The Individual and the “Intellectual Globe”

Francis Bacon, John Locke, and Vannevar Bush

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In the *Atlantic Monthly* of July 1945, Vannevar Bush, the American engineer and wartime science advisor to the president, proposed that information derived from various sources could be conveniently stored on microfilm. He imagined a machine that stored and retrieved reels of specially selected information:

Consider a future device for individual use, which is a sort of mechanized private file and library. It needs a name, and, to coin one at random, “memex” will do. A memex is a device in which an individual stores all his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility. It is an enlarged intimate supplement to his memory.¹

The storage capacity of the memex would be considerable: “Only a small part of the interior of the memex is devoted to storage, the rest to mechanism. Yet if the user inserted 5000 pages of material a day it would take him hundreds of years to fill the repository.”² On this basis, Bush declared that “The *Encyclopaedia Britannica* could be reduced to the volume of a matchbox. A library of a million volumes could be compressed into one end of a desk.”³ However, this is not what he intended to do because he did not envisage the memex as a new way of storing older selections and arrangements of information and knowledge. Instead, he regarded it a personal, even a private device in the battle against information overload—a problem not adequately addressed, in his opinion, by library catalogues, or encyclopedias and their classification and organization of subjects.⁴ Bush was preoccupied with the needs of individuals (such as himself) who wanted to keep track of their own information and thoughts gathered for specific purposes. He predicted the emergence of new sets of information drawn

from a great variety of sources and tailored to the interests and projects of the individual owner of a memex:

Wholly new forms of encyclopedias will appear, ready-made with a mesh of associative trails running through them, ready to be dropped into the memex and there amplified. The lawyer has at his touch the associated opinions and decisions of his whole experience. ... The physician, puzzled by a patient's reactions, strikes the trail established in studying an earlier similar case, and runs rapidly through analogous case histories, with side references to the classics for the pertinent anatomy and histology.⁵

Bush's allusion to "new forms of encyclopedias" may seem to invoke the traditional interest, pursued from ancient Greece to the European Enlightenment, in mapping the contours of the "intellectual globe," conceived as the complete body of human knowledge.⁶ However, Bush was not deferring to the notion of a circle of knowledge (*encyclios paideia*), other ideas about systematic relationships among subjects, or preferred pathways through knowledge.⁷ He was not concerned with disciplinary relationships but with the mental associations in the individual's mind, as registered by past search "trails" (as he called them) preserved in the memex. His key notion was "associative indexing," which, he explained, was "a provision whereby any item may be caused at will to select immediately and automatically another. This is the essential feature of the memex. The process of tying two items together is the important thing." Bush also spoke, as we do now, of "linking" items.⁸ The memex allowed these search trails to displace all concern with classification and conceptual genealogy. Although critics at the time indicated that users of the device depended, at least initially, on general subject categories and sub-divisions provided by library catalogues and encyclopedias, the appeal today of both Wikipedia and Google confirms the prescience of Bush's view. Indeed, Google (and other online corporations, such as Amazon) have taken the tracking and predicting of personal choice and interest further than Bush imagined.

Does the traditional concept of an "intellectual globe" continue to serve any purpose? Certainly, it seems, for the tasks of finding and retrieving information, the availability of fingertip searches of words or short sequences of letters has severely lowered the utility of subject catalogues and the indexes of printed reference works. In this sense, as Bush anticipated in 1945, the individual can now be the center of his or her own intellectual world. However, this is precisely the issue confronted by earlier reflections on the world of knowledge and learning: namely, how did the individual relate to the "intellectual globe," conceived as the collective knowledge of mankind? What parts of this world were fundamental, in what order should they be approached, and how many should be attempted? In this chapter I consider the views of

Francis Bacon and John Locke, two early modern English figures attached, in retrospect, to the Enlightenment encyclopedic project.

Francis Bacon

In the "Preliminary Discourse" (1751) to the *Encyclopédie* (1751–80), Jean le Rond d'Alembert, with the agreement of Denis Diderot, expressed debts to Bacon for his classification of knowledge, and to Locke for his analysis of human knowledge in terms of constituent ideas and their combinations. Indeed, d'Alembert and Diderot adopted Bacon's classification in terms of governing mental faculties: thus memory, imagination, and reason controlled, respectively, the fields of history, poetry, and philosophy.⁹ Bacon's approach involved the idea of *homo faber*, "man the maker"—in this case, the mind as the maker of knowledge (apart from revealed knowledge).¹⁰ Enlarging on this, the French *philosophes* argued that because humans *made* knowledge (as opposed to the objects and structures of the natural world), they could arrange it in ways that suited their purposes. D'Alembert believed that since the Scientific Revolution of the seventeenth century, knowledge had progressed by intense specialization within limited domains and that "the infinitely varied branches of human knowledge" formed "a truly unified system."¹¹ But when thinking about relationships between various disciplines, d'Alembert adopted a seemingly cavalier attitude, saying that, as with "general maps of the globe," these connections could be represented in various, even arbitrary, ways. He declared that "one can create as many different systems of human knowledge as there are world maps having different projections."¹² Although Bacon also contended that there were several plausible ways of classifying the "sciences" (in the sense of branches of scholarly inquiry), he affirmed the importance of this task and announced that his own attempt was crucial both for the advancement of learning and for the intellectual and moral benefit of those individuals who pursued, or used, knowledge. Additionally, when he (and also Locke) contemplated the branches of knowledge, they recognized that each individual could feasibly know only a small portion of it. In their view, this entailed intellectual and moral decisions about, for example, whether general or specific knowledge should be sought.

In about 1592, Bacon told Lord Burghley that "I have taken all knowledge to be my province."¹³ In the *Novum organum* (1620), he said that although the things he addressed are "quite new," they "are framed on an extremely ancient archetype, i.e. the very world itself, and the nature of things and of the mind."¹⁴ Bacon accepted the challenge of mapping the world of knowledge produced by the mind so as to improve its fit with "the very world itself." He

concluded his *Advancement of Learning* (1605) on this point: “Thus have I made as it were a small Globe of the Intellectual world, as truly and faithfully as I could discover, with a note and description of those parts which seeme to mee, not constantly occupate, or not well converted by the labour of Man.”¹⁵ In 1612, in *Descriptio globi intellectualis*, he restated the case for his classification of knowledge by reference to the three mental faculties by which it was acquired, contending that “there cannot be others or any more than these.”¹⁶ Far more so than d’Alembert, Bacon regarded this delineation of the intellectual world as a guide for the advancement of the sciences. He stressed that individuals seeking particular knowledge needed to be aware of what had already been done, what needed to be done, and how the various disciplines related to each other. It is also important to appreciate that Bacon made an a priori assumption that there was a unity among the several branches of knowledge, stressing that the divisions he drew must always be seen rather as “*lines & veines*, then [than] for *sections* and *separations*: and that the continuance and entireness of knowledge be preserved.”¹⁷ This conviction did not rest, as it did for d’Alembert, on confidence about the power of the geometric, or mathematical, method when applied to the empirical and physical world. Rather, Bacon insisted that general and synthetic doctrines must be founded on a solid gathering of information in what he called “natural histories,” and that this entailed a proper order of inquiry.¹⁸ In 1674 Robert Boyle agreed that Bacon offered a reliable compass: he spoke of “that great Restorer of Physicks, the illustrious *Verulam*, who has trac’d out a most useful way to make Discoveries in the Intellectual Globe, as he calls it.”¹⁹

Bacon’s idea of an intellectual globe was elaborated in the title-pages of two of his works: the posthumously published *Sylva sylvarum* (1627) and the English translation by Gilbert Watts in 1640 of the *De dignitate et augmentis scientiarum* (1623). The engraved illustrations pay homage to Simon van de Passe’s famous title-page for the *Instauratio magna* (1620) with its image of a ship sailing through the Pillars of Hercules (at the entrance to the straits of Gibraltar) in search of the *terra incognita*, and also new knowledge.²⁰ However, the two later images introduced the notion of an intellectual globe that complements, at least potentially, the physical globe explored by travel and understood by science. In *Sylva sylvarum*, the *mundus intellectualis* is depicted as a globe between the two pillars (Figure 21.1).²¹ In Watts’ translation of *De augmentis*, this globe is placed in the top right corner, facing, and in communication with, the *mundus visibilis* (Figure 21.2). Watts assured readers that Bacon believed that “the Intellectual Globe, and the Globe of the World, intermixe their beams and irradiations in a direct line of projection, to the Generation of Sciences.” He said that this would come about by “bringing in, a new Primum Mobile, into the Intellectual Globe of Sciences.”²² This new prime mover was the reform in method and attitude demanded by Bacon’s

Figures 21.1 and 21.2. Illustrations from Francis Bacon’s *Sylva sylvarum or a Naturall Historie, in Ten Centuries* ([1627] 1651 edition) and *Of the Advancement and Proficiency of Learning* ([1605], 1640 edition). Permission by Rare Books and Special Collections, the University of Sydney Library.

“Great Instauration”—one that involved many people and that was to be a work more “of time than of talent.”²³

In discussing the ways in which Aristotle and other ancient teachers set out guidelines for thinking, especially in logic, Bacon acknowledged the appeal of a fixed, and incontestable, starting point. He developed this into a more general observation, namely that all men “have a desire, to have an *Atlas* or *Axel* tree within; to keepe them from fluctuation; which is like to a perpetuall peril or falling.”²⁴ I suggest that we can consider his intellectual globe as an attempt to provide such an anchor point for individuals, especially for those engaged in empirical inquiry that, in his estimate, lacked the counterpart of the rules and precepts established for logic and rhetoric.

In Bacon’s time and into the seventeenth century, individual scholars such as Joseph Scaliger (1540–1609), Isaac Casaubon (1559–1614), and John Selden (1584–1654) were admired for their universal learning.²⁵ However, for Bacon, such polymathy was not a useful model for the reform of knowledge. First, it was unfeasible for the great majority of individuals who, although not likely to attain profound learning, nevertheless could contribute to the

collective task of advancing knowledge, especially natural knowledge, or science; and second, it did not encourage new inquiry. This called for a radical change in intellectual training, so that the traditional “relationship of master and pupil” was replaced with that of “discoverer and improver of discoveries.” Bacon alleged that the present stagnant condition of the sciences had been caused by “nothing more than the audacity of the few, and the idle slackness of the rest.”²⁶ As he imagined it, the task was to fill out the intellectual globe so that it matched and explained the terrestrial, so that sciences accounted for the world of nature, and perhaps also for the social world. This endeavor was necessarily a collaborative one, extending over generations. It needed direction, and a survey of the kinds of knowledge was one such aid. Bacon complained that this had not been adequately attempted. For example, elaborate trees and Ramist diagrams were merely ways of arranging the poor stock of extant bookish knowledge, which itself was shallow and repetitive; and most traditional schemata outlined only a pedagogic order of study rather than a plan for research. His map of the intellectual globe promised to direct the efforts of those who had special knowledge of a topic, or mastery of a skill or art. Bacon adopted the role of the scholarly individual able to take a general view, albeit without claiming polymathic status: “Expert Men can Execute, and perhaps Judge of particulars, one by one; But the generall Counsels, and the Plots, and Marshalling of Affaires, come best from those that are *Learned*.”²⁷

Given Bacon’s damning assessment of past intellectual progress, the lessons he drew from the historical record were mainly negative, such as what to avoid. In contrast, his positive advice on how to proceed was normative and heavily prescriptive. Bacon averred that the sciences developed in a definite sequence. Thus, his sub-divisions of subjects within the three main domains of knowledge—philosophy, history, and poetry—set out a fundamental structure designed to avoid category errors. Bacon stressed that the path of discovery must respect both the integrity and interdependence of the various sciences: natural history supported natural philosophy and so on up to the most abstract science, metaphysics, which “is charged with least multiplicitie.” This “connexion, or concatenation” of knowledge gave some assurance that “the Notions and conceptions of Sciences” could be reduced to a manageable number, and so the individual, although confined to one short life, and able to master only a limited portion of knowledge, could appreciate the harmony of its parts. However, there was no secret that allowed one individual to embrace all the sciences; rather, the collective work of many individuals produced an intellectual pyramid that we can each admire.²⁸ Bacon allowed the individual to be either a spectator of or a small contributor to a long-term project that was not “beyond the capacity of mere mortals” because “its completion is not confided entirely to a single age but to a succession of them.”²⁹

John Locke

Like many other early modern thinkers, Locke was interested in what he called "the Division of the Sciences."³⁰ Indeed, during the 1670s he drew up several schemata that displayed the various branches of knowledge according to either the major disciplines and subjects or to the *ways* of knowing. In the latter, which resemble Bacon's reference to mental faculties, Locke gave the main divisions as *cognoscendorum*, *reminiscendorum*, and *agendorum*—thereby indicating that knowledge can be acquired by thinking, by remembering (largely through historical records), and by making practical or technical interventions.³¹ But Locke granted a license to choose a division of subjects that suited an individual's purpose, a permission he emphasized in a journal entry of 1677, saying that such classification "perhaps will be best done by every one himself for his owne use as best agreeable to his owne notions; though the nearer it comes to the nature & order of things it is still the better."³² The implication is that such categories can be functional, assisting organization and retrieval of information, such as that stored in notebooks. Indeed, in an anonymous French publication of 1686 about his way of making commonplace books, Locke suggested that separate notebooks be kept for three main branches of knowledge: physical knowledge, moral knowledge, and a third type concerning the use of signs, such as words.³³ When he settled on this tripartite schema of the "Sciences" in the last chapter of his *Essay* (1690), he rendered these branches as "*natural Philosophy*," "*Ethicks*," and "*the Doctrine of Signs*," describing them as "the three great Provinces of the intellectual World, wholly separate and distinct one from another."³⁴ Given this view, it is not surprising that Locke, in contrast to Bacon, was unwilling to posit any discernible unity of the branches of knowledge, or at least not one that could direct particular inquiries, and still less one that might encourage older polymathic aspirations to universal learning.

In Locke's assessment, the human predicament was that of being caught between the folly of universal knowledge and the danger of limited exposure to a wide range of ideas and opinions. In 1677, while living and traveling in France, he made a long entry in his journal in which he considered how a person should cultivate, and balance, both body and mind in the pursuit of truth. Here Locke pondered the relation of the individual mind to the "provinces of the mundus intelligibilis as I may call it."³⁵ He began by questioning the ambition of universal learning, declaring that "the extent of knowledge or things knowable is so vast, our duration here so short, and the entrance by which the knowledge of things gets into our understanding so narrow, that the time of our whole life would be found too short" to attain such a goal.³⁶ He noted that the "most knowing men," engaged in a life of study,

have all felt doubt, difficulty, and a sense of inadequacy.³⁷ When he returned to this theme in later published writings, Locke made some allowance for the difference between polite learning and the quest for *new* scientific knowledge, but nevertheless maintained that the problem was a general one.³⁸ Although he did not object to indulging “a taste of every sort of knowledge,” Locke underlined clear limits and risks: “This is an excellency, indeed, and a great one too, to have a real and true knowledge in all, or most of the objects of contemplation. But it is what the mind of one and the same man can hardly attain unto.”³⁹

There was also an opposite, and equally dangerous, tendency: that of intellectual narrowness. In the *Conduct of the Understanding* (1697), Locke warned that even “men of study and thought” can go astray when they confine their interests and ideas to limited topics and sources of information:

They converse but with one sort of men, they read but one sort of books, they will not come in the hearing but of one sort of notions: the truth is, they canton out to themselves a little Goshen, in the intellectual world, where light shines, and, as they conclude, day blesses them; but the rest of that vast expansum they give up to night and darkness, and so avoid coming near it. They ... will not venture out into the great ocean of knowledge.⁴⁰

Locke tried to arbitrate between polymathic ambition and these tiny intellectual cantons. In early modern culture, the prestige of general learning was still strong—as seen in Bacon’s adoption of this ideal when mapping the fields of knowledge. However, when the founding members of the Royal Society of London (from 1660) contemplated the extensive collection of empirical information that Bacon demanded, they were anxious about its implications for the individual inquirer. As Thomas Sprat put it in his quasi-official *History* (1667), the problem was that the “infinite *Observations*” required were impossible for “any single mind” to comprehend, and so he reported the preference for “*Companies* before *single endeavours* in *Philosophical* matters.”⁴¹ Locke also endorsed collaboration but realized that intellectual advances derived from passionate curiosity were often necessarily focused on one question, or within one subject:

It is not amiss that every one should relish the science that he has made his peculiar study. ... But the contempt of all other knowledge, as if it were nothing in comparison of law or physic, of astronomy or chemistry, ... coops it [i.e. the understanding] up within narrow bounds, and hinders it from looking abroad into other provinces of the intellectual world.⁴²

Locke’s prescriptions thus ruled out any easy path to knowledge. Not only was universal knowledge a futile dream, but the collective knowledge of humanity did not transfer in any simple fashion to particular individuals:

For, I think, we may as rationally hope to see with other Mens Eyes, as to know by other Mens Understandings. . . . The floating of other Mens Opinions in our brains makes us not one jot the more knowing, though they happen to be true. . . . In the Sciences, every one has so much, as he really knows and comprehends: What he believes only, and takes upon trust, are but shreads; which however well in the whole piece, make no considerable addition to his stock, who gathers them.⁴³

On this view, each person must seek out his or her own knowledge of the world; books should be read, observations and experiments undertaken, and conversations enjoyed, but in the end doctrines and theories should receive assent only after proper comprehension.

Lessons from the Early Moderns

In sum, both Bacon and Locke identified the task of bringing the intellectual and visible worlds into alignment as a collective one to which individuals contribute in various measures. Bacon believed that this was most effectively done with reference to an appropriate framework, such as that supplied by his intellectual globe. He claimed that all individuals share the results consolidated by the pyramid of the sciences built by others over a long period of time. Locke's conclusion was less sanguine: he accepted the importance of collective effort, warning of the dangers of intellectual Goshens; but he placed a heavy onus on each individual who, in spite of limited knowledge, must assent, with moral responsibility, to the portions of knowledge and science he or she used. For Locke, more so than Bacon, the relationship of the individual to the world of knowledge posed a major dilemma.

Vannevar Bush has been seen as a pioneer of hypertext and the convenient processing of digital information; but he must also be identified as one who erased earlier concerns about the relation of individual understanding to the "intellectual globe." Some thirty years after Bush's paper, Mortimer Adler's construal of the role of the *Encyclopaedia Britannica* indicated that these concerns were not entirely outdated. Adler averred that "the whole world of knowledge is a single universe of discourse," and he sought to depict a revised circle of knowledge—"a figure in which one can go from any point, in either direction, around the circumference."⁴⁴ But Bush had already lost interest, and he took d'Alembert's acknowledgment of the arbitrary and functional nature of maps of knowledge to an extreme, dismissing these as irrelevant and making the individual alone the point of reference for interaction with the accumulated archive of information. He was content to offer his memex as a personalized Goshen formed by the tracks of the individual's own searches. In doing so he was, ironically, indebted to Bacon and Locke. These two major

figures had removed polymathy or universal learning as a feasible ideal, and they acknowledged specialist knowledge as the emerging source of intellectual authority. However, they also believed that each person had a responsibility to be aware of the scope and limits of various disciplines, and the consilience or otherwise of claims made by rival methods and theories. If we wish to consider how individuals could, or should, appreciate the boundaries of disciplines and the contours of the world of knowledge, then these early modern deliberations are worth retention and consideration.

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NOTES

1. Vannevar Bush, "As We May Think," *Atlantic Monthly*, July (1945): 106–7. Bush's choice of name has been interpreted as a contraction of either "memory extended" or "memory index." His idea is now, in retrospect, often regarded as a forerunner of hypertext. On this, and more generally, see Richard Yeo, "Before Memex: Robert Hooke, John Locke, and Vannevar Bush on External Memory," *Science in Context* 20 (2007): 21–47.
2. Bush, "As We May Think," 107; on the method of scanning, see 105–6.
3. *Ibid.*, 103.
4. *Ibid.*, 102. On this theme, see Richard Yeo, *Encyclopaedic Visions: Scientific Dictionaries and Enlightenment Culture* (Cambridge, 2001).
5. Bush, "As We May Think," 108.
6. For further discussions of the dictionary and the encyclopedia, see in particular the chapters by Nora Eggen and Sanja Perovic in this volume.
7. See L. M. de Rijk, "γκύκλιος παιδεία: A Study of Its Original Meaning," *Vivarium* 3 (1965): 24–93.
8. Bush, "As We May Think," 107.
9. Jean le Rond d'Alembert, *Preliminary Discourse to the Encyclopedia of Diderot*, trans. Richard N. Schwab with Walter E. Rex (Chicago, 1995), 143–57.
10. Antonio Perez-Ramos, *Francis Bacon's Idea of Science and the Maker's Knowledge Tradition* (Oxford, 1988).
11. D'Alembert, *Preliminary Discourse*, 5; see also 47.
12. *Ibid.*, 48–49.

13. Francis Bacon, "Letter to Lord Burghley," in *Francis Bacon: The Major Works*, ed. Brian Vickers (Oxford, 2008), 20.
14. Francis Bacon, "Dedication to James I," in *The Oxford Francis Bacon*, vol. 11, *The Instauration magna, Part II: Novum organum and Associated Texts*, ed. Graham Rees (Oxford, 2004), 7.
15. *The Oxford Francis Bacon*, vol. 4, *The Advancement of Learning*, ed. Michael Kiernan (Oxford, 2000), 192. Bacon also referred to a "faithfull perambulation of learning, with an inquiry what parts therof lye fresh and wast[e], and not improved & converted by the Industrie of man" (61).
16. Francis Bacon, *Descriptio globi intellectualis*, in *The Oxford Francis Bacon*, vol. 6, *Philosophical Studies c. 1611–c. 1619*, ed. Graham Rees (Oxford, 1996), 98–99; also Francis Bacon, "A Description of the Intellectual Globe," in *The Works of Francis Bacon*, vol. 5, ed. James Spedding et al. (Stuttgart, 1963), 504.
17. Bacon, *Advancement of Learning*, 93.
18. Francis Bacon, *Parasceve, ad historiam naturalem, et experimentalem* [A Preparative to a Natural and Experimental History], in *The Oxford Francis Bacon*, vol. 11, 451–53.
19. Robert Boyle, *The Excellency of Theology, Compared with Natural Philosophy* (1674), in *The Works of Robert Boyle*, vol. 8, ed. Michael Hunter and Edward B. Davis (London, 1999–2000), 75.
20. Francis Bacon, *Sylva sylvarum or a Naturall Historie, in Ten Centuries: Published after the Author's Death by William Rawley* (London, 1627).
21. For comments on both images, see Margery Corbett and Ronald Lightbown, *The Comely Frontispiece: The Emblematic Title-Page in England 1550–1660* (London, 1979), 185–89.
22. Gilbert Watts, "Favourable Reader," in Francis Bacon, *Advancement and Proficiency of Learning*, trans. Gilbert Watts (Oxford, 1640), sig. ¶¶2^r and the first page (facing sig. ¶¶3^v).
23. Bacon, "Dedication to James I," 6–7.
24. Bacon, *Advancement of Learning*, 114. This draws on the fable of Atlas in Homer's *Odyssey* and Virgil's *Aeneid*.
25. Yeo, *Encyclopaedic Visions*, 9–12.
26. Bacon, "Great Instauration preliminaries", in *The Oxford Francis Bacon*, vol. 11, 13.
27. Francis Bacon, "Of Studies," in *The Oxford Francis Bacon*, vol. 15, *The Essayes or Counsels, Civill and Morall*, ed. Michael Kiernan (Oxford, 1985), 152. See also his *Advancement of Learning*, 11, for the negative appraisal of "Emperique Statesmen, not well mingled with men grounded in Learning."
28. Bacon, *Advancement of Learning*, 85; see also Francis Bacon, Translation of *De augmentis scientiarum*, in Bacon, *Works*, vol. 4, 361 on "uniting the axioms of sciences into more general ones."
29. Bacon, "Great Instauration preliminaries", 25.
30. John Locke, *An Essay Concerning Human Understanding*, ed. Peter H. Nidditch (Oxford, 1975), IV.xxi.

31. See, for example, Bodleian Library, Oxford, MS Locke c. 28, fols. 50–51 (of 1677); and Richard Yeo, *Notebooks, English Virtuosi, and Early Modern Science* (Chicago, 2014), chap. 7.
32. Bodleian Library, Oxford, MS Locke, f. 2, pp. 128–29 (5 April 1677).
33. In the French version these are *la Morale, & la Physique*; the third is *la science des signes*. [John Locke], “Methode nouvelle de dresser des recueils: Communiquée par l’auteur,” *Bibliothèque Universelle et Historique* 2 (1686): 326.
34. Locke, *Essay Concerning Human Understanding*, IV.xxi.2–5.
35. Bodleian Library, Oxford, MS Locke, f. 2, p. 86 (26 March 1677).
36. *Ibid.*, 85. See also p. 42 (8 February 1677) under the heading “Understanding”: “Our minds are not made as large as truth nor suited to the whole extent of things.”
37. *Ibid.*, 86. On this theme, see Richard Yeo, “Hippocrates’ Complaint and the Scientific Ethos in early Modern England,” *Annals of Science* 75 (2018): 73–96.
38. Richard Yeo, “John Locke and Polite Philosophy,” in *The Philosopher in Early Modern Europe: The Nature of a Contested Identity*, ed. Conal Condren, Stephen Gaukroger, and Ian Hunter (Cambridge, 2006), 254–75.
39. John Locke, *Of the Conduct of the Understanding* (1697), in *The Works of John Locke*. A new edition, corrected, vol. 3 (London, 1823), 238–39 (section 19).
40. *Ibid.*, 209 (section 3). Before the Exodus, the Jews lived in the “Land of Goshen” in Egypt (Genesis 45:9–10 and 47:27).
41. Thomas Sprat, *The History of the Royal Society of London, for the Improving of Natural Knowledge* (London, 1667), 102.
42. Locke, *Of the Conduct of the Understanding*, vol. 3, 244 (section 22).
43. Locke, *Essay Concerning Human Understanding*, I.iv.23.
44. Mortimer J. Adler, “The Circle of Knowledge,” in *Encyclopaedia Britannica*, 15th ed., vol. 1, *Propaedia* (Chicago, 1974), 5–8.

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