

NOTES

I INTRODUCTION

1. Harriot resided with Henry Percy, ninth Earl of Northumberland, at Sion House from 1606 until his death in 1621. Northumberland was Harriot's chief patron and also a lifelong friend of Sir Walter Raleigh. For further details about this enigmatic figure, see Frances A. Yates, *A Study of Love's Labour's Lost* (Cambridge: Cambridge University Press, 1936); and Robert Fox (ed.), *Thomas Harriot, An Elizabethan Man of Science* (Aldershot: Ashgate Publishing Ltd., 2000).
2. Frances A. Yates, *Giordano Bruno and the Hermetic Tradition* (London: Routledge and Kegan Paul, 1964), p. 398. However, scholars have since questioned the decisiveness of this event, believing the erosion of the authority of the *Hermetica* to have been much more gradual.
3. John Maynard Keynes, "Newton the Man," in *Newton Tercentenary Celebrations 15–19 July 1946*, published by The Royal Society (Cambridge: Cambridge University Press, 1947), p. 27.
4. See "Alchemy, Magic and Moralism in the Thought of Robert Boyle," in Michael Hunter, *Robert Boyle (1627–91): Scrupulosity and Science* (Woodbridge: The Boydell Press, 2000), pp. 93–118. See also Lawrence M. Principe, *The Aspiring Adept: Robert Boyle and His Alchemical Quest* (Princeton, N.J.: Princeton University Press, 1998).
5. William H. Sherman, *John Dee: The Politics of Reading and Writing in the Renaissance* (Amherst: University of Massachusetts Press, 1995), p. xi.
6. John Swan, *Speculum Mundi, Or, a Glasse Representing the Face of the World* (Printed by the Printers to the University of Cambridge, 1935).
7. Although Copernicus's *De Revolutionibus* had been published in 1543, till late into the seventeenth century, three astronomical systems were at the center of a debate for acceptance—the traditional Aristotelio-Ptolemaic model, the new Copernican system, and the Tychonic geoheliocentric compromise.

8. Swan, *Speculum Mundi*, p. 107.
9. Bernard Capp, *Astrology and the Popular Press: English Almanacs 1500–1800* (London and Boston: Faber and Faber, 1979), p. 292.
10. *Ibid.*, p. 23.
11. See Don Cameron Allen, *The Star-Crossed Renaissance: The Quarrel about Astrology and its Influence in England* (Duke University Press, 1941; rpt New York: Octagon Books Inc., 1966).
12. Capp, *Astrology and the Popular Press*, p. 23.
13. William Lilly, *Englands Propheticall Merline, Foretelling to all Nations of Europe until 1663. The Actions Depending upon the Influences of the Conjunction of Saturn and Jupiter 1642/3 (1644)*, from “The Address to the Reader.”
14. See William Lilly, *William Lilly’s History of His Life and Times from the Year 1602 to 1681, Written by Himself* (2nd ed., 1715), ed. by K. M. Briggs under the title *The Last of the Astrologers* (Ilkley, Yorkshire: The Scholar Press, Ltd., 1794), p. 32; Capp, *Astrology and the Popular Press*, p. 210.
15. William Lilly, The Starry Messenger, or An Interpretation of that Strange Apparition of Three Suns Seene in London, 19 Novemb. 1644. Being the Birth Day of King Charles (1644).
16. Lilly, *Englands Propheticall Merline*, p. 39.
17. Ann Geneva, *Astrology and the Seventeenth Century Mind* (Manchester and New York: Manchester University Press, 1995), p. 21.
18. *Ibid.*, p. 257.
19. Oxford Dictionary of National Biography, 2004, vol. 30, p. 575.
20. Mark H. Curtis, *Oxford and Cambridge in Transition 1558–1642* (Oxford: Oxford University Press, 1959), p. 227.
21. See *Oxford University Statutes to 1843* trans. G. R. M. Ward (London, 1845), 2 vols, vol. I, pp. 272–74.
22. For a survey of the position of astronomical knowledge in Renaissance England, see F. R. Johnson, *Astronomical Thought in Renaissance England* (New York: Octagon Books Inc., 1968).
23. A. R. Hall, *The Scientific Revolution 1500–1800: The Formation of the Modern Scientific Attitude* (London, New York, Toronto: Longmans, Green & Co., 1954), p. 193, footnote.
24. Paul Arno Trout, *Magic and the Millennium: A Study of the Millenary Motifs in the Occult Milieu of Puritan England, 1640–1660* (PhD Dissertation of the University of British Columbia, Canada, 1975). See *Dissertation Abstracts International*, A—The Humanities and Social Sciences, January 1976, vol. 36, no. 7.
25. See David Mulder, *The Alchemy of Revolution: Gerard Winstanley’s Occultism and Seventeenth-Century English Communism* (New York, Bern, Frankfurt, and Paris: Peter Lang, 1990).
26. See Charles Webster, *The Great Instauration: Science, Medicine and Reform 1626–60* (London: Duckworth, 1975); Michael Hunter,

Science and Society in Restoration England (Cambridge: Cambridge University Press, 1981), pp. 21–31; Charles Webster, “The College of Physicians: ‘Solomon’s House’ in Commonwealth England,” *Bulletin of the History of Medicine*, 41 (1967), 393–412; and “New Light on the Invisible College: The Social Relations of English Science in the Mid-seventeenth Century,” *Transactions of the Royal Historical Society*, fifth series 24 (1974), 19–42.

27. James Orchard Halliwell (ed.), *A Collection Of Letters Illustrative Of The Progress Of Science In England From The Reign Of Queen Elizabeth To That Of Charles The Second* (London, 1841), p. 80. See also S. J. Rigaud (ed.), *Correspondence of Scientific Men of The Seventeenth Century* (Oxford: Oxford University Press, 1841), 2 vols.

John Pell (1611–58) was admitted to Trinity College, Cambridge, at the age of 13. He received his BA in 1628 and his MA in 1630 before proceeding to Oxford in 1631.

“Pye-bottoms” probably refer to sheets containing calculations to determine the assigning of Saints’ days in the calendar. One of the meanings of “pie” or pye” in the OED is “a collection of rules adopted in the pre-Reformation Church, to show how to deal (under each of the 35 possible variations in the date of Easter) with the concurrence of more than one office on the same day, accurately indicating the manner of commemorating, or of putting off till another time, the Saints’ days, etc., occurring in the ever-changing times of Lent, Easter, Whitsuntide and the Octave of the Trinity.” This would account for the ironical tone of the passage, which suggests that the same set of numbers and signs could be both a device for conjuring spirits and an aid to Christian worship.

There may also be a reference here to the fact that in April 1643 Parliament decreed that it would hold as spy anyone who wrote in unknown characters or ciphers. See Geneva, *Astrology and the Seventeenth Century Mind*, p. 21.

28. See chapter six in this volume.
29. See J. L. E. Dreyer, *A History of Astronomy from Thales to Kepler*, 2nd ed. (New York: Dover Publications, 1953), pp. 374 and 405.
30. Harris Francis Fletcher, *The Intellectual Development of John Milton* (Urbana: University of Illinois Press, 1956), vol.1, pp. 301–302.
31. For an account of Bruno’s Oxford debates, see Frances A. Yates, *Giordano Bruno and the Hermetic Tradition* (London: Routledge and Kegan Paul, 1964), pp. 166–68; and R. McNulty, “Bruno at Oxford,” *Renaissance News* XIII (1960), 300–305.
32. The suggestion of Arthur and Alberta Turner, CPW1, 322, endorsed by Barbara Lewalski, *The Life of John Milton* (Oxford: Blackwell Publishers, 2000), p. 64. See also William Riley Parker, *Milton: A Biography*, 2nd ed., 2 vols, vol. I, *The Life*, revised

- version ed. by Gordon Campbell (Oxford: Clarendon Press, 1996), p. 143.
33. Gordon Campbell and Thomas N. Corns, *John Milton, Life, Work, and Thought* (Oxford: Oxford University Press, 2008), pp. 85, 403.
 34. Lewalski, *The Life of John Milton*, pp. 172–73.
 35. See Urszula Szulakowska, *The Alchemy of Light: Geometry and Optics in Late Renaissance Alchemical Illustration* (Leiden, Boston, Koln: Brill, 2000), pp. 175–77.
 36. J. H. Hanford, “Dr. Paget’s Library,” *Bulletin of the Medical Library Association* XXXVI (1945).
 37. See *ibid.*; and Christopher Hill, *Milton and the English Revolution* (London: Faber and Faber, 1977), pp. 492–95.
 38. William Poole, “Milton and Science: A Caveat,” in *Milton Quarterly* vol. 38, no. 1 (March 2004), 18–34. See also George F. Butler, “Milton’s Meeting with Galileo: A Reconsideration,” in *Milton Quarterly*, vol. 39, no. 3 (October 2005).
 39. Donald Friedman, “Galileo and the Art of Seeing,” in *Milton in Italy: Contexts, Images, Contradictions*, ed. Mario A. Di Cesare (Binghamton, New York: Medieval & Renaissance Texts & Studies, 1991), pp. 159–74.
 40. Julia M. Walker, “Milton and Galileo: The Art of Intellectual Canonization,” in *Milton Studies*, ed. James D. Simmonds, vol. XXV (1989) (Pittsburgh: Pittsburgh University Press, 1990), pp. 109–23.
 41. For earlier work on Milton and the new astronomy, see A. H. Gilbert, “Milton and Galileo,” *SP* 19 (1922), 152–85; “The Outside Shell of Milton’s World,” *SP* 20 (1923), 444–47; Grant McColley, “The Theory of a Plurality of Worlds as a Factor in Milton’s Attitude toward the Copernican Hypothesis,” *MLN* 47 (1932), 319–25; “The Astronomy of *Paradise Lost*,” *SP* 34 (1937), 209–47; “The Seventeenth-Century Doctrine of a Plurality of Worlds,” *Annals of Science* 1 (1936), 385–430; “Milton’s Dialogue on Astronomy: The Principal Immediate Sources,” *PMLA* vol. LII, no. 3 (1937), 728–62; Marjorie Hope Nicolson, *The Breaking of the Circle: Studies in the Effect of the “New Science” upon Seventeenth Century Poetry* (Evanston, Ill: Northwestern University Press, 1950); “Milton and the Telescope,” *ELH* (1935), 1–32; Kester Svendsen, *Milton and Science* (Cambridge: Harvard University Press, 1956).

For earlier work on Milton and magic and alchemy, see Marjorie Hope Nicolson, “Milton and the *Conjectura cabbalistica*,” *PQ* 6 (1927), 1–18; R. J. Zwi Werblowsky, “Milton and the *Conjectura Cabbalistica*,” *Journal of the Warburg and Courtauld Institutes* 18 (1955), 90–113; Denis Saurat, *Milton: Man and Thinker*, 2nd ed. (London: Dent, 1944).

42. Lawrence Babb, *The Moral Cosmos of Paradise Lost* (East Lansing: Michigan State University Press, 1970). See the chapter on “The New Astronomy.”
43. Harinder Singh Marjara, *Contemplation of Created Things: Science in Paradise Lost* (Toronto, Buffalo, London: University of Toronto Press, 1992).
44. Angelica Duran, *The Age of Milton and the Scientific Revolution* (Pittsburgh, Pennsylvania: Duquesne University Press, 2007).
45. Joad Raymond, *Milton’s Angels, The Early-Modern Imagination* (Oxford: Oxford University Press, 2010), p. 9.
46. Mary Ann Radzinowicz, *Toward “Samson Agonistes”: The Growth of Milton’s Mind* (Princeton: Princeton University Press, 1978), p. 351; emphasis in the original.
47. Columbia Milton, vol. XVII, p. 151; and *Life of Peter Ramus* in Don M. Wolfe et al. eds., *Complete Prose Works of John Milton*, 8 vols (New Haven, Conn.: Yale University Press, 1953–82), vol. II.
48. See Frances A. Yates, *The Occult Philosophy in the Elizabethan Age* (London: Routledge and Kegan Paul, 1979).
49. Christopher Hill, *Milton and the English Revolution* (London: Faber and Faber, 1977), pp. 379, 106.
50. Michael Lieb, “Encoding the Occult: Milton and the Traditions of *Merkabah* Speculation in the Renaissance.” in *Milton Studies*, ed. by Albert C. Labriola, vol. XXXVII (Pittsburgh: Pittsburgh University Press, 1999), pp. 42–88. See also Michael Lieb, *The Dialectics of Creation: Patterns of Birth and Regeneration in Paradise Lost* (Boston: University of Massachusetts Press, 1970).
51. Lyndy Abraham, *Marvell and Alchemy* (Aldershot: Scolar Press, 1990).
52. Alastair Fowler (ed.), *Milton, Paradise Lost* (Harlow: Addison Wesley Longman Limited, 2nd ed., 1998). All quotations from *Paradise Lost* are from this edition.
53. John Rogers, *The Matter of Revolution: Science, Poetry, and Politics in the Age of Milton* (Ithaca and London: Cornell University Press, 1996).
54. Christopher Hill, *The Experience of Defeat: Milton and Some Contemporaries* (London: Faber and Faber Ltd., 1984).
55. Karen Silvia de Leon-Jones, *Giordano Bruno and the Kabbalah: Prophets, Magicians, and Rabbis* (New Haven and London: Yale University Press, 1997), p. 1.
56. Don M. Wolfe, *Complete Prose Works*, vol. II, p. 538.

2 INVOCATIONS: MILTON AS MOSES

1. For an account of early modern chemical philosophy, see Allen G. Debus, *Man and Nature in the Renaissance* (Cambridge: Cambridge University Press, 1978), pp. 116–30.

2. See Brian P. Copenhaver, "Natural Magic, Hermetism, and Occultism in Early Modern Science," in *Reappraisals of the Scientific Revolution*, ed. David C. Lindberg and Robert S. Westman (Cambridge: Cambridge University Press, 1990), pp. 262–63.
3. See, e.g., Allen G. Debus, *Man and Nature in the Renaissance* (Cambridge: Cambridge University Press, 1978); and Lindberg and Westman, *Reappraisals of the Scientific Revolution*.
4. See Stephen M. Fallon, *Milton's Peculiar Grace, Self-Representation and Authority* (Ithaca and London: Cornell University Press, 2007). In particular, see chapter 8 "‘If All Be Mine’: Confidence and Anxiety in *Paradise Lost*," pp. 203–36.
5. J. Martin Evans, "The Birth of the Author: Milton's Poetic Self-Construction," in *Milton Studies*, vol. XXXVIII, ed. Albert C. Labriola and Michael Lieb (Pittsburgh: University of Pittsburgh Press, 2000), pp. 47–65, at p. 59.
6. *Ibid.*, p. 60.
7. Michel Foucault, "What is an Author," in *Textual Strategies: Perspectives in Post-Structuralist Criticism*, ed. Josue V. Harari (Ithaca: Cornell University Press, 1979), pp. 141–60.
8. See Brian P. Copenhaver and Charles B. Schmitt, *Renaissance Philosophy* (Oxford: Oxford University Press, 1992). See also Richard Kieckhefer, *Magic in the Middle Ages* (Cambridge: Cambridge University Press, 1989, 2000). For Milton and cabalism, see Marjorie H. Nicolson, "Milton and the *Conjectura Cabbalistica*," *Philological Quarterly* 6 (1927), 1–18; Denis Saurat, *Milton, Man and Thinker* (London: J.M. Dent & Sons Ltd., 1946); R. J. Zwi Werblowsky, "Milton and the *Conjectura Cabbalistica*," *Journal of the Warburg and Courtauld Institutes* 18 (1955), 90–113; and Rosa Flotats, "Milton: *Paradise Lost* and the Question of Kabbalah," http://sederi.org/docs/yearbooks/06/6_6_Flotats.pdf.
9. Nicolson, "Milton and the *Conjectura Cabbalistica*," 1–2.
10. See Frances A Yates, *The Occult Philosophy in the Elizabethan Age* (London: ARK Paperbacks, 1983), pp. 21–22.
11. Karen Silvia de Leon-Jones, *Giordano Bruno and the Kabbalah: Prophets, Magicians and Rabbis* (New Haven and London: Yale University Press, 1997).
12. *Ibid.*, p. 10.
13. *Ibid.*, p. 137.
14. Giordano Bruno, *On Magic*, in Giordano Bruno, *Cause, Principle and Unity and Essays on Magic*, trans. and ed. Richard J. Blackwell and Robert de Lucca (Cambridge: Cambridge University Press, 1998), p. 107.
15. See Frances A. Yates, *Giordano Bruno and the Hermetic Tradition* (London: Routledge and Kegan Paul, 1964); Hilary Gatti,

- The Renaissance Drama of Knowledge* (London and New York: Routledge, 1989).
16. Christopher Hill, *Milton and the English Revolution* (London: Faber and Faber, 1977), pp. 34 and 107.
 17. *Ibid.*, pp. 56 and 76.
 18. Hilary Gatti, *Giordano Bruno and Renaissance Science* (Ithaca and London: Cornell University Press, 1999); Hilary Gatti (ed.), *Giordano Bruno, Philosopher of the Renaissance* (Aldershot: Ashgate Publishing, 2002).
 19. Yates, *Occult Philosophy*.
 20. See Congreve's *The Way of the World*, Act I, scene 1, "last night was one of their cabal-nights."
 21. Howard Dobin, *Merlin's Disciples: Prophecy, Poetry, and Power in Renaissance England* (Stanford, California: Stanford University Press, 1990). See also Peter French, *John Dee: The World of an Elizabethan Magus* (New York: Routledge and Kegan Paul, 1972).
 22. Dobin, *Merlin's Disciples*, p. 8.
 23. *Ibid.*, p. 209.
 24. James Holly Hanford, "'That Shepherd Who First Taught the Chosen Seed,' A Note on Milton's Mosaic Inspiration," *University of Toronto Quarterly* 8 (1939), 403–19; Don Cameron Allen, *The Harmonious Vision: Studies in Milton's Poetry* (Baltimore: Johns Hopkins University Press, 1970); Jason P. Rosenblatt, *Torah and Law in Paradise Lost* (Princeton, N.J.: Princeton University Press, 1994).
 25. Fowler, in his annotations, corrects Bentley's proposed emendation of *secret* to *sacred* pointing out that the top is *secret* anyway as being set apart and concealed by storm clouds. But *secret* here has more than a factual connotation.
 26. William B. Hunter and Stevie Davies, "Milton's Urania: 'The Meaning, Not the Name I Call,'" *The Descent of Urania, Studies in Milton, 1946–1988* by William B. Hunter (Lewisburg: Bucknell University Press, London and Toronto: Associated University Presses, 1989), pp. 31–45, rpt from *Studies in English Literature* vol. 28 (1988), 95–111.
 27. *Ibid.*, p. 33.
 28. Robert Fludd, *Philosophia Moysaica* (Gouda: Peter Rammazen, 1638); *Mosaicall Philosophy: Grounded upon the Essentiall Truth, or Eternal Sapience. Written first in Latin, and afterwards thus rendered into English...* (London: Humphrey Moseley, 1659). See also Stanton J. Linden (ed.), *The Alchemy Reader, From Hermes Trismegistus to Isaac Newton* (Cambridge: Cambridge University Press, 2003), p. 191.
 29. Linden, *The Alchemy Reader*, p. 192.

30. Joscelyn Godwin, *Robert Fludd, Hermetic Philosopher and Surveyor of Two Worlds* (London, Thames and Hudson Ltd., 1979), p. 24.
31. *Ibid.*, p. 90.
32. *Ibid.*, p. 17. From Fludd, *Philosophia Moysaica*, p. 304.
33. While the immediate source of this passage appears to be the “candle of the Lord” of the Cambridge Platonists, the Cambridge Platonists—Benjamin Whichcote, Nathanael Culverwel, John Smith, and others—were themselves well-versed in the Cabala.
34. Leon Jones, *Giordano Bruno and the Kabbalah*, p. 45.
35. Mindele Anne Treip, “‘Celestial Patronage’: Allegorical Ceiling Cycles of the 1630s and the Iconography of Milton’s Muse,” in *Milton in Italy: Contexts, Images, Contradictions*, ed. by Mario A. Di Cesare (Binghamton, New York: Medieval & Renaissance Texts & Studies, 1991), pp. 237–77.
36. See John Rogers, *The Matter of Revolution: Science, Poetry, and Politics in the Age of Milton* (Ithaca and London: Cornell University Press, 1996).
37. *Ibid.*, p. 10.
38. *Ibid.*, p. 9.
39. Michael Lieb, “Encoding the Occult: Milton and the Traditions of *Merkabah* Speculation in the Renaissance,” in *Milton Studies*, ed. by Albert C. Labriola, vol. XXXVII (Pittsburgh: University of Pittsburgh Press, 1999), pp. 42–88.
40. *Ibid.*, pp. 75–77.
41. Jonathan Goldberg and Stephen Orgel (eds.), *John Milton, A Selection of his Finest Poems* (Oxford: Oxford University Press, 1994), p. xi.

3 “UNORIGINAL NIGHT” AND MILTON’S CHAOS

1. John Leonard, “Milton, Lucretius, and ‘the Void Profound of Unessential Night,’” in *Living Texts: Interpreting Milton*, ed. Kristin A. Pruitt and Charles W. Durham (Selvingrove: Susquehanna University Press, 2000), p. 199.
2. *Ibid.*, p. 202.
3. Edgar H. Duncan, “Robert Fludd,” in William B. Hunter, Jr., *A Milton Encyclopedia* (Lewisburg: Bucknell University Press, 1978), vol. 3, pp. 109–10.
4. Leonard, “Milton, Lucretius, and ‘the Void Profound of Unessential Night,’” p. 208.
5. Robert M. Adams, “A Little Look into Chaos,” in *Illustrious Evidence: Approaches to English Literature of the Early Seventeenth Century*, ed. Earl Miner (Berkeley: University of California Press, 1975), p. 76.

6. A. S. P. Woodhouse, "Notes on Milton's Views on the Creation: The Initial Phase," *Philological Quarterly* 28 (1949), 229.
7. Kristin A. Pruitt and Charles W. Durham (eds.), *Living Texts: Interpreting Milton* (Selingsgrove: Susquehanna University Press, 2000), p. 220. See also John Rumrich, *Milton Unbound* (Cambridge: Cambridge University Press, 1996).
8. John Rumrich, "Milton's God and the Matter of Chaos," *PMLA* 110 (1995), 1043.
9. Leonard, "Milton, Lucretius, and 'the Void Profound of Unessential Night,'" pp. 204–206.
10. Juliet Lucy Cummins, "Milton's Gods and the Matter of Creation," *Milton Studies* XL (Pittsburgh: University of Pittsburgh Press, 2002), p. 96.
11. *Ibid.*, p. 86.
12. Regina M. Schwartz, *Remembering and Repeating: Biblical Creation in Paradise Lost* (Cambridge: Cambridge University Press, 1988), p. 11.
13. *Ibid.*, p. 35.
14. A. B. Chambers, "Chaos in *Paradise Lost*," *Journal of the History of Ideas* vol. xxiv (1963): 55–84.
15. Michael Lieb, "Further Thoughts on Satan's Journey through Chaos," *Milton Quarterly* 12 (Ohio, 1978), pp. 126–33.
16. The *OED*, giving the meaning of "unoriginal" as "having no origin" or "uncreated," cites this passage.
17. Denis Saurat, *Milton: Man and Thinker*, 2nd ed. (London: J. M. Dent, 1944), section 3, chapter 1.
18. Chambers, "Chaos in *Paradise Lost*," p. 55.
19. Cummins, "Milton's Gods and the Matter of Creation," p. 85.
20. See Joscelyn Godwin, *Robert Fludd: Hermetic Philosopher and Surveyor of Two Worlds* (London: Thames and Hudson, 1979), p. 24.
21. *Ibid.*
22. *Ibid.*, p. 25.
23. Shirley Sharon-Zisser, "Silence and Darkness in *Paradise Lost*," in *Milton Studies* ed. by James D. Simmonds, vol. 25 (Pittsburgh: University of Pittsburgh Press, 1989), pp. 191–211.
24. Alastair Fowler (ed.), *Milton, Paradise Lost* (Harlow: Addison Wesley Longman Limited, 2nd ed., 1998), points out in his gloss on the lines that the Latin *aborior* means to set or disappear as applied to heavenly bodies.
25. Mary F. Norton, "'The Rising World of Waters Dark and Deep': Chaos Theory and *Paradise Lost*," *Milton Studies* XXXII (Pittsburgh: University of Pittsburgh Press, 1995), pp. 91–110.
26. Cummins, "Milton's Gods and the Matter of Creation," p. 85.
27. *Ibid.*, p. 89.

28. Leonard, "Milton, Lucretius, and 'the Void Profound of Unessential Night,'" p. 206.
29. *Ibid.*, p. 207.
30. John Rumrich, "Of Chaos and Nightingales," in Pruitt and Durham *Living Texts*, pp. 224–26.
31. Rumrich, *Milton Unbound*, p. 119.
32. Leonard, "Milton, Lucretius, and 'the Void Profound of Unessential Night,'" p. 207.
33. Rumrich, "Of Chaos and Nightingales," p. 219.
34. Marilyn R. Farwell, "Eve, the Separation Scene, and the Renaissance Idea of Androgyny," *Milton Studies* XVI (Pittsburgh: University of Pittsburgh Press, 1982), p. 5.
35. Helene Cixous, "Sorties," reprinted in David Lodge (ed.), *Modern Criticism and Theory* (London and New York: Longman, 1988), pp. 287–93.
36. Thomas Digges, *A Perfit Description of the Caelestiall Orbes in A Prognostication Everlasting* pub. by Leonard Digges, corrected and augmented by Thomas Digges, 1576 (Amsterdam and Norwood, N.J.: Theatrum Orbis Terrarum Ltd. & Walter J. Johnson, Inc., 1975).

4 "THIS PENDENT WORLD": THE
COSMOS OF *PARADISE LOST*

1. Edmund Burke, *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and the Beautiful*, ed. J. T. Boulton (Oxford: Oxford University Press, 1958, rpt 1990), p. 59.
2. John Leonard, "Milton, Lucretius, and 'the Void Profound of Unessential Night,'" in *Living Texts: Interpreting Milton*, ed. Kristin A. Pruitt and Charles W. Durham (Selingrove: Susquehanna University Press, 2000).
3. Implicit in the Copernican system was the suggestion of infinite space, later emphasized by Digges, Bruno, and others, while the Danish astronomer, Tycho Brahe, was the first to dispense with the notion of solid orbs.
4. For an account of these early developments, see J. L. E. Dreyer, *A History of Astronomy from Thales to Kepler* (New York: Dover Books, 1953).
5. On the etymology, see Alastair Fowler, *Milton, Paradise Lost* (Harlow: Longman, Ltd. 2nd ed., 1998), p. 267.
6. *Ibid.*, p. 201.
7. Harinder Singh Marjara, *Contemplation of Created Things: Science in Paradise Lost* (Toronto, Buffalo, London: University of Toronto Press, 1992), p. 190.
8. See chapter five.

9. Compass points have a critical role to play in William Blake's *Vala, or the Four Zoas*. Remembering that Milton was, for Blake, the most important poet, it is possible to suggest that Blake had a clearer understanding of Milton's epic than Romanticists assume.
10. See *Genesis*, ii 8.
11. See Fowler, *Milton, Paradise Lost*, p. 229.
12. See, e.g., Peter Heylyn, *Cosmography* (London, 1652).
13. Fowler, *Milton, Paradise Lost*, p. 35.
14. Marjara, *Contemplation of Created Things*, p. 207.
15. John Rogers, *The Matter of Revolution: Science, Poetry and Politics in the Age of Milton* (Ithaca and London: Cornell University Press, 1996).
16. James H. Hanford, "Dr. Paget's Library," in *Bulletin of the Medical Library Association* 33.1 (1945), 90–99.
17. Rogers, *The Matter of Revolution*, p. 107.
18. *Ibid.*, p. 119.
19. Christopher Kendrick, *Milton: A Study in Ideology and Form* (New York: Methuen, 1986), p. 180.
20. See Walter Pagel, *Joan Baptista Van Helmont: Reformer of Science and Medicine* (Cambridge: Cambridge University Press, 1982), pp. 79–86.
21. See David Mulder, *The Alchemy of Revolution: Gerrard Winstanley's Occultism and Seventeenth-Century English Communism* (New York: Lang, 1990).
22. See chapter seven.

5 "THE VISIBLE DIURNAL SPHERE":
SPACE AND TIME

1. Maura Brady, "Space and the Persistence of Place in *Paradise Lost*," *Milton Quarterly* vol. 41, no. 3 (October 2007), 167–82.
2. For the relevance of alchemy in Milton's depiction of the cosmos, see chapter nine.
3. Brian P. Copenhaver, "Jewish Theologies of Space in the Scientific Revolution: Henry More, Joseph Raphson, Isaac Newton and their Predecessors," *Annals of Science* 37 (1980), 489–548.
4. See Joscelyn Godwin, *Robert Fludd, Hermetic Philosopher and Surveyor of Two Worlds* (London: Thames and Hudson Ltd., 1979), pp. 21–23.
5. See Deborah E. Harkness, *John Dee's Conversations with Angels: Cabala, Alchemy, and the End of Nature* (Cambridge: Cambridge University Press, 1999), pp. 73–77.
6. Stephen Hawking, *On the Shoulders of Giants: The Great Works of Physics and Astronomy* (Cambridge: Running Press, Perseus Books L.L.C, 2003), p. 632.

7. See Rolf Willach, "The Development of Telescope Optics in the Middle of the Seventeenth Century," *Annals of Science*, vol. 58, no. 4 (October 2001), 381–98.
8. Angelica Durran, *The Age of Milton and the Scientific Revolution* (Pittsburgh, Penn: Duquesne University Press, 2007), p. 281.
9. Johnson F. R. Johnson, *Astronomical Thought in Renaissance England* (Baltimore: The Johns Hopkins Press, 1937; rpt New York: Octagon Books, 1968), p. 27.
10. Harinder Singh Marjara, *Contemplation of Created Things: Science in Paradise Lost* (Toronto: University of Toronto Press, 1992), p. 78.
11. Hilary Gatti, *Giordano Bruno and Renaissance Science* (Ithaca and London: Cornell University Press, 1999), p. 128.
12. *Ibid.*, p. 134.
13. Thomas Digges, *A Perfit Description of the Caelestiall Orbes*, in *A Prognostication Everlasting*, pub. by Leonard Digges, corrected and augmented by Thomas Digges, 1576 (Amsterdam and Norwood, N.J.: Theatrum Orbis Terrarum Ltd. & Walter J. Johnson, Inc., 1975).
14. See Bernard Capp, *Astrology and the Popular Press: English Almanacs 1500–1800* (London and Boston: Faber and Faber, 1979).
15. Johnson, *Astronomical Thought*, pp. 168–69, believes that Bruno may have been influenced by Digges's diagram.
16. Hawking, *On the Shoulders of Giants*, pp. 4–5.
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6 SATAN AND ASTRONOMICAL SIGNS

A previous version of this chapter originally appeared in Malabika Sarkar, "Astronomical Signs in *Paradise Lost*: Milton, Ophiucus and the millennial debate," pp 82–95 in Juliet Cummins (Ed) *Milton and the Ends of Time* © Cambridge University Press 2003.

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