ABSTRACT
In 1798, Thomas Robert Malthus’s infamous *An Essay on the Principle of Population* was published. The publication of the Essay is best remembered for Malthus’s principle—that population multiplies geometrically as opposed to subsistence increasing arithmetically. What is not well known, however, is that Malthus’s Essay also offered a sophisticated—and heterodox—theory of mind. Despite a recent revival in Malthusian scholarship, Malthus’s theory of mind has been largely forgotten. The present study attempts to address this neglected area within the literature, by evaluating Malthus’s contribution to the naturalization of the soul. I first situate Malthus’s theory of mind within the Essay’s broader naturalization project, examining Malthus’s role as naturalist; his views on humans as animals; and the Essay’s cosmology. This is followed by an exploration of the making and reception of the Essay, illustrating how readers widely interpreted Malthus’s theory of mind as a theory of naturalization. Finally, I reconstruct Malthus’s naturalized system of mind, discussing the mechanisms and dynamics involved in the operation of a materialist mind. In sum, I argue for the centrality of Malthus’s Essay in the larger naturalization movement, specifically as it pertains to the soul.

1. Introduction
In 1798, the radical publisher Joseph Johnson published the anonymous tract *An Essay on the Principle of Population*, which contained a heterodox account of mind. The unknown author advocated for a naturalized conception of man and mind, postulating that properties of mind arose out of matter. Controversy soon followed the Essay’s publication with readers and reviewers debating the author’s true identity, intentions, and religious affiliation. The Essay would go on to become a classic, provoking argument and discussion throughout the nineteenth century and beyond. The anonymous author was...
ill-prepared for the fame and notoriety that followed, and by 1801 was widely identified as the English cleric, Thomas Robert Malthus (1766–1834; see Figure 1). Indeed, as Piers Hale has pointed out, ‘no one’ since the Essay’s publication has ‘been indifferent to Malthus’.2

Malthus is now best remembered as a political economist whose Essay was primarily about the relations between population and food subsistence. His main thesis was that population – under favourable conditions – tended to increase geometrically as opposed to agricultural production, which increased arithmetically. This disparity in the ratio of increase between population and subsistence could hypothetically lead to food shortage and eventual famine. This was Malthus’s principle of population, a principle that would prove to be a major influence on the domestic policies of nineteenth-century Britain as well as on the work of naturalists such as Charles Darwin and Alfred Russel Wallace.3 What is not well known, however, is that Malthus’s Essay also offered a sophisticated – and heterodox – theory of mind. Despite a recent revival in Malthusian scholarship, it is clear that his theory of mind has been largely forgotten.4

Why has Malthus’s theory of mind been overlooked in the historiography? This negation is due in part to the Essay’s publication history. While the first edition (1798) of the Essay included two chapters devoted to Malthus’s theory of mind, they were subsequently omitted from the second edition (1803), and all editions thereafter. Writing in the nineteenth century, James Bonar, in discussing the fate of Malthus’s theory of mind, concluded:

[i]n the controversy that followed the essay there are few references to this part [theory of mind] of it, and after the appearance of the second edition, where this part is omitted altogether, people forgot the existence of the first edition.5

In fact, the first edition went out of print and became difficult to obtain, only to be re-printed at the behest of Bonar by the Royal Economic Society in 1925.6 The publication of the second edition together with the scarcity of the first, facilitated the process of forgetting. In reading subsequent editions, readers were allowed to forget the initial iteration. This process of forgetting lends credence to James A. Secord’s thesis that ‘[e]very act of reading is an act of forgetting’.7

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2Piers J. Hale, Political Decent: Malthus, Mutualism, and the Politics of Evolution in Victorian England (Chicago: University of Chicago Press, 2014), p. 44.
3For the reception of Malthus’s ideas on evolutionary discourses in the nineteenth century see ibid.
4For recent scholarship see Sergio Cremaschi, Utilitarianism and Malthus’ Virtue Ethics: Respectable, Virtuous and Happy (New York: Routledge, 2014); Robert J. Mayhew, Malthus: The Life and Legacies of an Untimely Prophet (Cambridge: The Belknap Press of Harvard University Press, 2014); Alison Bashford and Joyce E. Chaplin, The New Worlds of Thomas Robert Malthus: Rereading the Principle of Population (Princeton: Princeton University Press, 2016); Robert J. Mayhew, ed., New Perspectives on Malthus (Cambridge: Cambridge University Press, 2016); David Reisman, ‘Thomas Robert Malthus’, in Great Thinkers in Economics (Palgrave Macmillan, 2018).
5James Bonar, Malthus and His Work (New York: The Macmillan Company, 1924 [1885]), p. 38.
6See foreword by Austin Robinson in Thomas Robert Malthus, First Essay on Population 1798 (London: Palgrave Macmillan, 1966).
7Secord, Victorian Sensation, p. 515.
Another reason why Malthus’s theory of mind has been overlooked concerns the reading practices and specialization of historians. Historians of ideas and science have almost exclusively been interested in the Essay’s concept of struggle and its influence on Darwin’s theory of evolution. As a consequence, they often ignore the first edition of the Essay in favour of the other editions, especially the sixth edition that Darwin read. The abridged version from 1830 also proved to be popular among scholars, as it provided a neat summary of the sixth edition, and also excluded the chapters on the theory of mind. Historians of economic thought, on the other hand, have been mainly interested in the economic implications of Malthus’s thinking, ignoring those aspects related to mind altogether. And on the rare occasion when the two chapters on mind have been mentioned, they have been reduced to a

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*Figure 1.* Thomas Robert Malthus. Mezzotint by John Linnell, 1834. Credit: Wellcome collection. Attribution 4.0 International (CC BY 4.0).

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8See Peter Vorzimmer, ‘Darwin, Malthus, and the Theory of Natural Selection’, *Journal of the History of Ideas*, 30 (1969); Sandra Herbert, ‘Darwin, Malthus, and Selection’, *Journal of the History of Biology*, 4 (1971); Peter J. Bowler, ‘Malthus, Darwin, and the Concept of Struggle’, *Journal of the History of Ideas*, 37 (1976).

9Samuel Hollander, for example, referred to these chapters as an ‘embarrassment’ and irrelevant to Malthus’s main thesis. He further stated that their exclusion from later editions had no consequence: Samuel Hollander, *The Economics of Thomas Robert Malthus* (Toronto: University of Toronto Press, 1997), pp. 918–19.
theodicy.10 However, as I argue here, in viewing Malthus’s theory of mind as part of an attempted theodicy, one risks not appreciating the complexity of Malthus’s thought. By situating Malthus’s theory of mind at the forefront of our analysis we are able to account and resolve several contradictions introduced by reading these chapters solely as a theodicy.11 This is not to deny that it also functioned as a theodicy but to emphasize that it was first and foremost a theory of mind.

When we give credence to Malthus’s own description of the final two chapters as a ‘theory of mind’, we allow for the Essay to emerge as a central publication of the naturalization movement, as discerned by Stephen Gaukroger and others.12 Gaukroger in The Natural and the Human (2016), introduces the idea that it was not the natural sciences but rather the human and moral sciences that ushered in new scientific understandings of the human realm, thereby displacing religious conceptions. Malthus, according to Gaukroger, contributed towards the naturalization of the human by his implementation of social arithmetic, leading to the quantification of human behaviour.13 Malthus’s theory of mind, however, indicates that his contribution to the naturalization movement was more extensive than previously realized, because, as I will argue here, it extended all the way down to the soul.

Samuel M. Levin noted that ‘Malthus wove the threads of a theory of mind, coloured by his theological preconceptions into the fabric of his discourse on population’.14 This paper disentangles some of these threads to reveal a sophisticated, naturalized conception of mind that carried explanatory power when it came to human behaviour. A Malthus emerges who is not just interested in biological principles, but also concerned with how these principles dictate the formation of ‘mind out of matter’.15

2. Malthus as naturalist

In order to contextualize Malthus’s naturalized account of mind, one has to situate his theory within the broader naturalized project present in the Essay. The image of Malthus as a key naturalizing figure first emerged in the work

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10See D. L. Lemahieu, ‘Malthus and the Theology of Scarcity’, Journal of the History of Ideas, 40 (1979); Anthony Michael C. Waterman, Revolution, Economics, and Religion: Christian Political Economy, 1798–1833 (Cambridge: Cambridge University Press, 1991), pp. 58–112; Hollander, pp. 917–48.
11These contradictions have led Waterman to describe these chapters as being ‘unsatisfactory’, ‘vague’, ‘muddled’, ‘amateurish’, and a ‘failure’: Waterman, pp. 96–98.
12[Thomas Robert Malthus], 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, 1st ed (London: J. Johnson, 1798), p. iv.
13Stephen Gaukroger, The Natural and the Human: Science and the Shaping of Modernity, 1739–1841 (Oxford: Oxford University Press, 2016), pp. 287–92.
14Samuel M. Levin, ‘Malthus and the Idea of Progress’, Journal of the History of Ideas, 27 (1966), 99.
15[Malthus], p. 355.
of Robert M. Young, who argued that Malthus saw human beings as biologically determined organisms constrained by the laws of nature.\textsuperscript{16} He situated Malthus’s work within the greater biological discourses of the early nineteenth century, suggesting that Malthus should be read alongside William Paley, Charles Lyell, Herbert Spencer, Thomas H. Huxley, and Darwin. Catherine Gallagher, in a similar vein, recognized that Malthus was concerned with ‘the most basic facts of biological existence’ and placed the ‘literal body’ at the centre of his theory.\textsuperscript{17} Roy Porter, following on from Gallagher, identified that Malthus advanced a ‘quasi-materialistic vision of mind’, though Porter never developed this observation further.\textsuperscript{18} I will build upon the work of Young, Gallagher, and Porter, arguing that Malthus should not only be viewed as a natural philosopher that advanced a naturalized understanding of the world, but also of the soul.

\section*{2.1. Debating nature}

Young’s argument for viewing Malthus as a ‘biologist’ is not without historical precedent. It can be found in the writings of the naturalist Alfred Russel Wallace.\textsuperscript{19} Wallace is best known for being the co-discoverer of natural selection in one of the stranger episodes in the history of science. For Wallace, independently from Darwin, also happened to come upon the theory of natural selection in his reading of Malthus. Wallace stated in his autobiography that Malthus’s \textit{Essay} was the ‘first work’ he read addressing the subject of ‘philosophical biology’: ‘its main principles remained with me as a permanent possession, and twenty years later gave me the long-sought clue to the effective agent in the evolution of organic species’.\textsuperscript{20}

Malthus, in the opening passage of the \textit{Essay}, managed to capture the spirit of the new scientific age:

\begin{quote}
The great and unlocked-for discoveries that have taken place of late years in natural philosophy; the increasing diffusion of general knowledge from the extension of the art of printing; the ardent and unshackled spirit of inquiry that prevails throughout the lettered, and even unlettered world [...] have all concurred to lead many able men into the opinion, that we were touching on a period big with the most important changes, changes that would in some measure be decisive of the future fate of mankind.\textsuperscript{21}
\end{quote}

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\textsuperscript{16}See Robert M. Young, ‘Malthus and the Evolutionists: The Common Context of Biological and Social Theory’, \textit{Past & Present} (1969).
\textsuperscript{17}Catherine Gallagher, ‘The Body Versus the Social Body in the Works of Thomas Malthus and Henry Mayhew’, in \textit{The Making of the Modern Body: Sexuality and Society in the Nineteenth Century}, ed. by Catherine Gallagher and Thomas Laqueur (Berkeley: University of California Press, 1987), pp. 83–106 (p. 87; 96).
\textsuperscript{18}Roy Porter, ‘The Malthusan Moment’, in \textit{Malthus, Medicine, & Morality: ‘Malthusianism’ after 1798}, ed. by Brian Dolan (Amsterdam: Rodopi, 2000), pp. 57–72 (p. 61). Also see Roy Porter, \textit{Flesh in the Age of Reason} (New York: W. W. Norton & Company, 2004), pp. 429–32.
\textsuperscript{19}Young, ‘Malthus and the Evolutionists’, pp. 110–11.
\textsuperscript{20}Alfred Russel Wallace, \textit{My Life: A Record of Events and Opinions} (London: Chapman & Hall, 1905), p. 232.
\textsuperscript{21}[Malthus], pp. 1–2.
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Malthus, in contemplating the future improvement of society, chose to start the *Essay* by reflecting on science and its dissemination, bringing to mind Secord’s phrase ‘[w]hen we imagine the future, we think about science’22 Malthus was a keen enthusiast and reader of science in an era of industrialization in which increasing numbers of scientific books were printed and consumed. Malthus’s personal library at Jesus College, Cambridge, attests to his broader interest in natural philosophy, containing multiple volumes from naturalists such as Carl Linnaeus, Alexander von Humboldt, and Comte de Buffon. His interest in science was due in no small part to his formal schooling. Malthus’s early education was fairly traditional – centred around Greek and Latin – under the tutelage of Reverend Robert Graves at Claverton, 1776–1782.23 However, in 1782 Malthus’s father, Daniel, decided to enrol Malthus at the prominent dissenting academy in Warrington. The Warrington Academy would have been more amenable to Daniel Malthus’s politics as he was a freethinker and acolyte of Jean-Jacques Rousseau. Malthus’s tutor at Warrington was the religious controversialist Gilbert Wakefield, whose sympathies were closely aligned with those of his father.24 Wakefield would have imparted on Malthus an approach to enquiry unrestrained from the prescriptions of orthodoxy. In 1784 Malthus was admitted to Jesus College, Cambridge, where he received instruction from another radical, William Frend. By the time Malthus graduated, he was well versed in Lockean philosophy, Newtonian science, and David Hartley’s physicalist psychology.25 Hartley was himself a graduate of Jesus College, Cambridge, who advanced a materialist theory of mind framed within a ‘grand Christian narrative’.26

A close study of Malthus’s reading habits further reveals him to be intimately acquainted with Joseph Priestley’s materialist doctrines, as he scored several passages pertaining to the nature of matter in his copy of one of Priestley’s books.27 Priestley’s own materialist science of mind was heavily indebted to the physicalist psychology of Hartley.28 Malthus also exhibited a keen interest in theories of evolution, owning several volumes of Erasmus Darwin, including a copy of *Zoonomia* (1796). While Jean-Baptiste Lamarck’s work is notably absent, evidence of Malthus’s familiarity with Lamarck’s ideas can be found in the marginalia of Malthus’s copy of Paley’s *Natural Theology* (1802). Next

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22James A. Secord, *Visions of Science: Books and Readers at the Dawn of the Victorian Age* (Oxford: Oxford University Press, 2014), p. viii.
23For a detailed account of Malthus’s early education see Patricia James, *Population Malthus: His Life and Times* (London: Routledge and Kegan Paul, 1979), pp. 16–34; Mayhew, pp. 49–74.
24Wakefield was eventually charged with seditious libel and imprisoned for two years in 1798.
25Porter, *Flesh*, p. 429.
26Ibid., p. 350.
27See marginalia in Malthus’s copy of R. Price and J. Priestley. (1775) *A Free Discussion of the Doctrines of Materialism and Philosophical Necessity, in a Correspondence between Dr. Price and Dr. Priestley*, MH.1.14. The Malthus Library, Jesus College Old Library, Cambridge.
28Priestley tutored at Warrington for six years 1761–1767. For a detailed examination of Priestley’s materialism and his science of mind see Charles T. Wolfe and Falk Wunderlich, ‘Joseph Priestley: Materialism and the Science of the Mind. Foundations, Controversies, Reception’, *Intellectual History Review*, 30 (2020).
to a section critiquing theories of transmutation, Malthus scribbled the words ‘argument [ineligible] by Lamarck’. The Essay provides further evidence of Malthus’s engagement with pre-Darwinian discourses of evolution:

A writer may tell me that he thinks man will ultimately become an ostrich. I cannot properly contradict him. But before he can expect to bring any reasonable person over to his opinion, he ought to shew, that the necks of mankind have been gradually elongating; that the lips have grown harder, and more prominent; that the legs and feet are daily altering their shape; and that the hair is beginning to change into stubs of feathers.

This satirical attack was most likely targeted at Erasmus Darwin and his transmutational theory. Malthus’s focus on the elongation and hardening of organs seems to be in reference to Erasmus’s chapter on generation in *Zoonomia*. Erasmus, in discussing use inheritance, gave multiple examples which included the hardening of swine snouts and elephants’ noses elongating into trunks. Malthus’s criticism bears an uncanny resemblance to Thomas Brown’s lengthy critique of the same work. A copy of Brown’s *Observations on the Zoonomia of Erasmus Darwin* (1798) can be found in Malthus’s Library. Malthus’s and Brown’s monographs were also published around the same time by Johnson in London. Brown in a similar satirical fashion drew attention to the hardening of swine snouts as well as man’s failure in acquiring wings:

the hog must originally have had propensities, differing from those of the sheep, or it would not have wished, nor attempted, the formation of its snout […] If we admit the supposed capacity of producing organs, by the mere feeling of a want, man must have greatly degenerated, or been originally inferior, in power. He may wish for wings, as the other bipeds are supposed to have done with success; but a century of wishes will not render him abler to take flight.

It is important to note that Malthus’s main objection against Erasmus Darwin’s thesis, like that of Thomas Brown, was epistemological rather than religious. Erasmus, for example, wrote that all living organisms possessed the faculty of continued improvement by means of ‘its own inherent activity, and of delivering down those improvements by generation to its posterity world without end!’. Malthus derided this flawed reasoning and placed Erasmus Darwin’s transmutationism within the same intellectual lineage that included those utopian theories of unlimited improvement, whose authors incorporated evolutionary mechanisms to naturalize their own radical politics.

29 See marginalia in Malthus’s copy of W. Paley (1802). *Natural Theology; or Evidences and Attributes of the Deity, Collected from the Appearances of Nature*, p. 69, MB. 4.37, The Malthus Library, Jesus College Old Library, Cambridge.
30 [Malthus], p. 10 [emphasis added].
31 It was printed for Mundell & Son by Joseph Johnson in London.
32 Thomas Brown, *Observations on the Zoonomia of Erasmus Darwin* (Edinburgh: Mundell & Son, 1798), pp. 466–67.
33 Erasmus Darwin, *Zoonomia; or, the Laws of Organic Life* (London: J. Johnson, 1794), pp. 503–5.
34 For radical evolutionary theories see Adrian Desmond, *The Politics of Evolution: Morphology, Medicine, and Reform in Radical London* (Chicago: University of Chicago Press, 1989); Hale, *Political Decent*. 
2.2. The human animal

The publication of *On the Origin of Species* (1859) has often been credited as signalling the start of the collapse between the distinction of human beings and animals. However, as Young pointed out, this breakdown between humans and animals was already underway in the eighteenth century. The work of Mandeville in the early eighteenth century, especially *The Fable of the Bees* (1714), significantly contributed towards the dismantling of that barrier. Thus Mandeville has been signalled out by Gaukroger for being a seminal figure within the naturalization movement. He rejected the Cartesian distinction between passions dictating human and animal behaviour. This was in stark contrast to the views espoused by Descartes who saw animals as strict automata, while human beings possessed a rational soul which governed their passions. Edward. J. Hundert pointed out that Mandeville saw ‘no qualitative distinction between men and beasts’. Mandeville thought that a sameness existed between the passions of animals and humans, arguing that both possess ‘calculating minds’ and the capacity to experience pleasure and pain. Mandeville’s work was severely criticized by Protestant and Catholic theologians alike, who accused him of reducing humans to animal machines.

Another eighteenth-century figure that held a similar materialist view of humanity was Benjamin Franklin. According to Joyce E. Chaplin, Franklin saw ‘people, no less than animals or even plants, [as] physical bodies embedded in nature, whose so-called higher qualities were overrated’. Malthus’s work, like that of Mandeville and Franklin, contributed towards eliminating the distinction between humans and animals. Malthus incorporated man into nature, subjugating him to the same biological principles that underpin other organic forms:

> [n]ecessity, that imperious all pervading law of nature, restrains them within the prescribed bounds. The race of plants and the race of animals shrink under this great restrictive law. And the race of man cannot, by any efforts of reason, escape from it.

Malthus pointed out that humans as well as animals have to adhere to the laws of nature as they struggle alongside each other for survival, while

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35Young, ‘Malthus and the Evolutionists’, p. 111.
36Gaukroger, *The Natural and the Human*, pp. 270–87.
37Edward. J. Hundert, *The Enlightenment’s Fable: Bernard Mandeville and the Discovery of Society* (Cambridge: Cambridge University Press, 1994), p. 39.
38Joyce E. Chaplin, *Benjamin Franklin’s Political Arithmetic: A Materialist View of Humanity* (Washington, DC: Smithsonian Institution Libraries, 2006), p. 7.
39There are obvious parallels between the work of Mandeville and Malthus, although Malthus would not have identified as a Mandevillian. A footnote in the sixth edition reads: ‘let me not be supposed to give the slightest sanction to the system of morals inculcated in the *Fable of the Bees*, a system which I consider as absolutely false, and directly contrary to the just definition of virtue. The great art of Dr. Mandeville consisted in misnomers’: Thomas Robert Malthus, *An Essay on the Principle of Population; or, a View of Its Past and Present on Human Happiness; with an Inquiry into Our Prospects Respecting the Future Removal or Mitigation of the Evils Which It Occasions*, 6th ed., Vol. 2 (London: John Murray, 1826), p. 454.
40[Malthus], p. 5.
simultaneously highlighting the limits of reason. The second edition saw Malthus go one step further and explicitly refer to human beings as animals in his discussion of passions and benevolence: ‘[a]s animals, or till we know their consequences, our only business is to follow these dictates of nature’. He maintained and repeated this sentiment throughout all subsequent publications, viewing man as part of the animal kingdom, albeit a special one due to our capacity to reason:

[e]levated as man is above all other animals by his intellectual faculties, it is not to be supposed that the physical laws to which he is subjected should be essentially different from those which are observed to prevail in other parts of animated nature. He may increase slower than most other animals; but food is equally necessary to his support.

This is a significant step in dissolving the belief that human beings are in perfect harmony with nature, being separate and exulted above the animal kingdom. Instead, humans are viewed as corporeal entities, destined to obey the same fixed laws of nature that govern animals, plants, and inorganic bodies. For Malthus, the differences between plants, animals, and humans is a matter of degree rather than of kind.

It was in this way that Malthus viewed all organic beings, whether vegetable, animal, or human as being fundamentally composed of the same substance. This allowed him to draw inferences about the true nature of man based on plant and animal observations:

we may be quite sure, that among plants, as well as among animals, there is a limit to improvement, though we do not exactly know where it is […] The reasons of the mortality of plants are at present perfectly unknown to us. No man can say why such a plant is annual, another biennial, and another endures for ages. The whole affair in all these cases, in plants, animals, and in the human race, is an affair of experience; and I only conclude that man is mortal, because the invariable experience of all ages has proved the mortality of those materials of which his visible body is made.

Malthus argued thus against human immortality, by drawing inferences from the vegetable kingdom to conclude that humans like all other organic beings are subject to decay and cessation. This argument serves not only as another example where Malthus championed empirical observation over rationalist explanation, but forms part of Malthus’s larger project, as discussed below, that aimed to counter the work of William Godwin, and the Marquis de Condorcet, who promoted visions of human permanence.

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41Thomas Robert Malthus, *An Essay on the Principle of Population; or, a View of Its Past and Present on Human Happiness; with an Inquiry into Our Prospects Respecting the Future Removal or Mitigation of the Evils Which It Occasions*, 2nd ed. (London: J. Johnson, 1803), p. 559.
42Thomas Robert Malthus, *A Summary View of the Principle of Population* (London: John Murray, 1830), p. 4 [emphasis added].
43[Malthus], p. 168.
44See Marquis de Condorcet, *Outlines of an Historical View of the Progress of the Human Mind* (London: J. Johnson, 1795), pp. 366–71; William Godwin, *An Enquiry Concerning Political Justice and Its Influence in General Virtue and Happiness: Vol. 2* (London: G. G. J. and J. Robinson, 1793), pp. 870–72.
Malthus’s views on man, like Mandeville’s, encountered staunch opposition from those inside and outside the church. Many critics, including William Hazlitt, read the Essay as a project aimed at naturalizing the human animal and accused Malthus of sexual materialism. Hazlitt, a close associate of Godwin, was scathing in his critique, writing that ‘Mr. Malthus’s whole book rests on a malicious supposition, that all mankind [...] are like so many animals in season’. Malthus contributed to a vision of man ‘being seen as an animal – a part of nature in mind and body’. This was not the portrait of a man that maintained, as Alison Bashford and Chaplin claim, a ‘steady distinction between humans and the things they ate’.

2.3. The Essay’s cosmology

The Essay is firmly situated within the British empiricist tradition, emphasizing the importance of sense experience in the acquisition of knowledge. Malthus denied the acquisition of knowledge via divine revelation, stating that ‘we should reason from nature up to nature’s God, and not presume to reason from God to nature’. Malthus’s empiricism was in direct opposition to rationalist philosophies that advocated for reason’s supremacy as a source of knowledge.

Malthus was also greatly influenced by Newtonian physics while at Cambridge and saw nature as the product of fixed laws which adhere to the ‘grand and consistent theory of Newton’. He was particularly attracted to Newtonian epistemology that privileged observation and calculation over rational deduction. Newtonianism in the eighteenth century percolated through ‘vernacular prose, poetry, iconography, and public lectures and sermons all extoll[ing] the clarity, truth, and usefulness of Newton’s work’. This trend also extended to the psychological terminology of the age. It is therefore no surprise that many Enlightenment thinkers such as Franklin, Hartley, and Priestley, were adherents of a quasi-Newtonian universe. This Newtonian cosmology is unambiguous in Malthus’s Essay, especially in his description of the Deity as a ‘Being who first arranged the system of the universe […] according to fixed laws’. Michael Ruse described such a God as the ‘unmoved mover’, a ‘creator of the world and it’s laws, who refuses to intervene

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45William Hazlitt, The Complete Works of William Hazlitt, Vol. 1 (London: J.M. Dent and Sons, 1930), p. 236.
46Young, ‘Malthus and the Evolutionists’, p. 111.
47Bashford and Chaplin, The New Worlds of Thomas Robert Malthus, p. 84.
48[Malthus], p. 350.
49Ibid., p. 159.
50Joyce E. Chaplin, ‘Benjamin Franklin’s Natural Philosophy’, in The Cambridge Companion to Benjamin Franklin, ed. by Carla Mulford (Cambridge: Cambridge University Press, 2009), pp. 63–76 (p. 67).
51Fernando Vidal, The Sciences of the Soul: The Early Modern Origins of Psychology (Chicago: University of Chicago Press, 2011), p. 151.
52[Malthus], p. 12.
miraculously in his creation’. Malthus explicitly asserted that the Deity does not intervene in the machinations of the world. Any beliefs to the contrary should be regarded as being ‘unphilosophical’. The Creator in the *Essay* only acts by means of ‘general laws’ and the ‘constancy of the laws’ is a testament to the absence of divine interventions:

It accords with the most liberal spirit of philosophy, to suppose that not a stone can fall, or a plant rise, without the immediate agency of divine power. But we know from experience, that these operations of what we call nature have been conducted almost invariably according to fixed laws.

Malthus directed the reader’s attention away from the supernatural towards the ordinary; from divine interventions to a universe governed by natural laws. It is evident throughout the *Essay* that Malthus was primarily concerned with the physical as oppose to the spiritual. ‘The resurrection of a spiritual body from a natural body, does not appear in itself a more wonderful instance of power’, argued Malthus, ‘than the germination of a blade of wheat from the grain, or of an oak from an acorn’. Once again we note Malthus championing natural processes and privileging a naturalized conception of the world.

The idea of divine justice is also rejected in Malthus’s first edition. He saw no virtue in a concept of everlasting punishment and the idea that God would pursue his creatures with ‘eternal hate and torture’. The closely linked concept of life as a period of probation – the view that suffering should be seen as a trial that prepared the individual for the hereafter – was also dismissed by Malthus. He reminded the reader that life was ‘generally speaking, a blessing independent of a future state’. In a letter to the editor of the *Monthly Magazine* (1799), Malthus anonymously responded to a critic with a rhetorical question, asking whether he preferred the view of a ‘Supreme Being’ who derived satisfaction from ‘the toil, the tears, the pains, the continual failure of numbers, in this world, and was pleased with the spectacle of unnecessary evil?’

This sentiment was shared by Wakefield and Frend – Malthus’s tutors at Warrington and Cambridge – as well as other luminaries including Locke, Newton, and Hartley, who rejected the possibility of eternal punishment. Malthus thought such a view to be ‘derogatory to the Deity’ and went one step further in disavowing the Christian concept of Hell altogether. He instead proposed a doctrine of annihilation in an attempt to minimize and

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53Michael Ruse, *The Darwinian Revolution: Science Red in Tooth and Claw*, 2nd ed. (Chicago: University of Chicago Press, 1999), p. 11.
54[Malthus], p. 239.
55Ibid., p. 353; 63; 127.
56Ibid., p. 244.
57Ibid., p. 390.
58Ibid., p. 391.
59[Thomas Robert Malthus], ‘To the Editor of the Monthly Magazine’, *Monthly Magazine*, 7 (1799), 179.
60Lemahieu, *Malthus and the Theology of Scarcity*, p. 470; Porter, *Flesh*, p. 359.
61[Malthus], ‘To the Editor’, p. 179.
eliminate unnecessary suffering. Malthus’s sensitivity towards the question of suffering, therefore, meant that he could not reconcile ideas of infinite retribution with his own sense of morality.

Despite the fact that Malthus was understandably criticized soon after the publishing of the Essay for such religiously unorthodox statements, the view of Malthus as being representative of Anglican orthodoxy has a long history. As early as 1885 Bonar wrote that ‘we cannot find anything in the writings of Parson Malthus inconsistent with his ecclesiastical orthodoxy’. This erroneous view is repeated throughout the literature, most recently in Bashford and Chaplin. Their orthodox version of Malthus maintained the Augustinian belief of *natura lapsa*, upholding the ‘belief in God’s curses on Adam and Eve’. However, as Sergio Cremaschi argues, Malthus’s doctrine did not necessitate the introduction of ‘Original Sin and corrupted human nature’ to account for suffering. In fact, Malthus explicitly rejected Augustinian theology in the Essay, writing that suffering came into being as a result of the ‘inevitable laws of nature, and not from any original depravity of man’. Man was not an object of damnation. Diseases, according to Malthus, should not be ‘considered as the inevitable inflictions of Providence’, but rather ‘as indications that we have offended against some of the laws of nature’. This is a view that placed Malthus in contravention of the Church of England’s Ninth Article, which stated that Original Sin was born out of the corrupted nature of man, whose desires are inherently sinful and deserving of ‘God’s wrath and damnation’. This account of a wrathful God that curses humankind was anathema to Malthus’s moral sensibilities.

Malthus’s vision of the cosmos expounded a universe created and ordered by a non-interfering Deity according to fixed laws. This is a universe devoid of divine justice and retribution, in which there is no place for Hell, nor Augustinian Original Sin. The laws of nature alone dictate the formation of human bodies and minds.

3. The first Essay: a naturalized reading

It is important to remember that Malthus intended the Essay to be a polemical retort against the radical ideas popularized by William Godwin, and the Marquis de Condorcet, as gleaned in the full title: *An Essay on the Principle of Population, as It Affects the Future Improvement of Society, with Remarks*

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62 [Malthus], p. 247; n 390–91.
63 Bonar, *Malthus and His Work*, p. 367.
64 Bashford and Chaplin, *The New Worlds of Thomas Robert Malthus*, pp. 67–86.
65 Cremaschi, *Utilitarianism and Malthus’ Virtue Ethics*, p. 76.
66 [Malthus], p. 207.
67 Ibid., p. 485.
68 The Protestant Episcopal Church, *The Book of Common Prayer, and Administartion of Sacraments, and Other Rites and Ceremonies of the Church* (New York Bible and Common Prayer Book Society, 1865), p. 370.
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.

LONDON:

PRINTED FOR J. JOHNSON, IN ST. PAUL’S
CHURCH-YARD.

1798.

Figure 2. First essay on population, 1798. Credit: Wellcome library. Attribution 4.0 International (CC BY 4.0).
on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers (see Figure 2). He delineated the circumstances surrounding the writing and publication of the Essay in the preface: ‘The following Essay owes its origin to a conversation with a friend, on the subject of […] the future improvement of society’.69 The ‘friend’ in question was in fact the author’s father. Daniel Malthus was a radical English dissident, whose sympathies lay with revolutionaries like Godwin and Condorcet. Malthus, however, had no appetite for his father’s brand of politics. They disagreed on ideas concerning the perfectibility of man, as Malthus was strongly opposed to the idea of the inevitable progress of humankind. Many scholars have wrongly assumed that Malthus was initially concerned with the subject of population. However, as William Otter, a close associate of Malthus pointed out:

The mind of Mr. Malthus was certainly set to work upon the subject of population, in consequence of frequent discussions between his father and himself respecting another question […] the perfectibility of man […] the son had rested his cause, principally upon the obstacles which the tendency of population to increase faster than the means of subsistence.70

Malthus’s interest in the subject of population was, therefore, a direct consequence of his desire to address what he termed the ‘great question’ of ‘whether man shall henceforth start forwards with accelerated velocity towards illimitable, and hitherto unconceived improvement’.71 This should not come as a surprise for Godwin’s An Enquiry concerning Political Justice (1793) and Condorcet’s Outlines of an Historical view of the Progress of the Human Mind (1795) were neither exclusively nor principally concerned with demography. Their central concerns were the unbridled improvement of humanity. In criticizing Godwin and Condorcet, Malthus argued that empirical observation did not support the perfectibility thesis. Thus, he employed the principle of population in service of his argument against those theories of unbounded utopian progress.

The last two chapters of the Essay should be viewed in light of Malthus’s larger argument against human perfectibility. Conceptions of mind are intricately interwoven throughout Godwin’s and Condorcet’s writings, and were vital to their overall perfectibility thesis. Godwin even included a whole chapter dedicated to the mechanism of the human mind. Unlike Malthus, their theories of mind have not been interpreted as theodicies, thus exposing an inherent bias in the literature that aims to reduce Malthus’s theory of mind to an attempt at theodicy, while not imposing the same interpretation on his secular contemporaries. I will argue that Malthus’s theory of mind,

69[Malthus], p. i.
70Otter in Thomas Robert Malthus, The Principles of Political Economy: Considered with a View to Their Practical Application, 2nd ed. (New York: Augustus M. Kelly, 1951), p. xxxviii.
71[Malthus], p. 2.
when read in light of his polemical aims, show that his intention was to counter Godwin’s and Condorcet’s accounts of mind, thereby providing a viable alternative that would undermine their perfectibility thesis.

Viewing Malthus’s psychology through a theodicean prism produces an atypical account, in which divine retribution plays no part, in which the Deity is side-lined, and natural laws account for suffering as well as the formation of mind. However, there is little evidence to suggest that Malthus’s reading audience perceived his theory of mind, albeit atypical, as a work of theodicy. Instead, many read Malthus’s theory of mind as an attempt at naturalization, advancing a ‘monistic view’ that collapsed the ‘gulf between mind and matter’. These readings were not only driven by the content but also by the anonymous authorship of the first Essay. As Ian Hesketh has pointed out ‘anonymity itself was being viewed with scepticism’ – in the nineteenth century – ‘as at best a marketing ploy and at worst a way for an author to avoid responsibility for his or her ostensibly public views’. Readers scoured the text to uncover the author’s true identity, motivations, and theological position. Speculations on the author’s naturalizing agenda was no doubt further exacerbated by the fact that the Essay was published by Joseph Johnson, who had a reputation as a radical publisher. Johnson was responsible for publishing radical treatises by authors such as Priestley, Condorcet, and Erasmus Darwin, leading to his eventual prosecution and imprisonment shortly after the publication of the first Essay. The result, according to Bonar, was a book that no one read and all abused, unleashing a storm of ‘refutations’ for the next thirty years.

Edward Daniel Clarke captured this controversy in the wake of the Essay’s publication in a letter addressed to Malthus on 20 August 1798. Clarke, a close associate of Malthus, relayed a private conversation that occurred at Jesus College, amongst several Cambridge fellows, writing that Thomas Cautley had accused Malthus’s last two chapters of tending towards ‘evil’. The ‘evil’ in question was the apparent materialist tendency present in the Essay. In response Bewick Bridge, another associate of Malthus, admitted that ‘[a] casual Reader, would swear he [Malthus] is a Materialist’ and adherent of the ‘Doctrine of Annihilation’. The charge of materialism levelled at Malthus was directly linked to his theory of mind. Bridge found Malthus’s materialist conception of mind problematic, asserting that the intellect should be viewed as the direct result of the ‘Operation of Mind over Matter; [and] not of

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72 Bonar, Malthus and His Work, p. 39.
73 Hesketh, Victorian Jesus, p. 10.
74 Johnson published the first (1798), second (1803), third (1806), and fourth (1807) edition of the Essay. The fifth (1817) and sixth (1826) edition was published by John Murray after Johnson’s death.
75 Johnson was charged with seditious libel following the publication of Malthus’s old tutor Wakefield’s treatise, which argued against the Bishop Richard Watson. See John Bugg, ‘How Radical Was Joseph Johnson and Why Does Radicalism Matter?’, Studies in Romanticism, 57 (2018).
76 Bonar, Malthus and His Work, pp. 2–3.
Matter upon Mind’ as asserted in Malthus.77 This controversy also spilled onto the pages of British periodicals. Malthus’s heterodoxy did not go unnoticed by the reviewer for The Analytic Review:

The latter part of the essay is spent in an attempt to show the probability, that man is not placed here in a state of trial, according to the vulgar notion of that term, but for the purpose of awakening and forming his mind; or, to speak more generally, for the purpose of working matter into mind.78

The British Critic (1801), acting as the mouthpiece for the High Church, launched a scathing attack on Malthus’s theory of mind, stating that Malthus denies perfectibility ‘to the human species’ and yet ‘liberally confers it upon every particle of matter’.79 After the publication of the second edition, a reviewer for The Christian Observer (1805), comparing the first with the second edition, noted that the latter contained ‘no reflections upon the Christian doctrine of the everlasting punishment of the impenitent; nor are [we] entertained by the theory of the grand operation of nature for exciting mind out of matter’.80 These private and public debates clearly illustrate how the last two chapters of the first edition were widely interpreted by readers as a theory of naturalization.

4. Towards a theory of mind: a brief sketch

Malthus’s theory of mind is accompanied by a forgotten footnote that sheds light on his original intention:

It was my intention to have entered at some length into this subject, as a kind of second part to the essay. A long interruption, from particular business, has obliged me to lay aside this intention, at least for the present. I shall now, therefore, only give a sketch of a few of the leading circumstances that I have advanced.81

Malthus evidently intended to elaborate and extend his theory of mind. The original aim, therefore, was far grander and ambitious in scope than the two chapters included in the first Essay. In fact, what we have in the end is only a brief sketch, an outline of Malthus’s theory of mind. This poses a challenge in terms of reconstructing Malthus’s system of mind, and makes any attempt at providing a complete systematized account impossible. However, textual reconstruction does allow pronouncements on Malthus’s attitudes towards the nature of mind and its operations. My discussion, for purposes of brevity and clarity, has been artificially divided under the following four headings: mind as corporeal entity; mind as reason; the passions; and economy of desire.

77Thomas Robert Malthus, T. R. Malthus: The Unpublished Papers in the Collection of Kanto Gakuen University, Vol. 1 (Cambridge: Cambridge University Press, 1997), pp. 73–6.
78Anon., ‘An Essay on the Principle of Populations, as It Affects the Future Improvement of Society’, The Analytic Review, or History of Literature, 28 (1798), 124.
79Anon., ‘An Essay on the Principle of Population’, The British Critic, 17, 282.
80Unus, ‘On the Views of Expediency Adopted by Mr. Malthus’, The Christian Observer, 4 (1805), 539.
81[Malthus], p. 356n.
4.1. Mind as corporeal entity

The substance of the mind is one of the most enduring questions in the history of philosophy. St. Augustine declared that human beings consisted of two substances: soul and body. The soul, a divine eternal substance, could exist without the body. René Descartes added credence to this conception by claiming that the mind is an immaterial substance. Baruch Spinoza, in line with Epicurean materialism, opposed Cartesian dualism asserting that mind and body were fundamentally of the same substance. Mandeville also rejected the idea of mind as a separate substance, claiming there was no evidence in favour of the mind being immaterial and immortal. For Mandeville, mind was assuredly material and mortal. Maurice Mandelbaum, on the subject of nineteenth-century philosophical materialism, stressed the ‘increasing number of persons who challenged the traditional dualistic view of the mind–body relationship’. Mind, therefore, played a crucial role in nineteenth-century popular notions of materialism. John Stuart Mill, for example, equated the ‘materialistic doctrine’ to theories proposing that ‘all our mental impressions result from the play of our bodily organs’. Malthus’s conception of mind and the centrality afforded to the body should be understood in relation to these popular notions of materialism, and the larger contemporary debate regarding perfectibility and materialism. The Essay’s readership, as discussed above, interpreted Malthus’s notions of mind as a naturalized theory.

Godwin’s and Condorcet’s conceptions of the mind have a distinct Cartesian quality that conjures up images of self-determined, disembodied, immaterial minds. Their utopian visions posited human beings progressing towards perfect harmony, without desires, nor suffering, transcending corporeal existence in the process of attaining immortality. Man’s whole being is essentially reduced to mind. Godwin flirted with materialism but ultimately advocated an immaterial worldview, criticizing Hartley’s psychology as being ‘unnecessarily clogged’ with ‘material automatism’. Godwin struggled to conceive of a scenario where matter animated matter, and concluded that animal systems of motion could not ‘be accounted for by any thing we understand of the nature of matter’. For Godwin, mind was immaterial and animated the material world: ‘Mind is a real cause, an indispensible [sic] link in the great

82R. S. Woolhouse, *Descartes, Spinoza, Leibniz: The Concept of Substance in Seventeenth-Century Metaphysics* (New York: Routledge, 1993), pp. 14–27.
83Ibid., pp. 28–53.
84Bernard Mandeville, *A Treatise of the Hypochondriack and Hysterick Diseases*, 2nd ed. (London: J. Tonson, 1730), pp. 50–51.
85Maurice Mandelbaum, *History, Man, and Reason: A Study in Nineteenth-Century Thought* (Baltimore: John Hopkins Press, 1971), p. 21.
86John Stuart Mill, *Collected Works of John Stuart Mill: The Later Letters of John Stuart Mill 1849-1895*, Vol. 14–17 (Toronto: University of Toronto Press, 1972), p. 286.
87Condorcet, *Outlines of an Historical View*, p. 366; William Godwin, *An Enquiry Concerning Political Justice, and Its Influence on General Virtue and Happiness*, Vol. 1 (London: G. G. J. and J. Robinson, 1793), p. 177; 299.
88Godwin, *An Enquiry Concerning Political Justice*, Vol. 1, p. 320.
89Ibid., p. 339.
chain of the universe’. Condorcet shared the sentiment, writing that the ‘mind animates the world’ and that all things emanate from it. Thus, Godwin and Condorcet attribute first cause principles to mind. Corporeality is therefore contingent upon mind. The idea that the body is subservient to mind is especially promoted by Godwin. Godwin’s triumph of mind over matter undermined the materialist agenda of those like Priestley who countered that the mind should never ‘get the better of matter’.

Malthus disagreed with Godwin’s attempt to give credence to the primacy of mind at the expense of the body, asserting: ‘the body has more effect upon the mind, than the mind upon the body. The first object of the mind is to act as purveyor to the wants of the body’. He also granted that the ‘corporal propensities of man’ act as powerful ‘disturbing forces’ upon the mind. Malthus thus positioned his own theory of mind as a direct retort to Godwin and Condorcet, asserting corporeal integrity as fundamental to the formation of mind.

Malthus countered the Godwinian mind over matter axiom with his own: mind from matter. References regarding the substance of mind abound throughout the Essay:

> It could answer no good purpose to enter into the question whether mind be a distinct substance from matter, or only a finer form of it. The question is, perhaps, after all, a question merely of words […] We know from experience that soul and body are most intimately united, and every appearance seems to indicate that they grow from infancy together.

Malthus is deliberately non-committal in this passage. He was undoubtedly conscious of the reactions his ideas could have elicited from fellow clergy and the larger public. There are, however, clear clues suggesting that Malthus might have been in favour of a materialist view of mind. Firstly, Malthus’s statement bears a striking resemblance to the following passage he scored in his copy of Priestley’s *Doctrines of Materialism* (1778):

> If they chuse to call my matter by the name of Spirit, I have no sort of objection. All that I contend for is such a conjunction of powers in the same thing, or substance, by whatever term it be denominated, as we find by the experience always go together, so as not to multiply substances without necessity.

The similarities present in both passages are no accident for Malthus closely studied Priestley’s views on the nature of matter. Secondly, the idea of mind as

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90 Ibid., p. 307.
91 Condorcet, *Outlines of an Historical View*, p. 110.
92 Charles Kegan Paul, *William Godwin: His Friends and Contemporaries* (London: Henry S. King & Co., 1876), p. 116.
93 [Malthus], p. 228.
94 Ibid., p. 254.
95 Ibid., p. 354.
96 James, *Population Malthus*, p. 120.
97 See marginalia in Malthus’s copy of R. Price and J. Priestley (1775) *A free discussion of the doctrines of materialism and philosophical necessity, in a correspondence between Dr. Price and Dr. Priestley*, p. 23, MH.1.14, The Malthus Library, Jesus College Old Library, Cambridge.
a ‘finer form’ of matter, suggests that the difference is one of degree as opposed to one of kind. Malthus, thirdly, cast doubt on the whole exercise of metaphysics, stating that the question of mind as a separate or same substance to body might be superfluous. In fact, the discipline of metaphysics is treated disparagingly throughout the Essay. Malthus singled out Descartes and his ‘wild and eccentric hypotheses’ for ridicule, accusing Descartes’s ‘old mode of philosophizing’, bending facts to systems ‘instead of establishing systems upon facts’.98 Lastly, by mentioning that mind and body grow together, Malthus departed from many other Cartesian viewpoints which posit that mind and body are united only in as far as they exert influence on each other. For Malthus, the mind and body are ‘forming’ and ‘unfolding themselves at the same time’.99

Malthus further elaborated this idea, stating that it ‘would be a supposition attended with very little probability, to believe that a complete and full formed spirit existed in every infant’.100 This statement revealed Malthus’s preference for a naturalized account of the mind, placing him in direct opposition to the Christian theological doctrine of ensoulment at conception. The proposition that the mind is not only dependent on the body, but grows with the body and shares a similar origin, contradicted Augustinian and Cartesian narratives of the soul.

Throughout the Essay Malthus employed the phrases ‘matter into mind’ and ‘mind out of matter’ when addressing how the mind forms. Mind arises out of the body (‘clod of clay’ or ‘dust of the earth’) in response to the pressures exerted on it by the laws of nature. Thus, matter is formed into mind by the impressions and stimulations of nature upon the body and the ensuing perpetual struggle to avoid pain and pursue pleasure.101 Malthus termed the unpleasant impressions and stimulations ‘the forming hand of the Creator’, because they were responsible for the creation of mind out of matter.102 Therefore, suffering existed in the world not to cause despair but to create minds.103

The importance of pain and pleasure in Malthus is borrowed at least in part from John Locke:

Locke, if I recollect, says that the endeavour to avoid pain rather than the pursuit of pleasure is the great stimulus to action in life: and that in looking to any particular pleasure, we shall not be roused into action in order to obtain it, till the contemplation of it has continued so long as to amount to a sensation of pain or uneasiness under the absence of it.104

Malthus was also exposed to similar notions in the work of many other prominent eighteenth-century thinkers. Franklin, for example, in Dissertatin on

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98[Malthus], p. 159.
99Ibid., p. 355.
100Ibid., p. 354.
101Ibid., p. 353.
102Ibid.
103Ibid., pp. 375–95.
104Ibid., p. 359.
Liberty and Necessity (1725), stressed that our physical bodies produced impulses which directed us towards pleasure and away from pain.\(^{105}\) ‘We are first mov’d by Pain’, wrote Franklin, ‘and the whole succeeding Course of our Lives is but one continu’d Series of Action with a View to be freed from it.’\(^{106}\) Franklin, like Malthus, emphasized the role of pain in developing the mind, stating that the mind was ‘not conscious of its own Existence, till it has receiv’d the first Sensation of Pain; then, and not before, it begins to feel itself, is rous’d, and put into Action; then it discovers its Powers and Faculties, and exerts them to expel the Uneasiness’\(^{107}\) Hartley in a similar fashion sought to ground mental operations in the body’s capacity to experience pleasure and pain. John Gay was another thinker who argued that pleasure and pain was the primary driver of moral development.\(^{108}\) Physical sensations were, therefore, the fountainhead of human action. Thus, Malthus’s theory of mind was firmly situated in a Lockean tradition that privileged bodily sensations of pleasure and pain in the formation of mind.

4.2. Mind as reason

Godwin and Condorcet claimed that human nature was ultimately ‘rational’, the mind superior to the senses and comprised of pure disinterested reason.\(^{109}\) They not only reduced man to mind, but mind to reason. Reason for Godwin and Condorcet became a kind of panacea, imbued with transcending properties that would solve all social ills. Condorcet’s views on reason, mind, and perfectibility are perhaps best captured in his reception speech to the French Academy on the 21 February 1782:

> Reason has finally recognized the route that it must follow and seized the thread that will prevent it from going astray […] truth has conquered; the human race is saved! […] progress, which nothing can henceforth halt or delay, will have no other limits than that of the duration of the universe […] As enlightenment increases, methods of instruction will be correspondingly perfected; the human mind will seem to grow and its limits to recede.\(^{110}\)

Godwin proclaimed that ‘reason is at all times progressive’, believing that human ‘defects’ can only be removed by the ‘introduction of knowledge’ and

\(^{105}\) There is no direct evidence that Malthus read Franklin’s Dissertation, although we know that he read Franklin’s Political, Miscellaneous, and Philosophical Pieces (1779), which was published by Joseph Johnson. Johnson held regular dinner parties for his authors, which Malthus attended, and he knew Priestley, who was good friends with Franklin. See Chaplin, Political Arithmetic, pp. 12–14; 41–43; Bashford and Chaplin, The New Worlds of Thomas Robert Malthus, p. 64.

\(^{106}\) [Benjamin Franklin], A Dissertation on Liberty and Necessity, Pleasure and Pain (New York: The Facsimile Text Society, 1930 [1725]), p. 15.

\(^{107}\) Ibid.

\(^{108}\) Malthus was intimately acquainted with the work of Gay while studying at Cambridge. See Cremaschi, Utilitarianism and Malthus’ Virtue Ethics, p. xvii. Porter, Flesh, p. 349.

\(^{109}\) Godwin, An Enquiry Concerning Political Justice, Vol. 2, p. 886; Godwin, An Enquiry Concerning Political Justice, Vol. 1, p. 360.

\(^{110}\) Jean-Antoine-Nicolas de Caritat Condorcet, Condorcet: Selected Writings (Indianapolis: Bobbs-Merrill Company, 1976), p. 5.
that reason as encapsulated in a mature philosophy could have brought about bloodless revolutions in America and France.\textsuperscript{111} He further asserted that man was a ‘reasonable creature’ and not a ‘vegetable to be governed by sensations of heat and cold, dryness and moisture’.\textsuperscript{112}

A century before, in *Tractatus Politicus* (1677), Spinoza spoke out against utopian thinkers like Godwin and Condorcet, criticizing philosophers who ‘conceive men not as they are but as they would like them to be’.\textsuperscript{113} Malthus, in line with Spinoza, believed that Godwin’s and Condorcet’s ideas of human nature were based on ‘an imaginary state of things’, remarking: ‘How little Mr. Godwin has turned the attention of his penetrating mind to the real state of man on earth’.\textsuperscript{114} Malthus was set on describing man as he truly was in mind and body.

Malthus rejected the French rationalists’ tempting claim that human reason could decipher and classify all the mysteries of the cosmos. His views on reason were reminiscent of David Hume who famously proclaimed: ‘Reason is, and ought to be the slave of the passions, and can never pretend to any other office than to serve and obey them’.\textsuperscript{115} Malthus cautioned that we should have an appropriate ‘distrust of our own understandings and a just sense of our insufficiency to comprehend the reason of all we see’ and that although the communal mass of human knowledge has been growing, the mind’s capacity has not.\textsuperscript{116} Malthus perceived human rationality to be limited in its capacity to understand ourselves and the universe. He further stated: ‘[i]t is probable therefore that improved reason will always tend to prevent the abuse of sensual pleasures, though it by no means follows that it will extinguish them’.\textsuperscript{117} Sensorial bodily experience held inherent value for Malthus. He highlighted that reason cannot extinguish the desires of the flesh, and even added that, on occasion, sensual pleasures are preferable to a strict adherence to reason.\textsuperscript{118} Our reason is not only constrained by its capacity to know, but also by its ability to exert control over our behaviour. This once again contradicted Godwin’s mind over matter maxim.

Reason is also not a divine gift *per se* from an omnipotent being, but grows out of the body. Unsatisfied bodily needs and suffering are a prerequisite to the formation of reason: ‘[s]trong excitements seem necessary to create exertion, and to direct this exertion, and form the reasoning faculty’.\textsuperscript{119} Thus reason is

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\textsuperscript{111} Godwin, *An Enquiry Concerning Political Justice*, Vol. 2, p. 549.
\textsuperscript{112} William Godwin, *Enquiry Concerning Political Justice and Its Influence on Morals and Happiness*, Vol. 1 (Philadelphia: Bioren and Madan, 1796).
\textsuperscript{113} Benedict Spinoza, *Spinoza: Complete Works*. trans. Samuel Shirley (Indianapolis: Hackett Publishing Company, 2002), p. 680.
\textsuperscript{114}[Malthus], p. 145; 80.
\textsuperscript{115} David Hume, *A Treatise of Human Nature*, Vol. 2 (London: Dent, 1911), p. 127.
\textsuperscript{116}[Malthus], pp. 349–50.
\textsuperscript{117} Ibid., p. 216.
\textsuperscript{118} Ibid., pp. 262–63.
\textsuperscript{119} Ibid., p. 362.
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not an ethereal substance inserted into matter by a deity, but an organic process that develops out of the body in response to internal and external pressures. For ‘intellectual want’ or the ‘desire to knowledge’ are but one of many desires arising out of the body: ‘[w]hen the mind has been awakened into activity by the passions, and the wants of the body, intellectual wants arise’. Malthus, therefore, did not reduce the mind to pure reason or thought; instead, the mind was an aggregate of various faculties, including but not limited to reason. Knowing and knowledge was intricately intertwined with the embodied experience of the individual. This view counteracted Godwin’s position which dismissed the significance of the body and denied the existence of various faculties.

Malthus sees us not just as beings with limited reason, but also as ones with a proclivity towards irrationality. His view on human irrationality is best captured by John R. Commons in his contemplation of Malthus’s role in predicting the inevitable implosion of the French Revolution – ‘Man is not a rational being – he is a being of passion and stupidity, who does quite the opposite of what his reason tells him to do’. Malthus defined irrational behaviour in a strict utilitarian sense as actions that do not increase overall happiness or decrease overall suffering. For Malthus a tendency towards irrationality is clear in the sexual desire that is responsible for the increase of population beyond the means of subsistence. Although the impulse towards sex is merely one of many biological desires that can exert a powerful disruptive influence on reason.

A truth may be brought home to his conviction as a rational being, though he may determine to act contrary to it […] cravings of hunger, the love of liquor, the desire of possessing a beautiful woman, will urge men to actions, of the fatal consequences of which, to the general interests of society, they are perfectly well convinced, even at the very time they commit them.

Consequently, people often act against their own self-interest and happiness in pursuit of their desires. Malthus raised the limits of reason in transforming human nature throughout the Essay writing that the ‘frequency of crime among men, who, as the common saying is, know better, sufficiently proves, that some truths may be brought home to the conviction of mind without always producing the proper effect upon the conduct’. Due to our irrational nature Malthus warned that unless we become cognizant of intrinsic and

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120Ibid., p. 377.
121Godwin, An Enquiry Concerning Political Justice, Vol. 2, p. 889.
122John Rogers Commons, Institutional Economics: Its Place in Political Economy (New York: The Macmillan Company, 1934), p. 877.
123Pierre Force, Self-Interest before Adam Smith: A Genealogy of Economic Science (Cambridge: Cambridge University Press, 2003), p. 113.
124[Malthus], pp. 254–55.
125Ibid., p. 260.
external limitations, we will be doomed to be eternally ‘crushed by the recoil’ of Sisyphus’ rock.\footnote{126}

\section*{4.3. Passions of the mind}

The passions were fundamental to Malthus’s conception of mind. His thinking on the passions extended beyond the ‘mere satisfaction of desires’, granting the passions the status of \textit{vera causa} in the mind’s formation.\footnote{127} Throughout the \textit{Essay} the passions are interchangeably referred to as stimulants, impressions, excitements, impulses, and desire. The passions, therefore, include the whole gambit of human motivations, whether it be ‘benevolence’, ‘love’, ‘anger’, ‘ambition’, hunger, or thirst. The passions, according to Malthus, should be considered part of ‘our natural propensities’.\footnote{128} Bonar succinctly summarized Malthus’s position, stating: ‘Malthus treats all human impulses as if they were appetites, co-ordinate with each other, primary and irresolvable. All desires are equally natural, and abstractedly considered equally virtuous, though not equally strong’.\footnote{129}

Malthus developed his views on the passions in opposition to Augustinian and Godwinian conceptions. Augustinian notions were intricately intertwined with the concept of Original Sin and \textit{concupiscence}. St. Augustine held that the human passions are as a result of the three principal sins committed by Adam and Eve, namely the desires for material goods; for power; and for sexual pleasure. These desires were seen to be the ‘mark of human depravity and the consequence of original sin’.\footnote{130} A secularized Augustinian account of the passions can be found in Godwin, who treats the passions with disdain throughout \textit{Political Justice}. For Godwin the passions have ‘no absolute foundation in the nature of things’ and will be extinguished with the advance of reason.\footnote{131} Godwin’s ultimate goal is for the ‘cultivated and virtuous mind’ to ‘render us indifferent to the gratifications of sense’.\footnote{132} Bodily desires can never be virtuous in Godwin’s view, nor can they be anything else but an obstacle towards perfect-ibility. Godwin’s utopia excluded the body and its passions, an imagined future where humans ‘cease to propagate, for they will no longer have any motive, either of error or duty […] no anguish, no melancholy and no resentment […] They will never want motives for exertion’.\footnote{133} Godwin also undermined the primacy of pain in the mind: ‘[g]ranting that pain in a modified degree is a constant step in the process, it may nevertheless be denied that it is in the

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  \item \footnote{126}{Ibid., p. 347.}
  \item \footnote{127}{Bonar, \textit{Malthus and His Work}, p. 331.}
  \item \footnote{128}{Malthus, \textit{An Essay on the Principle of Population}, 2nd ed., p. 558.}
  \item \footnote{129}{Bonar, \textit{Malthus andHis Work}, p. 323.}
  \item \footnote{130}{Cremaschi, \textit{Utilitarianism and Malthus’ Virtue Ethics}, pp. 67–68.}
  \item \footnote{131}{Godwin, \textit{An Enquiry Concerning Political Justice}, Vol. 2, p. 809.}
  \item \footnote{132}{Ibid., p. 870.}
  \item \footnote{133}{Ibid., pp. 871–72.}
\end{itemize}
strictest sense of the word indispensable [sic’]. Pain is ‘merely an accident’, a by-product of mind.\(^{134}\)

Malthus held a diametrically opposed view on the passions. Pain was not only a necessary ingredient, but requisite to the formation and functioning of mind. There would be no mind without pain, placing Malthus’s psychology squarely within the lineage of Thomas Hobbes, Locke, and Hume. Nor could the passions be extinguished or the body eliminated. Malthus also rejected the idea that the passions are residual stains on humankind, absolving the desires of the flesh within his naturalized theory. In discussing the sexual as well as the benevolent passions, Malthus noted that both are ‘natural passions which are excited by their appropriate objects, and to the gratification of which, we are prompted by the pleasurable sensations which accompany them’.\(^{135}\) Malthus also referred to ‘parental affection’ as being ‘one of the most delightful passions in human nature’.\(^{136}\) He specifically took Godwin to task on the matter, accusing him of wrongly arguing ‘against the reality of these pleasures from their abuse’, while stressing that ‘sensual pleasure, not attended with the probability of unhappy consequences, does not offend against the laws of morality’.\(^{137}\) Thus, human desires were natural and morally neutral.

In Malthus’s theory of mind, the impulses rising up from the body power the whole mental apparatus, and therefore compel the body into action. These desires are innate and place demands on the body, animating the whole biological organism giving rise to mind.

The first great awakeners of the mind seem to be the wants of the body […] They are the first stimulants that rouse the brain of infant man into sentient activity, and such seems to be the sluggishness of original matter that unless by a peculiar course of excitements other wants, equally powerful, are generated, these stimulants seem, even afterwards, to be necessary to continue that activity which they first awakened.\(^{138}\)

Even the intellect is understood to be a fundamental biological imperative, to be included alongside the affections, appetites, and desires.

Some of the noblest exertions of the human mind have been set in motion by the necessity of satisfying the wants of the body. Want has not unfrequently given wings to the imagination of the poet, pointed the flowing periods of the historian, and added acuteness to the researches of the philosopher.\(^{139}\)

The ‘noblest exertions’ is further evidence against the passions being of a sinful nature. Passions could vary in terms of their aims and strength.\(^{140}\) They also varied among individuals, as the same desire in one individual might be

\(^{134}\) Godwin, An Enquiry Concerning Political Justice, Vol. 1, p. 352.
\(^{135}\) Malthus, An Essay on the Principle of Population, 2nd ed., p. 559.
\(^{136}\) Ibid., p. 540.
\(^{137}\) [Malthus], pp. 212–13.
\(^{138}\) Ibid., pp. 356–57.
\(^{139}\) Ibid., p. 358.
\(^{140}\) Ibid., p. 360.
stronger or weaker than in another. Desires not only served to enable the individual to meet his needs and avoid pain, ensuring human survival and reproduction, but were responsible for the formation of mind itself.

Malthus’s critics opposed his assertion that all desires are innate biological functions, especially in relation to the sex. Robert Southey ridiculed Malthus for claiming that sexual desire and hunger are both biological imperatives, existing ‘independent of the reason and the will’.141 Southey’s critique was to be expected for he was a proponent of Godwin’s mind over matter dictate.

4.4. Economy of desire

The remaining fundamental question pertains to the functioning of the Malthusian mind. How does this embodied mind, driven by biological passions, operate? The answer lies in the different conceptualizations of struggle encountered throughout the Essay. Peter J. Bowler, in his now seminal paper ‘Malthus, Darwin and the Concept of Struggle’, classified and catalogued two distinct forms of struggle present in Malthus, namely ‘Inter-species’ and ‘Intra-species’.142 The predominant inter-species form described the species as a whole struggling against the environment, including other groups of species. The secondary intra-species struggle occurred between individual members within the same species. There is, however, a third form of struggle present in Malthus which has been overlooked, but is fundamental to his psychology of an intra-psychic nature. This is the internal struggle within the individual, that ensues due to the various demands placed on the mind by the desires for satiation. The desires are not only in constant conflict with the environment, but also vie against each other in the process of being satiated. In order to cope with this intra-psychic conflict, the mind must operate according to what I term an internal economy of desire. Due to certain physical restrictions placed on the individual by nature itself, one cannot satisfy each desire equally, and many times satisfying one defers gratification of another, sometimes indefinitely.

This was in stark contrast to Godwin who dismissed the importance of the passions and held that ‘[m]ind is not an aggregate of various faculties contending with each other’ over dominion of the mental apparatus.143

The notion that one desire can counteract another has been termed the ‘principle of countervailing passions’.144 This idea can be found throughout the seventeenth and eighteenth centuries, including in the works of Bacon, Spinoza, and Hume. In 1771 Baron d’Holbach wrote: ‘[t]he passions are the

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141 Robert Southey, ‘Malthus on the Principles of Population’, The Annual Review, and History of Literature, 2 (1803), 292.
142 Bowler, ‘Malthus, Darwin, and the Concept of Struggle’, p. 632.
143 Godwin, An Enquiry Concerning Political Justice, p. 889.
144 Albert O. Hirschman, The Passions and the Interests: Political Arguments for Capitalism before Its Triumph (Princeton: Princeton University Press, 1977), p. 20.
true counterweights of the passions.\textsuperscript{145} This principle is present in Malthus, for he believes that desires for material goods and social status might need to be sacrificed in order to fulfil one’s desire for sex, reproduction, and family or vice versa. He provides the following example: ‘[t]here are some men […] who are prevented from marrying by the idea of the expenses that they must retrench, and the fancied pleasures that they must deprive themselves of, on the supposition of having a family’.\textsuperscript{146}

Malthus also thought that through education and fear of suffering one could create an economy of desire that would operate according to the principle of utility. This psychological mechanism he termed ‘moral restraint’ in which an individual could be persuaded to abstain or postpone certain desires to ensure their greatest personal happiness.\textsuperscript{147} Moral restraint is a version of what Hirschman terms rational calculation:

> careful estimation of costs and benefits, with most weight necessarily being given to those that are better known and more quantifiable, it tends to become self-referential by virtue of the simple fact that each person is best informed about his or her own desires, satisfactions, disappointments, and sufferings.\textsuperscript{148}

This mechanism, however, can break down in individuals ‘guided either by a stronger passion, or a weaker judgement’ whereby the impulse ‘break through’ their moral restraint.\textsuperscript{149}

The idea of ‘harnessing the passions’ is also present in Malthus’s theory of mind. This involves transforming disruptive desires into something beneficial.\textsuperscript{150} This concept is already present from the seventeenth century onwards and would later be incorporated into Freudian notions of sublimation. Early proponents included Mandeville, who suggested that private vice could be harnessed for public benefit.\textsuperscript{151} Malthus was more concerned with the individual, and thought that sexual desire could be channelled into bolstering work ethic: ‘[t]he passion of love is a powerful stimulus in the formation of character, and often prompts to the most noble and generous exertions; but this is only when the affections are centred in one object; and generally, when full gratification is delayed by difficulties’.\textsuperscript{152} Sexual desire can therefore be harnessed in the service of other pursuits.

In sum, what one finds in Malthus is a mind that functions according to an economy of desire, utilizing a set of principles or mechanisms (countervailing passions, harnessing passions, and rational calculation) to manage various

\textsuperscript{145}Paul-Henri Dietrich d’Holbach, \textit{Système De La Nature} (London: 1771), p. 359.
\textsuperscript{146}[Malthus], p. 63.
\textsuperscript{147}Malthus, \textit{An Essay on the Principle of Population}, 2nd ed., p. 484.
\textsuperscript{148}Hirschman in Force, p. 109.
\textsuperscript{149}[Malthus], p. 65.
\textsuperscript{150}Hirschman, \textit{The Passions and the Interests}, p. 16.
\textsuperscript{151}Ibid., p. 18.
\textsuperscript{152}Malthus, \textit{An Essay on the Principle of Population}, 2nd ed., p. 497.
desires and ensure the survival of the individual. Malthus’s psychology, therefore, is principally one of conflict.

5. Conclusion

Malthus outlined a theory of mind that departed from orthodox theological and philosophical accounts and advocated for a naturalized conception of man and mind. Malthus’s theory provoked a storm of controversy and was heavily criticized by those within and outside the Anglican church. William Keir referred to Malthus’s theory as a ‘heathen theology’ and accused him of atheism claiming that Malthus did ‘not believe in the existence of God’.  

Michael Thomas Sadler asserted that Malthus insulted God and inflicted injuries ‘upon man’. Repeated accusations of atheism became a great source of consternation for Malthus who countered by signing the sixth edition of the Essay as ‘The Rev. T. R. Malthus’. The Malthus of the first Essay most definitely harboured heterodox ideas and materialist sentiments, and yet his devoutness and belief in God is beyond reproach. Malthus perceived his philosophical materialism to be in accordance with his Christian faith. Malthus’s work, therefore, transcended traditional religious and political categories making crude labels such as radical, conservative, and materialist appear vacuous. This equally applies to those who wish to see Malthus through the lens of modern disciplinary specialization, insisting on viewing the first Essay as solely a work of political economy.

Why did Malthus abandon his theory of mind in subsequent iterations of the Essay? Malthus found himself at a crossroads following the publication of the first Essay. He could expand his theory of mind as originally planned or shift his focus completely towards the question of population. It was at this critical juncture that our contemporary understanding of Malthus, the political economist was born and Malthus, the psychologist abandoned. Malthus was sensitive to critique and there can be no doubt that his theory of mind was singled out for ridicule, even among close associates such as Clarke and Bridge. The first indication of Malthus’s intention to omit his system of mind was mentioned in a letter to the editor of the Monthly Magazine:

It is my intention at a future time to enlarge and illustrate, by a greater number of facts, the principal part of the 'Essay on Population'; and, as the subject of the two last chapters is not necessarily connected with it, I shall, in deference to the opinion of some friends whose judgements I respect, omit them in another edition.

153 William Keir, A Summons of Wakening; or the Evil Tendency and Danger of Speculative Philosophy, Exemplified in Mr. Leslie’s Inquiry into the Nature of Heat, and Mr. Malthus’s Essay on Population, and in That Speculative System of Common Law, Which Is at Present Administered in These Kingdoms (Hawick: Robert Strong, 1807), p. 84.

154 Michael Thomas Sadler, The Law of Population: A Treatise, in Six Books; in Disproof of the Superfecundity of Human Beings, and Developing the Real Principle of Their Increase (London: John Murray, 1830), p. 15.

155 [Malthus], ‘To the Editor’, p. 179.
In the appendix to the fifth edition (1817) Malthus added that in submitting his work to a ‘competent tribunal’ he ‘expunged the passages which have been most objected to.’ This was corroborated by his friend Otter, who wrote that Malthus was called ‘upon to retract’ his theory of mind in ‘deference to the opinions of some distinguished persons in our church.’ In fact, Malthus, in the preface to the first edition, made the necessary provision for future retractions, stating that he would stand corrected and ‘gladly retract his present opinions, and rejoice in a conviction of his error’. He clearly cared deeply about his friends’ and colleagues’ opinions and did not wish to offend. Accordingly, he chose subsequently to transform the Essay into a voluminous ‘universal history’ of population. Malthus was clear that the second edition should ‘be considered as a new work’ and not merely an extension of the first Essay. However, as a sentence from the second edition proves, we should not interpret the omission of Malthus’s theory of mind as a sign of disavowal:

I should hope that there are some parts of it, not reprinted in this, which may still have their use; as they were rejected, not because I thought them all of less value than what has been inserted, but because they did not suit the different plan of treating the subject which I had adopted.

There is no indication that Malthus ever abandoned his heterodox account of mind. A careful reading of Malthus’s later editions reveals artefacts of his original psychology scattered throughout the text. For example, in discussing the importance of the passions Malthus wrote:

[a]n implicit obedience to the impulses of our natural passions would lead us into the wildest and most fatal extravagancies; and yet we have the strongest reasons for believing that all these passions are so necessary to our being, that they could not be generally weakened or diminished, without injuring our happiness.

Further evidence can also be found in a sermon Malthus delivered in 1827 in which he stated that in the case of man ‘we find from experience that the cool decisions of reason have a much more feeble effect upon human conduct than the impulses of feeling’. He concluded that the ‘passions and affections’ lie at the heart of all great and noble deeds.

Gaukroger argues that those theories which attempted to account for human behaviour by means of ‘rationalizing ethics’, and in the process denied the passions a role in motivation, precluded themselves from being considered as

156 Malthus, 6th ed., Vol. 2, p. 497.
157 Otter in Malthus, Political Economy, pp. li–lii.
158 [Malthus], pp. iv–v.
159 Alison Bashford, ‘Malthus and China’, The Historical Journal, 63 (2020), 5.
160 Malthus, An Essay on the Principle of Population, 2nd ed., p. v.
161 Ibid.
162 Malthus, 6th ed., Vol. 2, p. 259.
163 Thomas Robert Malthus, T. R. Malthus: The Unpublished Papers in the Collection of Kanto Gakuen University, Vol. 2 (Cambridge: Cambridge University Press, 2004), p. 16.
credible theories of motivation.\textsuperscript{164} The primacy allocated by Malthus to the passions distinguished his theory from Godwin and Condorcet as a viable naturalized account for human motivation. In fact, Malthus’s views on the passions would later come to influence Darwin’s own scientific thinking on the subject.\textsuperscript{165}

Malthus’s anti-utopianism was articulated within an empirical, naturalizing theory of mind. His ideas in the first half of the nineteenth century were widely disseminated and entrenched in the social and cultural fabric of Europe. In his writings we find a shift away from Cartesian dualism, towards an embodied mind, a mind–body growing together from a singular substance and origin. Malthus’s psychology is a psychology of conflict, where the mind operates according to an economy of desire underpinned by a set of principles or psychological mechanisms that enables the individual to pursue happiness and avoid unnecessary suffering. Malthus emphasized the importance of the body in shaping the mind, while simultaneously placing what it means to be a human being in the mind–body experience. Malthus brings us one step closer towards the view of humans as animals prone to irrationality, a view that would become part of Darwinian and later Freudian notions of the mind.

This essay therefore calls for a substantial reinterpretation of Malthus as a naturalizing figure. Malthus’s contribution towards the naturalization movement not only included the quantification of humans but extended beyond to include the soul. Further research concerning Malthus’s intellectual heritage, role, and influence on those latter-day pioneers of mind would be a welcome addition to the current historiography.

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ORCID

Henry-James Meiring © http://orcid.org/0000-0001-7562-4975

\textsuperscript{164}Gaukroger, The Natural and the Human, p. 275.
\textsuperscript{165}See Charles Darwin, Charles Darwin’s Notebooks, 1836-1844: Geology, Transmutation of Species, Metaphysical Enquiries, ed. Paul H. Barrett et al. (New York: Cambridge University Press, 2008), p. 566.