “its only important member to live to comment upon Malthus’s essay” ([20], p. 197). In 1792, Du Pont and his youngest son, Eleuthère Irénée (E. I.) (1771–1834), fought with the Swiss Guard defending the *Tuileries*. Du Pont went into hiding, was jailed in 1794, released for several years, and was imprisoned briefly with E. I. du Pont in 1797. This precipitated the family’s migration to America in 1799. Du Pont had a long interest in America and wrote about it in his *Physiocratic* journal, *Ephémérides du citoyen* [105,106]. He also planned to found a college and a utopian colony, “Pontanie”

²³ BCL JMP MS 3219/4/124 J. Watt, Sr. (Birmingham) to J.-A. Deluc [19 July 1791] [86].

²⁴ TJP MS 18158. J. Priestley (Northumberland) to T. Jefferson [30 January 1800], f. 87–88 [100].

²⁵ BCL MS 3219/6/23 A. Guyot to J. Watt, Sr. [27 September 1792]; BCL MS 3219/6/2/D 14. S. Delessert (Baltimore) to J. Watt, Jr. (London c.o Tuffen & Co.) [10 June 1794]; BCL MS 3219/4/129. J. Watt, Sr. (Soho) to S. Delessert (New York) [10 September 1794] [86].

²⁶ AP AFD MS V13S. 1. M Delessert à F. Bargmans [et S. Delessert] (Hambourg) [2 Janvier 1794] [101].

²⁷ NYSL. CFLP. 9/48/9. A. Delessert (Paris) to L. Elmendorph, (Councillor at law Kingston County of Ulster State of New York) [27 August 1804] [102].

in Virginia. Various other schemes attempted by Du Pont and his eldest son, Victor (1767–1827), ultimately failed. It was instead the gunpowder manufactory, established by E. I. du Pont, that succeeded [107].²⁸ Du Pont's *Physiocracy* preached that real wealth of nations came from land and agricultural production, not sterile industry. However, it was E. I. du Pont's training in Enlightenment chemistry, and organizational ability that led to them establishing one of America's most enduring and successful industrial companies.

Revolutionary violence spread to Geneva. In 1793, Alexandre Marcet, a Genevan descended from Huguenots and vital link between Malthus and the Continent, left for England. Marcet returned to Geneva in 1794, a period of riots, deaths, and mass arrests. Among those imprisoned were Marcet, Pierre Prévost, and the Cazenove brothers. These two bankers migrated to America after their release and joined a scheme to found a New Geneva. Marcet was among many Genevans who fled to Britain. He fished his doctorate in medicine at Edinburgh [17,80,108–110]. Prévost stayed in Geneva, but was part of a plan to relocate the *Académie de Genève* to America. François d'Ivernois (whose father had introduced Daniel Malthus to Rousseau) led this effort and a similar 1782 project in Ireland. D'Ivernois solicited help for the scheme from President George Washington (1732–1799), vice-president John Adams (1735–1801), and Thomas Jefferson (1743–1801). It was to have Prévost, the Pictets, and other faculty members instruct at the college in an agrarian New Geneva. The project competed against plans by others seeking to found a bucolic agrarian colony, or an industrial-commercial village [111–114].²⁹ The impractical projects—like most utopian colonies in the 1790s—failed for many reasons, particularly as order returned in Europe. Yet, they reveal growing tensions between savants favoring agriculture and those championing manufacturing. Both were promoted as the best method to avoid tumult, prevent dearth, and to rebuild society.

During the 1801–1802 Peace of Amiens many Britons, including the Malthus and Edgeworth families, visited the Continent [1,115–117]. Edgeworth wrote to M.-A. Pictet in Geneva, asking for introductions in Paris, stating: “Peace inspires us with the wish of seeing what has been done by war” ([68], pp. 60–61).³⁰ Pictet recommended them strongly to the Delesserts [68]. They received many British visitors and acquainted them with the wonders of Paris including prisons, hospitals, as well as societies extending philanthropy and encouraging industry. Reformers sought to avert further social upheaval [53,115–118]. Ironically, new industries, relying on discoveries by chemists pioneering research into atmospheric composition, created polluted environments and unsanitary workplaces.

Several network collaborations employed scientific and industrial improvements of Lunar men, but failed in the instability of revolutionary Europe. The Pictets began peat moss and pottery industries near Geneva. The latter was modeled on Josiah Wedgwood's (1730–1795) Etruria pottery works. The Delesserts collaborated with Matthew Boulton and James Watt in attempts to employ steam engines to power flour mills in Lyons, supply water in Paris, mint coins for France's revolutionary government, and improve Caribbean sugar production [16,17,53,86].³¹ In 1796, the Pictets, after failures in industry and New Geneva, founded the *Bibliothèque britannique*. The journal circulated knowledge across Europe, popularizing works by Malthus, the Edgeworths, Jeremy Bentham (1748–1832) and other Britons. The Delesserts and Franco-Swiss in Britain, including d'Ivernois and Marcet, served the journal as collectors and transmitters of source material [16,17].

²⁸ HL. DPDN. 2/A/6. MS W 2-1095. P.-S. du Pont de Nemours (Paris) à Son Excellence Thomas Jefferson Président du Etats unis [23 Juillet 1808] [Draft] [107].

²⁹ F. D'Ivernois (Londres) à T. Jefferson [5 Septembre 1794]; F. D'Ivernois à T. Jefferson [5 Septembre 1794]; J. Adams (Philadelphia) to T. Jefferson [21 November 1794]; F. D'Ivernois (Londres) à T. Jefferson [11 Novembre 1794]; T. Jefferson (Monticello) to G. Washington [23 February 1795]; M.-A. Pictet (Paris) to T. Jefferson [1 January 1795] [112].

³⁰ R.L. Edgeworth (Edgeworthstown) to M.-A. Pictet (Geneva) [22 December 1801] [68].

³¹ BCL MS 3147 3/388 30. E. Delessert Lyon to J. Watt, Sr. (Birmingham) [14 October 1785]; BCL MS 3147 3/388 26. E. Delessert (Paris) to James Watt, Sr. (Birmingham) [18 May 1785]; BCL MS 3782/12/36 332. J.-P. Du Roveray (London) to M. Boulton (Birmingham) [13 May 1791]; BCL MS 3782/12/36 246. E. Delessert (Paris) to M. Boulton (London) [16 May 1791]; BCL MS 3147/3/391 72b. A. Guyot (Paris), Note pour A.-D. Laffon de Ladebat, à J. Watt, (Birmingham) [30 Janvier 1791] [86].

Enlightenment philanthropists relied on journals to disseminate information and to learn new methods for expanding welfare. Benjamin Delessert became a local director for the *bureau de bienfaisance* in 1795, which helped the Paris poor. This led to him founding the city's first soup establishment (in February 1800 on *rue du Mail*), providing 300 portions of soup daily. Inspiration came from Benjamin Thompson, Count Rumford (1753–1814), a reformer, natural philosopher, and inventor. In 1796, excerpts of his essay on economic soups began to appear in the *Bibliothèque britannique*. Knowledge transfer led to soup establishments being set up across Europe. Delessert worked with his friend Augustin-Pyramus de Candolle (1778–1841), a botanist who read the essay in Geneva. He supplied Delessert plans for a Rumford stove that they had built and helped with the program. They promoted their methods, recipes, utility, and stove construction in journal articles and pamphlets. This included *Décade philosophique* edited by Jean-Baptiste Say (1767–1832), a liberal political economist and friend of both men [44,119–122].

Philanthropists expanded the soup establishment in line with personal skills and Malthusian aims. They practiced secular medical-based *bienfaisance* (welfare), a term coined in the 1760s, not religious-based charity as agencies had in the Catholic *Ancien régime*. The establishment operated 20 kitchens throughout Paris by 1802, distributing a million soup portions per annum. The organizing committee expanded its mandate to form the *Société philanthropique*. It intentionally helped indigent workers with food and medical care (not the abject poor or chronically ill) to return to factories and other work. Delessert served for decades as society treasurer, Du Pont (after returning from America) acted as vice-president, and Candolle was a secretary. Du Pont used statistics and political economy to inform government officials that their society assisted the poor at lower cost than public hospitals. This saved Paris much money, which would increase with an establishment for every *arrondissement*. Delessert promoted savings banks and other financial welfare measures among the poor. Candolle and other science-trained members endorsed medical care, including vaccination. He and the Delessert family also founded other philanthropic societies providing mutual aid for workers, maternal aid for expectant mothers, and childcare for working mothers [44,83,121–123]. On Rumford's visit to Paris (1801) he attended meetings of the soup committee [118,124], and recorded observation of "A working Model of an Apparatus for making Soup by means of steam which M. Delessert had caused to be constructed" ([118], p. 34). This device, a crossover between philanthropy and industry, was a physical manifestation of knowledge exchange.

Delessert and Candolle's philanthropy led them to found a society to avert and not just treat poverty. In 1800, Candolle suggested at a *Société philanthropique* meeting that they form a separate society to prevent poverty by encouraging industry. The idea gained support from government officials, who met Candolle and Delessert at the *hôtel Delessert* to discuss founding the *Société d'encouragement pour l'industrie nationale*. This society, like ones in Geneva and London, began in philanthropic circles, encouraged a marriage of science and industry, and promoted manufacturing to reduce poverty [122]. Similar organizations in Britain had less success in encouraging industry among workers. Count Rumford's plan for the Royal Institution, which had royal and aristocratic sanction, was to skirt manufacturers and directly instruct mechanics and London workers. Such training was needed, as Britain was at war with France. Yet, aristocratic managers and other gentry worried about the threat of urban workers having unfettered access to science and technology [125–127]. Such fears related to a belief that diffusing knowledge and encouraging industry among lower orders would contribute to political revolution. In contrast, Franco-Swiss manufacturers and political economists disseminated knowledge and encouraged industry hoping to quicken France's pace in the industrial revolution, thereby preventing future revolutions in politics [128,129].

6. Reconstruction: Industry, Manufacturing, Botany, and Political Economy

The Delesserts established manufactories in spite of earlier setbacks and in addition to encouraging national industries. They had a five-story sugar refinery constructed, at Passy in 1801, powered by a steam engine. In 1803, the family established a mechanized cotton mill, the first such mill to use

Watt's steam-engine improvements [44,130]. Over the next thirty years, they expanded and improved these and other factories [44,47,131]. Blockades during the Napoleonic Wars impacted two lucrative agricultural goods traded by the Delesserts. They bred and traded purebred sheep, partaking in the Merino wool mania. France's inability to access its sugar islands led to state funding for renowned savants researching alternative forms of sugar. Yet, it was Benjamin Delessert (amateur chemist and botanist) who discovered how to mass-produce beet sugar in 1811 at his Passy refinery. Consequently, Napoleon awarded him a *Legion d'honneur* and his refinery employees a bonus week's pay [132–134]. This discovery fueled refinery expansions and local conflict. Environmental historian Thomas le Roux states, in work impacts of French industrialization, that a pro-industrial atmosphere insured that Delessert's neighbors, with no recourse or justice, sold out to Delessert: "At the end of this process, which ran from 1810 to 1830, Delessert henceforth secured a four-hectare plot, on which he could manufacture in peace . . . the industrialist purchased his peaceful space where he arranges all the rights to pollute" ([135], p. 14). Industrial development is rarely a clean business.

The Delesserts expanded their industries through cultural and familial ties as well as links to wider Enlightenment knowledge. Two families in particular participated with them in what became a minor maritime empire: the Delaroches and the Says. Scientific, marriage, banking, and industrial links overlapped as these families grew in prominence.

The Delaroches were Genevan Protestants who played a largely unrecognized role in late-Enlightenment science, medicine, and industry. The philosophical physician, Dr. Daniel Delaroche (1743–1813), earned a medical degree at Leyden (1763–1766) and studied medicine at Edinburgh (1768–1771). Fellow Genevan Dr. Louis Odier (1748–1817) helped Delaroche settle in Edinburgh. In 1771, Odier advised Pierre Prévost to learn English and to translate British works. Odier likely also encouraged Delaroche, who became a reputed translator of medical texts. On Delaroche's return to the Continent, he transmitted Odier's medical thesis to Rousseau. Odier and Delaroche each returned to Geneva, set up medical practices, and promoted reform as well as philanthropy. In 1782, Delaroche fled Geneva with his family because of political revolution. They settled in Paris near the Delesserts. Delaroche served as physician for Louis XVI's Swiss Guards, but the family fled Paris in 1792. Like other members of this network, they escaped to London after the massacre of the Swiss Guard at the *Tuileries* (10 August). The Swiss *émigré* community welcomed the family in London, as had the Franco-Swiss circle in Paris. Nevertheless, the Delaroche family had returned to Paris by late 1798 [108,136–138].³²

The Delaroches solidified their place in the late-Enlightenment through marriage and knowledge transfer. In 1797, Dr. Delaroche's daughter Alphonsine (1778–1852) married her cousin Honoré "Horace" Say (1771–1799). This further linked the families, despite Horace's death in Syria serving Napoleon's Egyptian Campaign. Dr. Delaroche's son Michel (1775–1852) attended David Chauvet's (1738–1803) private boys Protestant school in Kensington. It is likely that François Delaroche (1781–1813), the son most like his father, did as well. Pupils studied history, languages, and physics with Chauvet, who was exiled from Geneva for a decade for his role in the revolution of 1782. François also studied in Lausanne and Paris, focusing on science and medicine. He aided his father's medical work and they pursued botanical studies with their friend A.-P. de Candolle. By 1807, François had earned his doctorate in medicine focused on animal heat, completed a botanical tour of Nantes with Candolle, and published texts on botany. Candolle introduced him to the *Société de Arcueil*—which included many of this period's top European savants—allowing François to conduct vital physics, zoology, medical, and translation work. Unfortunately, François died young from typhus, which had killed his father earlier in 1813, as they treated troops returning to Paris from Napoleon's failed Russian campaign [53,108,122,134,136–145].

³² BGE PPC. Ms. L. Odier (Edinburgh) à P. Prévost [10 Août 1770], fr. 253; Ms. L. Odier (Edinburgh) à P. Prévost (Genève) [1771], fr. 259–60 [138].

Michel Delaroche pursued a commercial career. In the 1790s, he apprenticed at the Paris banking house of Jean-Antoine Gautier (1756–1800), Etienne Delessert's son-in-law, and lived in London and Riga before returning to Paris. In 1802, Michel founded a commerce house in Havre backed by the Delesserts' Paris bank. Their links grew with Michel's marriage to Cécile Delessert (1786–1852), Etienne's niece, in 1804. The effects of Britain's blockade led *Delaroche et Cie* (1802–1809) to open branches in Nantes and Dieppe in 1804. Delaroche's long alliance with his brothers-in-law, especially Armand Delessert (1780–1859), led to *Delaroche-Delessert et Cie* in 1809. They engaged in international trade (shipping everything from sheep to sugar to America, Brazil, and the Indies) and sponsored voyages—by Armand, his brothers, and Michel's nephew Horace Say (1794–1860)—to expand commercial relations [43–46,140–145].³³

Links to Genevan Huguenot commercial and economic culture had a seminal influence on J.-B. Say. The Says were Huguenot, had fled France in 1685, and settled in Geneva by 1694. Say's father Jean-Étienne (1739–1806) was a silk merchant who moved to Lyon but struggled financially. Nevertheless, he provided his three sons with a quality education—influenced by Enlightenment ideals and Rousseau—and sent J.-B. and Horace to England in 1785. They apprenticed in trading firms and learned English. The sojourn significantly influenced Say, as did reading Smith's *Wealth of Nations* in English. He borrowed it from his employer Etienne Clavière (1735–1793), director of *Compagnie d'assurances sur la vie*. This company was the culmination of a bourgeois struggle by Clavière and bankers (including Etienne Delessert a close friend) against French aristocratic power. The Clavières and Delesserts had business links since at least 1758. Clavière was permanently exiled from Geneva for helping lead its revolution, served as French finance minister (1792–1793), hired Say as his secretary, was a key influence on Say's political and economic views, and provided him an introduction to French journal culture. In the 1790s, Say worked for journals, helping to found and edit *La Décade philosophique*. Say also held a political post for five years, as Napoleon rose to power, but left before Bonaparte crowned himself emperor in 1804. By then, Say had published works on political economy including *Olbie* (1800)—a utopian Rousseauist novel—and his celebrated *Traité d'Économie Politique* (1803) [34,142,143,146,147].

J.-B. Say is often remembered as a political economist, and rival of Malthus, but he was also a factory owner. There were several partnerships among the Say, Delaroche, and Delessert families. In 1804, Say studied spinning at the *Conservatoire des arts et métiers* and set up factories: Maubuisson (July) and Auchy (October). Say purchased the Auchy facilities from Isaac-Louis Grivel (1753–1820) and Etienne Delessert, partnering with Grivel to found a cotton-spinning mill. It took years to make profit, as the cotton industry struggled along with France's economy. Say sold out to Grivel in 1812. Such failures were eclipsed by Say's success in political economy. In 1819, he returned to the *Conservatoire*, as its first professor of economics. Say became chair of political economy at the *Collège de France* in 1830, and held this post until his death [53,131,142,143].

J.-B. Say succeeded in political economy, whereas his brother, Louis Say (1774–1840), prospered most as a factory owner. In 1806, Louis began a calico manufactory and introduced new bleaching techniques, but France's economic slump led him to sell out to *Say and Grivel* by 1812. Benjamin Delessert helped Louis by introducing him to Armand Delessert, director of *Delaroche and Delessert's* Nantes sugar refinery. Louis first managed the refinery, then partnered with Michel Delaroche and Armand, and took over ownership in 1814. Under Louis's direction new methods were introduced, including switching from beet sugar, based on Benjamin's innovations, to cane sugar. The end of Napoleon's reign and the blockade led to a return of sugarcane—from the Antilles—to the Nantes port and to the immense success of *Louis Say and Cie* in the sugar industry. In 1832, Louis relocated to Paris and continued his work in sugar refining and political economy.

³³ E. Delessert (Paris) à R.R. Livingston (Clermont) [25 juin 1805]; E. Delessert (Paris) à R.R. Livingston (Clermont), [26 juin 1805] [140].

Louis's writings in the 1820s and 1830s, which offered corrections of both his brother and Adam Smith's ideas, significantly aggravated J.-B. Say and were not widely acclaimed [131,142,143,146–149].

Franco-Swiss Protestants, such as the Delessert, Delaroche, and Say families had a long tradition in banking and trades. However, their expansion into science, industry, and political economy was a recent shift, connected to Enlightenment knowledge exchange.

7. Knowledge Circulation: Political Economy, Translation, and Botany

In the early 1800s, European fears over food shortages and renewed political volatility expanded knowledge circulation on political economy, botany, and philanthropy. A revealing example is the *hôtel Delessert*. It was a crossroads—hosting British, French, and Swiss visitors—and a clearinghouse for collecting and transmitting material. A.-P. de Candolle (who proudly knew five generations of Delesserts) spent a decade in Paris (1798–1808) aiding these efforts. At their *hôtel* Candolle met prominent naturalists, writers, bankers, and political economists. This included Germain Garnier (1754–1821) and André Morellet (1727–1819) (translators of *Wealth of Nations*) and the *Physiocrat* P.-S. du Pont, a vocal supporter of Malthus. Critics of Malthus were also present. Benjamin Delessert was a correspondent, banker, and host to David Ricardo. Louis and J.-B. Say were friends and business partners of the Delesserts. In Candolle's relations with the SAYS (met through the Delaroches) he befriended J.-B. Say. Both men were methodical researchers and enjoyed a critical exchange of ideas, though Candolle was a devout Protestant botanist and Say was an irreligious republican political economist. Knowledge exchange between natural history and political economy continued for decades, culminating in 1859 with Darwin's theory of evolution [53,122,143,150–153].

The Delesserts played a critical but generally neglected role circulating late-Enlightenment political economy knowledge. Their involvement began in the 1780s. Etienne Delessert translated Jeremy Bentham's *Defence of Usury* (1787), likely in collaboration with his daughter and son-in-law—Madeleine and J.-A. Gautier—who spoke English. They may have received the text from Morellet, a friend and neighbor of the Delesserts, who possessed two copies [154].³⁴ Their network excelled at disseminating British works on the Continent. In 1804, one of Madame Gautier's English contacts sent her the second edition of Malthus's *Essay on Population* (1803) [17]. She informed M.-A. Pictet: "If our friend Garnier had his eyes he would digest this in-quarto for you, but he loses them more every day and he says that he can no longer read" [17].³⁵ Garnier contributed to the Pictets' *Bibliothèque britannique*, specializing in political economy material before Pierre Prévost assumed this role [17]. Madame Gautier and Pictet likely hoped that Garnier would translate Malthus's *Essay*—as his celebrated translation of Smith's *Wealth of Nations* appeared in this period (1802–1805)—but Prévost ultimately completed this task.

Madame Gautier helped operate an informal political economy workshop in Paris. It circulated essential knowledge. In 1804, before translating Malthus, Prévost translated part of Benjamin Bell's (1749–1806) *Essay on agriculture, with a plan for the speedy and general improvement of Land in Great Britain* (1802). Madame Gautier informed Prévost:

Your translation of Bell has been by read several men of my acquaintance, by Mr. Garnier among others, who has like you proven his knowledge by his works, lover of subjects connected to Political Economy. I know two or three Journals who have discussed it, it is a work that we keep in the library and which is consulted by all those who are occupied in this research [138].³⁶

Political economy knowledge was disseminated across the Delessert network through the research mediums of salons and correspondence. Garnier, Madame Gautier, and DuPont (in France from

³⁴ 663. J. Bentham (Hendon) to E. Dumont (Paris) [9 June 1789] [154].

³⁵ M.-M. Gautier (Passy) à M.-A. Pictet [29 Août 1804] [17].

³⁶ BGE. fr. 4736. 205. M. Gautier (Passy) à P. Prévost (Genève) [25 Août 1805?] [138].

1802 to 1815) promoted political economy in Paris, as did the Pictets and Prévost in Geneva. This included requesting information on the price (over decades) of British wheat, discussing Adam Smith and Malthus's legacy and impact, and debating the value of agriculture, manufacturing, and regulation [19,20,28,107,138,155].

Malthus's work was read with nuance across the network. Genevan savants translated and disseminated his *Essay* and similar works on famine and overpopulation. Geneva was sensitive to both threats. B. Semmel suggests that Du Pont "was full of praise for Malthus," finding him more profound and persistent than Adam Smith ([19], p. 127). In 1820, Du Pont's widow François Robin de Poivre (1748–1841) commended Jean-Charles de Sismondi (1773–1842)—a Genevan historian and political economist—for attacking David Ricardo and defending "notre bon Malthus" ([19], p. 127; [151], p. 224).³⁷ It was a sentiment shared by Garnier, who Malthus (after returning from Paris in 1820) informed Ricardo "attacked you violently" ([151], p. 224).³⁸ Most French economists sided with Malthus and the *Physiocrats* (who favored agriculture) over Ricardo and J.-B. Say (who championed manufacturing) [19,20]. Yet, Du Pont was also critical of Malthus, as James McLain explores through Du Pont's last economic writings. Du Pont's *Examen du livre de M. Malthus sur le principe de population* (1817) included a critique of Say, and challenged the ideas of both men. Du Pont called on Say to join the *physiocrat* fold as he shared many principles, respect France's remaining economists, and to not split political economy by studying wealth to the exclusion of government. Du Pont's critique of Malthus centered on *Physiocracy*, stressing that British poverty stemmed from its overreliance on manufacturing not overpopulation. Both men based their views on natural law. Du Pont believed poverty was natural, population was regulated by food supply, and improvement of education and agriculture would prevent overpopulation. Du Pont agreed with Malthus on mass education, but rejected his solution of moral restraint as unnatural and unrealistic. Finally, Du Pont objected to Malthus's attack on government charity and plan to abolish poor laws by making parents responsible for their children [155,156]. Ironically, Du Pont used many of Malthus's arguments—of men avoiding marriage until they were financially stable—to oppose the engagement of his son (E.-I.) in 1791 [105].³⁹

Savants also viewed Malthus's principles as central to philanthropy and preventing poverty. Benjamin Delessert read early versions of Du Pont's work on Malthus,⁴⁰ wrote to Prévost about significant changes made, and believed that Du Pont made judicious observations but was guided more by his heart than his reason. Delessert reproached Du Pont for confusing what a government should do with that which can be done by private charities, and ignoring how conduct of individuals or public institutions can be influenced. Finally Delessert—alluding to his philanthropy, showing support for Malthus, and identifying a core principle of Enlightenment reform—declared: "I am even better able to compare the correctness of the principle so well developed by Malthus, and to see that true humanity consists in preventing an ill rather than in relieving it, the same as a well-organized government must seek to prevent crimes rather than suppress it" [138].⁴¹

The Delesserts-Gautiers served as facilitators throughout this period. In 1836, Louis Say gave a copy of his *Études sur la richesse des nations* (1836) to Benjamin and François Delessert (1780–1868). They encouraged Say—providing a channel—to send a copy to their friend Prévost. Say did, begging Prévost's pardon for the temerity he took in contradicting passages from Malthus [138].⁴² Several decades earlier (between 1809 and 1815) Madame Gautier filled a like role between Du Pont

³⁷ F.R. de Poivre du Pont à J.-C. de Sismondi [6 Novembre 1820] [151].

³⁸ 378. T. R. Malthus (E I Coll) to D. Ricardo [28 August 1820] [151].

³⁹ P.-S. du Pont to E.I. du Pont [26 August 1791], vol. 1, pp. 170–81 [105].

⁴⁰ BGE. fr. 4736. B. Delessert (Paris) à P. Prévost (Genève) [10 Décembre 1810], f. 73–78 [138]. Delessert likely read copies of Du Pont's manuscripts: HL W2-4827. P.-S. du Pont. "Nouvelles observations sur le livre de Mr. Malthus-Lettre aux Auteurs du Mercure." [1809]; HL W2-4831. P.-S. du Pont. "A Messieurs de l'Académie du Gard. Paris [1810]: f. 1–12 [107].

⁴¹ BGE. fr. 4736. B. Delessert (Paris) à P. Prévost (Genève) [10 Décembre 1810], f. 73–78 [138].

⁴² BGE. fr. 4736. L. Say (Paris) à P. Prévost (Genève) [7 Novembre 1836] [138].

and Prévost. She shared Prévost's reply, likely for sending his Malthus translation to Du Pont, noting: "I am very angry at not possessing Malthus in English. I will inform you if my brothers have it, and in the case, they will join to send it to you. If they don't have it, I am sure that Mr. Garnier possesses it" [107].⁴³ Such service was vital for political economy debates and diffusion.

Prévost's translation of Malthus's *Essay on Population* (1809)—the first in French—was dedicated to Benjamin Delessert [52]. About half of the translation had appeared in serial form in the *Bibliothèque britannique* since 1805. Contemporaries, and even friends, described Prévost, Delessert, and Malthus as cold and reserved [2,53,107,157].⁴⁴ Prévost suggests in the introduction that Malthus's main object was to promote public welfare. Prévost's dedication to Delessert recognized their long friendship, and his orchestration of philanthropy in Paris [52]. In Prévost second French edition of *Essai sur le principe de population* (1830), he maintained the dedication, eliciting gratitude and feedback from Delessert: "If time had permitted you to make an analysis of the works that have been published for and against Malthus it would contribute again to the interests inspired by his system" [138].⁴⁵ In 1827, Delessert asked if Prévost had received Malthus's new work, *Definitions in Political Economy* (1827), and offered to send it if not [138].⁴⁶ Political economy preoccupied this network. Prévost's brother-in-law Alexandre Marcet was the contact and facilitator between Malthus and Prévost. Marcet's wife Jane (née Haldimand 1769–1858), belonged to a Huguenot banking family, received a quality education, and wrote the popular textbook *Conversations on Political Economy* (1816) [1,12–17]. Prévost had a long association with political economy and Delessert, as did Pictet's journal, but his publication and dedication were motivated by broader concerns.

Franco-Swiss philanthropists and savants interested in Malthus and political economy were motivated by a specter of renewed revolution and fear of famine. Their role popularizing him seems paradoxical and an odd bedfellow with Malthus, a fierce critic of charity and defender of landed wealth [1,11,19,20,28,30,157]. Malthus's view of natural limits and population principle led to his attack on Poor Laws—as charity only perpetuated poverty—and his infamous analogy of society as a great feast hosted by nature, who unable to "provide for unlimited numbers, humanely refused to admit fresh comers when her table was already full" ([6], vol. 2, p. 127). A solution to this apparent contradiction is clearly expressed by Jean-Pierre Pictet-Mallet (1777–1857), in his 1809 translation of Joseph Townsend's (1739–1816) *A Journey through Spain in the Years 1786 and 1787; with Particular Attention to the Agriculture, Commerce, Population, Taxes, and Revenue of That Country* (1791) [158]:

Charity, considered in relation to society in general, is very difficult to do well; it quickly becomes an encouragement of laziness, and, in this case it harms industry, which requires a continual stimulus. This is a reproach that was made with reason for the establishment of economic soups in Paris; namely, to accustom the indigent class to be too easily able to feed itself. The administrators of the *Société philanthropique* understood this well, so they have wisely suspended, or at least greatly reduced, the distribution of these soups during abundant years, to reserve them for those of scarcity and misery ([159], vol. 3, p. 315).

These philanthropists practiced welfare not charity. Their goal was to return the working poor to industry, and to counter the social and economic threats posed by hunger [123].

The interconnection and breath of late-Enlightenment knowledge is evident in this exchange. Pictet-Mallet was a naturalist, agronomist, and friend of A.-P. Candolle. They travelled to Paris together in 1797 and Pictet-Mallet later sojourned in Spain (1798–1801) [122,160]. This informed his translation of Townsend, whose *A Dissertation on the Poor Laws: By Well-Wisher to Mankind* (1786)—on

⁴³ HL. DPDN. 2/A/21. MS W 2-4412. M.-M. Gautier à P.-S. DuPont [n.d.] [107].

⁴⁴ HL. DPDN. 2/A/21. MS W 2-4412. M.-M. Gautier à P.-S. DuPont [n.d.] [107].

⁴⁵ Publication was delayed for several years. BGE. fr. 4736. B. Delessert (Paris) à P. Prévost (Genève) [2 Octobre 1821], f. 43–44 [138].

⁴⁶ BGE. fr. 4736. B. Delessert (Paris) à P. Prévost (Genève) [17 Mai 1827], f. 49–50 [138].

overpopulation and the threat of British Poor Laws—fundamentally influenced Malthus’s *Essay on Population* [30,161]. It is likely not a coincidence that Pictet-Mallet’s translation of Townsend and Prévost’s translation of Malthus both appeared in 1809. Prévost quotes the above note and a lengthy section of Pictet-Mallet’s discussion of Cadiz workhouses inspiring industry among the poor [52,159]. Prévost also added his own remarks on the Swiss and French population, that of Townsend on Spain, and material on the importation of wheat by the German Caspar Voght (1752–1839) cited by the Scottish surgeon Benjamin Bell [52]. These international savants were translators and transmitters who shared a concern with overpopulation, famine, political economy, industry, and agriculture.

Bell and Voght shared Prévost’s concern of both food shortages and of industry being favored over agriculture. Voght—an “eminent Merchant in the foreign trade of Hamburg”—had befriended Stephen Delessert during his refuge in the free Hanseatic city (1792–1793). In 1793, Stephen gave Voght introductions to Boulton and Watt so he could see the “mechanical wonders of Birmingham” [86].⁴⁷ Voght had strong trade and cultural links to Enlightenment France, and supported the early phases of the French Revolution [162]. Stephen may also have given Voght introduction for J. E. Smith and Edinburgh savants [86,163]. Voght spent more than a year touring British industries, workhouses, hospitals, and prisons. This inspired him to publish an account of his philanthropy in Hamburg before departing Edinburgh in 1795. After Voght’s return to the Continent he corresponded with Smith discussing botany, philanthropy, and agriculture [29,164,165].⁴⁸ In the late 1790s Bell—a gifted Scottish surgeon who had visited Paris and London after his medical studies—became increasingly interested in political economy and agriculture [166]. Bell met Voght during his stay in Edinburgh in 1794, which may have stimulated Bell’s concern. At a large gathering full of “men of abilities and information” Voght rejected the view that Britain was immune from “any scarcity of corn” because of its manufacturing dominance. Bell and other men were won over, as Voght “possessed the best information of all that relates to the corn trade, in consequence of his family having been for some generations deeply engaged in” that trade on the Continent. Bell concludes from his analysis of European populations, consumption, and scarcity: “it appears, that Britain acted with much imprudence and folly, when she first began to lessen her attention to agriculture, with the view of furnishing other countries with manufactures” ([167], p. 467). This imprudent “folly” also concerned Prévost.

In *De la disette*, Prévost translated only Bell’s section on the scarcity of food, but not those on British agricultural improvement. Prévost defended the status of agriculture over that of manufacturing—alluding to the legend of King Midas to describe the risks of the mercantile system adopted by eighteenth-century Britain—that brought great wealth but danger of starvation. This system was improved, largely through Smith’s *Wealth of Nations*, but Prévost asserts that the well-known text is complex and little understood. He concludes that Bell and Smith’s ideas on the matter agree, as Smith realized agriculture’s importance and the necessity of encouraging it [168]. Concern over hunger and famine, and their subsequent effects, are clearly expressed by Bell in the section on dearth:

Scarcity of provisions, has, in every age and country, been justly considered as the greatest of all calamities. While satisfaction and joy are the ordinary effects of regular supplies of the necessaries of life, ill humour among the people, discontent with Government, and at last tumult and open rebellion, never fail to arise, from provisions being scarce, or too dear for the people to produce ([167], p. 303).

Continental savants recognized the great need to improve agriculture and avoid dearth.

⁴⁷ BCL MS 3782/12/32 254. J. E. Delessert (Hamburgh) to M. Boulton (Soho) [15 October 1793]; BCL MS 3147/3/388/33. J. E. Delessert (Hamburgh) to J. Watt (Soho) [15 October 1793] [86].

⁴⁸ C. Voght (Flotbeck) to J. E. Smith [23 May 1797]; C. Voght (Flotbeck) to J. E. Smith [11 August 1798] [165].

The first two decades of the nineteenth century were, as environmental historians have demonstrated, some of the coldest of the Little Ice Age. It witnessed glacial expansion, severe winters, short summers, intense periods of cold, crop failures, famines, and inconsistent weather. Europeans developed various innovations to adapt to changing conditions including an agricultural revolution. It began in the Low Countries in the sixteenth century and spread to Britain in the seventeenth century. Crop rotation and new techniques, tools, and crops allowed farmers to increase yields and countries to expand populations. However, France failed to adopt these innovations. Its over-reliance on wheat and wine, antiquated agricultural methods, and expanding population created devastating outcomes in the late eighteenth century. Severe weather and poor harvests in the 1780s created high prices, extensive hunger, bread riots, and social unrest. These events ultimately contributed to the outbreak of revolution in France. Geneva and the Swiss states also relied heavily on wheat and wine, and suffered from poor harvest, social disorder, and subsistence crises in this period [21–27]. Fear of hunger and revolution persisted into the nineteenth century. As a consequence, discussions of population, plants, and competition among, and between, species for food remained popular among scholars.

8. Interconnections and Exchange: Political Economy, Botany, and Voyages

Knowledge exchange between Malthus and the Delessert network endured for decades and extended to Charles Darwin. Malthus and members of his family joined the wave of British visitors to Paris and Geneva in 1802. They did not then know Prévost, and James describes “their ramblings” in Switzerland as “associated more with the seductively romantic Rousseau of *La Nouvelle Héloïse* than” that of *Du contrat social* ([1], p. 98). In 1816, Candolle met Malthus in England, one of several introductions he was given by Dr. Marcet to leading British thinkers [122]. The Malthus family returned to Paris in 1820. They met political economists, including Garnier, as well as Madame Du Pont and the Edgeworths, who may have introduced them to the Delesserts [1,116,151]. In 1839, Darwin invited A.-P. Candolle’s son Alphonse Pyramus (1806–1893)—recently arrived in London—to dine at his house with Cambridge Professor of Botany John Henslow (1796–1861) [169],⁴⁹ and “to meet M. and Madame Sismondi,” uncle and aunt of Emma Darwin (1808–1896) ([170], vol. 2, p. 216).⁵⁰ Henslow took the position after the death of Thomas Martyn who had held it for sixty years. In 1819, J.-C. de Sismondi had married Jessica Allen (1777–1853), Emma’s favorite aunt. Intermarriages, like on the Continent, fortified family ties. Darwin married his first cousin Emma—daughter of Elizabeth Allen (1764–1846) and Josiah Wedgwood II (1769–1843) of the pottery dynasty—in 1839 [169,171,172]. Botany, political economy, and industry mingled over the Darwin’s dinner table and in their family tree.

Darwin’s dual family inheritance was vital for his career and theory. Both of his grandfathers, Erasmus Darwin and Josiah Wedgwood, were Lunar Society members and remarkable men. The Darwin family legacy was one of botany (including speculations on transmutation), medical studies at the University of Edinburgh, geological collection, nominal Anglicanism despite non-belief, respectability and links to English science and society, and Charles’s admittance to Cambridge University to train as a clergyman. The Wedgwood legacy insured wealth from their successful pottery works, knowledge of animal domestication and breeding, experience hunting, security in marriage, and leisure to pursue independent pursuits [173,174].

The Wedgwoods, as Unitarian dissenters and manufacturers, gave Charles Darwin an alternative to genteel England. He overcame his mediocrity as a student, and that of the English universities, by connecting with leading Cambridge naturalists and seeking supplementary instruction from Professor John Henslow. Darwin was introduced to work by Continental naturalists at Edinburgh and Cambridge, including that of Candolle whose works were used by Henslow as a course model.

⁴⁹ C. Darwin (12 Upper Gower Street) to A. de Candolle [25 May 1839] [169].

⁵⁰ C. Darwin (Down) to A. de Candolle [11 November 1859] [170].

Henslow also introduced Darwin to Alexander von Humboldt's (1769–1859) *Personal Narrative of a Journey to the Equinoctial Regions of the New Continent* (1814–1825)—inspiring in Darwin a desire to make his own voyage of discovery—and arranged his post on the *H.M.S. Beagle*. Darwin continued his reading onboard, as the ship held biogeography works by Humboldt and Candolle. The voyage was opposed by Darwin's father Robert (1766–1848), but not the Wedgwoods. Josiah Wedgwood II helped Darwin overcome all objections [173–177].

Historians have debated political economy's influence on Darwin's discovery. Robert M. Young contextualized Darwin within Victorian culture, stressing that he and Malthus were part of a single debate with other naturalists and social theorists. Young argues that recovering cultural links between Malthus and Darwin—later clouded by social Darwinism and Malthusianism—reveal that distinctions between social and biological were “broken down in principle well before” 1859 ([178], p. 111). Silvan Schweber explores Darwinian divergence and individualism, their links to political economy, and the “uniquely British character of Darwinian evolutionary theory” ([177], p. 198). Scott Gordon agrees that Darwin was informed by Victorian culture, but distinguishes between economic and biological concepts of competition, concluding that Darwin was not versed in political economy, and it could not have furnished anything “important for the theory of natural selection” ([179], p. 457). Conversely, James Moore contends that Malthusian political economy guided Whig poor-law reform circles that Darwin frequented. Victorian Britain's social context allowed him to see nature as a great workhouse. Moore extends this focus to Alfred R. Wallace (1823–1913), who “derived a theory from the same Whig workhouse world,” in a malaria induced Malthusian moment on the Malay archipelago “surrounded by natives on a remote volcanic island.” In this setting, Wallace recalled the competitive and conflict-filled “Celtic periphery” he knew as a young man in Wales, when he first read Malthus's *Essay* ([180], pp. 306–7).

Recent work on political economy and Darwin has focused on natural history. Donald Winch seeks to move past Darwinian and Malthusian social theory. He concedes Darwin and Wallace's debt to political economy but notes that they were most interested in Malthus's natural history. As Darwin was influenced by the Scottish moral philosophy of Hume and Smith—and Malthus favored agrarian policies over manufacturing—Winch opposes attempts by contextual historians to link either man too closely with nineteenth-century industrial capitalism, utilitarianism, or imperialism [181]. Schabas's work on the denaturalization of economics reveals how eighteenth-century political economists—like Hume, Smith, and the *Physiocrats*—conceptualized their work within a natural context. They influenced subsequent political economists, especially Malthus whose work was informed by nature's laws and limits. His contemporaries, such as J.-B. Say and Ricardo, began a process that supported manufacturing above agriculture, man above nature, and the professionalized and independence of economics. Schabas argues that Say and Ricardo were liminal in this secularizing and denaturalizing process. It culminated with John Stewart Mill (1806–1873) who fulfilled the task of divorcing economics from nature. This occurred contemporary to Charles Darwin's reliance on classical political economy, which helped him discover his theory and plunge humanity fully back into nature [28].

Discussions of Darwin's indebtedness to political economy, Victorian culture, and natural history have overemphasized the British context. This view is epitomized by Charles C. Gillispie's oft-quoted remark on struggle in *On the Origin of Species* (1859): “it is inconceivable that it could have been written by any Frenchman or German or by an Englishman of any other generation” ([182], p. 224). Moore uses this as a jumping-off point to explore Malthus's influence on Wallace: “Where is the common context for this ‘discovery’—by an Englishman of Darwin's generation?” ([180], p. 293). Only Darwin and Wallace made the discovery, and it is thus counterfactual to dispute this. Historians have moved beyond biology and geology to reveal how Darwin was influenced by the bourgeois values “of Victorian social and economic discourse.” Gillispie concludes that viewing “classical political economy as the environment rather than the motivation” of Darwin's theory is “merely to give a Darwinian” account of the social factors that helped generate it, which “is no less important for understanding the

origins of science than for understanding the origin of species" ([182], p. 224). However, if historians use this approach to examine the origins Darwin's science we must look beyond the island of Great Britain, as Darwin's theory would have made little progress if he had limited his observations on finch beaks to only one Galapagos island. Genevans and Franco-Swiss of Darwin's generation were part of a common context and influenced his theory.

The intellectual context was indeed not bound to Britain. Recent scholarship on Darwin and Wallace places them in a global context [174,180]. Yet, work remains to be done on European exchange. Darwin read works by Continental thinkers, including his uncle Sismondi, who criticized British political economists for favoring competition too highly [171,177]. Schweber defends the British context, but reveals Darwin's debt to French writers for recalling his notice to Malthus's population principle, and explains that Darwin credited French naturalist Henri Milne-Edwards (1800–1881) for the idea of the physiological division of labour, but not Adam Smith. The reason, Schweber suggests, is that Milne-Edwards's work rested on biological foundations untainted by British utilitarianism. Schweber concedes that Darwin also credited Malthus, but saw his laws as based on biology [177]. Young and Winch reveal that Malthusianism was well tainted by utilitarianism and other negative connotations in Darwin's time, and Schabas explains that Smith was versed in natural science and based his political economy on natural law. Smith maintained an ongoing exchange with French savants and his example for division of labor was likely inspired by an article in the *Encyclopédie* [28,178,181,183,184]. Milne-Edwards used industrial analogies of workshops, competition, and division of labour in his work on zoology. However, he, unlike Darwin, freely cited his debt to Smith as well as J.-B. Say, whose own political economy work was influenced by naturalists, especially Candolle. Milne-Edwards's works were part of the *Beagle* library. Schweber believes that Darwin read them on the voyage, as he did the works of Candolle and Humboldt, and certainly before the pair met in 1847. However, there is no evidence of Darwin reading *Wealth of Nations* [177]. Scottish savants, Malthus, and Darwin, maintained a dialogue and exchange with Continental counterparts. Political economy, like industry and botany, was part of a European and even global interchange.

French, German, and Swiss savants fundamentally influenced Darwin's work and theory. Members of the Delessert network interacted with Darwin's circle and likewise participated in industry, philanthropy, political economy, agriculture, natural history, and global voyages of scientific collection. The constant circulation of knowledge throughout Europe from 1760 to 1860 fueled discoveries in diverse fields. A shared culture renders claims of a unique British context for Darwin's discovery increasingly inadequate. The British-Franco-Swiss network circulated knowledge on political economy, philanthropy, agriculture, and natural history until at least 1860. They were part of a common cultural context encompassing bourgeois capitalist industry, hunger among urban workers, and exchange among philanthropists, agronomists, political economists, and naturalists.

Connections between the Delessert and Darwin networks began in the 1780s, decades before Charles Darwin's birth. Robert Darwin attended Edinburgh University's natural-history course with the Delesserts. Josiah's son John Wedgwood (1766–1844) met the Delesserts in Paris. The Pictets and Pierre Prévost's brother—R.-G.-J. Prévost-Dassier (1749–1816)—toured Boulton and Watt's Soho factory (with Guyot's introduction) and the Etruria factory with Josiah and Tom Wedgwood (1771–1805). Tom studied in Geneva and the Pictets tried to recruit him to direct their pottery works as an expansion of Etruria [16,17,53]. These ties persisted despite the French Revolution and Napoleonic Wars. In 1818, Maria Edgeworth gave Josiah Wedgwood II an introduction the Delesserts in Paris, noting how they "well know that friendship can endure long absence" ([185], p. 39).⁵¹

Botany and voyages formed vital connections between the Delessert and Darwin networks. The Delesserts' links to translators and explorers insured that they supported scientific voyages for decades. Yet, the paramount impetus was the Delesserts' *musée botanique*. It originated in

⁵¹ M. Edgeworth to B. Delessert, February 11, 1818 [185].

1772, in the herbarium made by Rousseau for Madeline. Her brothers Benjamin and Stephen expanded it, cultivating ties with British and Continental naturalists [53]. In 1829, specimens from Aimé Bonpland (1773–1858) and Alexander von Humboldt’s Central and South American voyage (1799–1804) were added to the Delessert *musée*. The Delesserts befriended both men, serving them as patrons and bankers. Delessert’s massive collection grew to 87,000 species, with about 300,000 specimens at his death. Only two contemporary private herbaria, that of British botanist William Hooker (1785–1865) and A.-P. de Candolle, matched it [77,78,186–188].

Benjamin Delessert purchased botanical collections and sponsored many English, German, and French voyages. This included ones by family members in the 1830s and 1840s that were a shift from earlier expeditions to grow *Delaroche and Delessert* business interests. Delessert’s nephews collected specimens, made ethnographic descriptions—in South America, Oceania, India, and China—and published travel journals dedicated to him. Several species received the Latin name *Delessertii* [188–191]. These voyages were contemporary to those of Darwin, Joseph D. Hooker (1817–1911), Thomas Huxley (1825–1895), and A. R. Wallace. From 1831 to 1866 these naturalists, later crucial in winning over Britain’s scientific establishment to Darwin’s theory, explored the earth’s southern lands, collecting flora and fauna, and ethnographic descriptions [174].

The Franco-Swiss and German naturalists of the Delessert network maintained an enduring and significant exchange with Darwin’s network. Botanical transfer between the Hookers and Delesserts began by the 1820s. After visiting Delessert in Paris in 1825, W. J. Hooker thanked him for sending books “from our mutual friend de Candolle,” his hospitality, and “for the valuable specimens of plants with which you have enriched my Herbarium” [192].⁵² Twenty years later, Hooker’s son Joseph visited Paris, and Delessert introduced him to Humboldt [193]. J. D. Hooker wrote to Darwin wishing he too was there to see Delessert’s herbarium and meet Humboldt, who inspired Darwin’s *Beagle* voyage [169].⁵³ In 1845, after A.-P. de Candolle’s death, his son A. de Candolle, Darwin, Delessert, and Humboldt joined other eminent naturalists recommending J. D. Hooker for chair of botany at the University of Edinburgh [194]. In the 1850s, after Benjamin’s death and his brother François’s takeover of the *musée botanique*, the Hookers visited it and the Delesserts at Passy. They, in turn, visited the Hookers and their herbarium at Kew [195].

It is remarkable that Candolle and Malthus’s work—a little over two decades after they met in England—combined to help Darwin attain his theory. Candolle carried on work by French botanists to create a natural system of classification, which replaced that of Linnaeus [174,187]. Candolle and Benjamin Delessert were close friends, united in a passion for publishing books and expanding herbaria to improve botanical knowledge [78,122,187]. In the 1840s Darwin, as he developed his theory in notebooks and essays, credited the influence of Candolle and his *Essai élémentaire de géographie* (1820). Darwin explains, “De Candolle in an eloquent passage, has declared that all nature is at war, one organism with another, or with external nature” ([196], pp. 87–88). This language was softened in *On the Origin of Species*. In discussing struggle for existence Darwin notes that Candolle had revealed, “that all organic beings are exposed to severe competition” ([152], p. 62). The botanical work of Candolle and his son is recognized in *Origin* and mentioned at least twelve times [152]. Darwin praises A. de Candolle, for his work on the wide geographic distribution of plants, and included him among the naturalists to whom he sent early copies of this revolutionary book [152,170].⁵⁴ Malthus was only mentioned two times, but has received much greater attention. Darwin’s discovery of a mechanism for his theory in 1837, like that of his co-discoverer A. Wallace in 1858, required a “Malthusian moment” [173,174,178,180]. Indeed, as Darwin stated: “Even the energetic language of Decandolle does not convey the warring of the species as inference from Malthus” ([153], p. 134e). Ultimately, it was a combination of botany and political economy—in an age of voyages, philanthropy, great hunger,

⁵² RBG. KA. WJH/2/16/20. W.J. Hooker (London) to B. Delessert [27 April 1825] [192].

⁵³ J.D. Hooker (Ghent) to C. Darwin [late February 1845], vol. 3, pp. 147–50 [169].

⁵⁴ C. Darwin (Down) to A. de Candolle [11 November 1859] [170].

agricultural improvement, industry, and international cultural exchange—that led to Darwin making his discovery.

9. Conclusions

The Delessert network remained united into the nineteenth century through its devotion to Rousseau, botany, political economy, agriculture, industry, and philanthropy. Members were motivated by social unrest and food shortages to circulate knowledge on common interests. Late-Enlightenment exchange inspired the establishment of philanthropic societies, industries, and botanical collections. Some of the most distinguished savants and political economists of this period mingled at the *hôtel Delessert*, a clearinghouse for international knowledge transfer. This form of intellectual exchange fostered unforeseen outcomes including Malthus's population principle and Candolle's botanical work, which later combined to significantly influence Darwin's great discovery.

The theory of evolution was formulated by two Britons, but resulted from their participation in a global knowledge exchange. The context of bourgeois Victorian Britain influenced Darwin and A. R. Wallace. However, capitalist ideologies and the Industrial Revolution were also expanding on the Continent. Food shortages, poor harvests, and worker unrest was a pan-European phenomenon. Rousseau and Swiss physicians had championed natural reforms to stem degeneration in the 1750s. They feared that Europe suffered depopulation because of the vices caused by civilization. Natural law remained a dominant influence on Malthus and fellow political economists. Malthus's attack on perfectibility was part of wider nineteenth-century debates on population, industry, and agriculture. These debates occurred against backdrop of the Little Ice Age, which influenced great climatic shifts, as well as the social and political ones.

In the 1780s, Daniel and T. R. Malthus were among the many Europeans who took up the pastime of ice skating on the Thames River and other frozen waterways. Daniel Malthus naturally favored skating as a vigorous form Rousseauist exercise [13]. However, the thick ice and cold weather was also indicative of ecological changes in this period, which ultimately influenced Malthus's *Essay on Population*.

If Malthus's great-great nephew was surprised that his name was still known on the Continent in the late nineteenth century, then he would no doubt be astonished with the name's continuing resonance. Scholars working on the history of the environment have examined how climatic shifts influenced human culture in the Little Ice Age and human impact on the planet since we entered the Anthropocene. This new epoch began in the 1780s, with a transition from natural power to mechanized forms powered by fossil fuel. This transition saw a rapid expansion of industrial technology, population rates, and ultimately climate change [197–199]. The effects of ecological shifts impacted harvest failure, famine, revolution, and war, as well as human responses through innovation in agricultural, industry, science, and philanthropy. Interaction and competition—within and among species including humans—in environments across the globe, helps illuminate the endurance of Malthus's reputation on the Continent, the role of his work on Darwin's discovery, and Malthus's lasting influence into the twenty first century.

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