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0521017483 - Milton and the Natural World: Science and Poetry in Paradise Lost

Karen L. Edwards

Excerpt

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John Milton gives his Adam and Eve what he no longer had when he created them – sight. Unlike their author, Adam and Eve *can* read the “book of knowledge fair”; for them, “wisdom at one entrance” is *not* “shut out.” For him, the pain of the loss perhaps never fully abated. The near-sonnet embedded in the invocation to light in book III of *Paradise Lost* does not permit the easy consolation that sight is well lost for insight.

Thus with the year
Seasons return, but not to me returns
Day, or the sweet approach of even or morn,
Or sight of vernal bloom, or summer’s rose,
Or flocks, or herds, or human face divine;
But cloud in stead, and ever-during dark
Surrounds me, from the cheerful ways of men
Cut off, and for the book of knowledge fair
Presented with a universal blank
Of nature’s works to me expunged and razed,
And wisdom at one entrance quite shut out.
So much the rather thou celestial Light
Shine inward, and the mind through all her powers
Irradiate, there plant eyes, all mist from thence
Purge and disperse, that I may see and tell
Of things invisible to mortal sight. (PL, III.40–55)¹

The passage turns, as the poem turns, upon God’s ability to bring light out of darkness. But the anguish of having to endure the interval of darkness is given full expression; the turn to consolation is almost unbearably delayed until line 51, and the full stop after “shut out” which precedes it is grim in its finality. In this passage as elsewhere in Milton’s works, grief for the loss of sight is unmistakable. If the grief were not profound, the consolation would be superficial. *Expunged* and *razed* are violent words; faith that wisdom will find another entrance coexists with the grievous pain of having lost *this* entrance.

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But Adam and Eve, blessed in the “open sight / Of day-spring,” sing their morning hymn as the sun’s light declares (makes both bright and knowable) the landscape of Eden (*PL*, v.138–39). They articulate what the created world declares, God’s “goodness beyond thought, and power divine” (*PL*, v.159). As Milton represents it in *Paradise Lost*, the newly created world is indeed a book to be read for pleasure and instruction. The book is fair, but it is also demanding, its sense sometimes plain but more often obscure. It could not be otherwise and be of its historical moment. Knowing how to know and represent the natural world was a highly complex undertaking in the middle decades of the seventeenth century. In terms of scientific knowledge, the world was turning upside down; the old philosophy was beginning to give way to the new, though raggedly and reluctantly. The central argument of this book is that in its representation of the creatures of the natural world, *Paradise Lost* precisely registers the complex historical moment of its making. By the time Milton began to write his epic, the stock of plant and animal lore derived from classical and biblical antiquity, the Middle Ages, and the earlier Renaissance (lore that was familiar, densely elaborated, and symbolically rich) had begun to be measured against the experiential knowledge that his contemporaries were rapidly gaining and which more often than not confuted the old lore. Yet the critical literature has been largely silent about the ways in which Milton’s representation of a concretely imagined garden of Eden might have been affected by the experiences and experiments of the new philosophers. That is the question my book explores. *How* to read the book of knowledge had become the subject for passionate debate in Milton’s day; I will argue that it is a debate which *Paradise Lost* fully and knowledgeably joins.

When fit readers open the book of the world that Milton has represented in the poem, they find a text in which the discourses of the old and new philosophies mingle and cohabit. Michel Foucault designates the waning of the old and the waxing of the new as a shift of episteme. His *The Order of Things* is perhaps the most suggestive and the most problematic of the many attempts to describe the change from a pre-scientific to a scientific mentality in the seventeenth century.² Foucault’s approach is avowedly synchronic: he sets the two epistemes next to each other, as it were, and how they manage at their historical intersection does not interest him. His concern is with discontinuity (a reaction, Roger Chartier argues, against those who would produce a universalizing philosophy of history), and so he exaggerates rupture. *Paradise Lost* is located just at that juncture of epistemes which Foucault’s “archaeological”

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approach disregards. More useful than rupture and discontinuity for understanding the poem is what Pierre Bourdieu calls “lag” and Chartier explains as the “time to understand.”³ They are referring to the time taken by a population to recognize and respond to a changed material condition, but the term may usefully be applied to the time taken by a population to recognize and respond to a changed epistemological condition. Lag points to that period when old and new ways of knowing promiscuously mingle. It furnishes a corrective to overdependence on a notion often attributed to Foucault: the notion of “competing” discourses, oppositional discourses whose collision produces fissures in the text. Locating discursive oppositions and fissures is a valuable antidote to construing a text as smoothly homogeneous, but an exclusive interest in rupture allows the poet’s strategies for assimilating, reconciling, and re-ordering heterogeneous material to escape attention. Those strategies in *Paradise Lost* are remarkably sophisticated and fully developed, as we will see in parts two and three. This may be because Renaissance poetics possessed a powerful model for reconciling heterogeneity in its fusing of classical and biblical material – though the extent to which such material was *perceived* as being heterogeneous is itself open to question. The merging of classical and Christian elements was not, in any case, a merger of equals; Christianity was the controlling discourse, and classical material was molded to fit the shape of the biblical material. So, too, there is a controlling discourse in Milton’s fusing of the old and new philosophies, and it is the *latter*, I will argue. Milton is on *this* side of modernity.

My project is thus in vigorous disagreement with the method and conclusions of Kester Svendsen’s *Milton and Science*, which established the critical tradition relegating Milton to scientific backwardness:⁴

it is the old science, rather than the new, which bulks large in Milton, despite his spectacular allusions to Galileo and his interest in some elements of the new cosmology. Donne made much of the “new philosophy” but Milton very little. Most of his science is traditional and conventional, a literary as well as scientific commonplace.⁵

If the Yale edition of Milton’s prose and the biography by William Parker may be taken as signs, Svendsen’s has become the orthodox view. In his introduction to the first volume of the *Complete Prose Works*, Don Wolfe asserts that Milton was “essentially unaware of the endless potentialities of the scientific method.”⁶ William Parker, summing up the significance of Milton’s life and work, states that “he exhibited but slight

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awareness of the world-shaking scientific discoveries of his time.”⁷ It is an astonishing claim, that Milton was innocent of the knowledge of a fundamental feature of his historical time and place. Yet Svendsen’s view has prevailed for forty years.

Two main points need to be made about Svendsen’s conclusions. Even lag cannot explain how a man writing in 1650 could hold purely Elizabethan attitudes toward the natural world. Such an assertion requires a theory of historical anachronism to justify itself. Second, by assuming that Milton’s allusions to the lore of the old philosophy indicate a bland endorsement of it, Svendsen promulgates a thin reading of *Paradise Lost*. So, he reasons, because fallen angels are turned into amphisbaenas in book x of *Paradise Lost*, Milton must therefore believe in the existence of two-headed snakes. But science does not lie on the surface of *Paradise Lost* in the form of facts (or myths); it must be sought in a close reading of the poem.⁸ My book argues, contrary to Svendsen, that Milton’s depiction of Edenic plants and animals is cognizant of the century’s new experience of the natural world, experience which derived from Europeans’ travel in Asia, Africa, and the Americas, from the observations of natural historians, from the accessibility of creatures alive or dried, and from the circulation of illustrated books. This experience subtly shapes the poem’s representations and directs the way they function in the poetry. Yes, there *are* amphisbaenas in Milton’s poem, but (as we will see in chapter 4) they are signs of the *misconstruing* of the created world. In Svendsen’s essentially ahistorical treatment of it, the poem becomes a monument to scientific backwardness.

Several recent studies have begun to contest Svendsen’s claims, studies placing Milton in the context of contemporary philosophical debates. Stephen Fallon has looked at Milton’s conception of the nature of matter in *Milton among the Philosophers*.⁹ He concludes that Milton’s monistic version of animist materialism is “a response to an urgent philosophical debate” being waged, on the one hand, by mechanistic contemporaries such as Hobbes and Descartes, and on the other, by the Cambridge Platonists.¹⁰ In *The Matter of Revolution*, John Rogers argues that the philosophy of monistic vitalism emerging at the mid-century, with its emphasis upon “agency” and “organization,” supported the development of social and political liberalism in writers such as Milton, Marvell, and Cavendish.¹¹ Harinder Marjara’s *Contemplation of Created Things: Science in “Paradise Lost,”* which answers Svendsen by way of Thomas Kuhn, construes the scientific perspective of the poem as being inconsistently rather than consistently old-fashioned.¹² Milton, argues

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Marjara, chooses in a given instance what is most useful from among the many paradigms for understanding the natural world that were available to him in the middle of the century. Fallon, Rogers, and Marjara provide a welcome opposition to Svendsen's picture of a scientifically outmoded Milton. They are concerned with Milton's natural *philosophy*, however, and the study of plants and animals in the seventeenth century belongs to natural *history*.

The distinction has its roots in classical antiquity and corresponds roughly to the difference in approach between Aristotle and Pliny. "The Plinian ideal of natural history," remarks Phillip Sloan,

intended it to be a collection of reports on all topics, particularly those of detail about natural objects . . . Natural history, conceived in these terms, has less the character of organised scientific inquiry than that of an empirical data base for such inquiry. The theory and method of science, pursued primarily in antiquity by Aristotle and Galen, which sought a causal understanding through philosophical principles, was not properly a concern of the early natural histories.¹³

The natural histories of the late Renaissance took as their model Pliny's expansive, practical, summarizing mode. Precisely because they developed initially as natural history rather than as natural philosophy – as encyclopedic collections of heterogeneous "facts" rather than as the systematic study of causality – botany and zoology took their modern forms relatively late.¹⁴ Fallon, Rogers, and Marjara are not concerned with the new natural history of the period and its impact on Milton's depiction of paradise. Fallon's interest in the contemporary context of Milton's ontology leads him to concentrate not on the representation of Edenic materiality but on the "philosophical" War in Heaven. Marjara is chiefly concerned with Milton's imagining of a universal system, which entails a concentration on cosmology. Neither Fallon nor Marjara analyzes the specific *poetic* effects which embody Milton's science. Rogers does so, though he is interested not in Adam and Eve's paradisaic environment, but rather in the poem's rendering of images of social and political organization.

When we take seriously the proposition that the natural world in *Paradise Lost* has been represented as a book of knowledge, then we will regard its depictions of insects and cedar trees, roses and leviathans, as worthy of close study and alive with meaning. These are *not* the meanings that the old emblematic tradition offers; they cannot be epitomized; they are not exhausted with one reading, or even several. In the middle decades of the seventeenth century, the astounding complexity of living organisms was becoming ever more apparent to experimental

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philosophers. Milton has so written the book of the world that its creatures, too, ask for and respond to continual re-reading and re-thinking. They disclose new beauty and new intricacy each time they are revisited. As Milton represents it in *Paradise Lost*, God's "other book" offers, as the poet believed the Bible did, a source of never-ending pleasure for the reader who meditates on it day and night. That the mysterious heavens should offer such interpretive pleasure is not surprising; that lemon balm or crocodiles might do so *is* surprising. There is, indeed, a longstanding critical fascination with the astronomy of *Paradise Lost*. An earlier generation of critics declared it to be advanced (the only part of Milton's science to be so praised).¹⁵ There was perhaps a kind of analogy operating between the lofty status of astronomy among the sciences and the high cultural status of Milton among English poets. As Carlo Ginzburg has observed, traditional beliefs about the heavens were sustained by symbolic, theological, and political assumptions about the "high" and the forbidden.¹⁶ Milton's avowed poetic aim, "[t]hat with no middle flight intends to soar / Above the *Aonian* mount" (*PL*, 1.14–15), and his position in English literature make very attractive the wish to claim him for the new astronomy. The crown of revolutionary heroism, moreover, belongs to those who defy the forbidders; pairing Milton and Galileo compliments both. It may be time now to redress the imbalance in favor of the "high" – as the seventeenth century itself was doing. The telescope was revealing new worlds to the eye, but so was the microscope. The microscope not only validated anew the worth of the humblest creeping thing; more generally, it reinforced the value of observing the ordinary flora and fauna with which humanity shares the earth.

Criticism has assigned a negligible role to seeing the physical world in Milton's representation of Eden.¹⁷ It has assigned only slightly more significance to seeing images of the physical world. It is possible that critics have unconsciously attributed proleptic effects to Milton's blindness; surely few would agree with T. S. Eliot's assumption of its symbolic or aesthetic appropriateness. ("Milton may be said never to have seen anything."¹⁸) It is more likely, as Christopher Hill has argued, that Milton's status as artist and scholar has led critics "to look exclusively to literary sources for his ideas."¹⁹ Due in large part to Hill's influence, this critical situation has now changed; scholarship has become increasingly interested in the turbulent political and religious debates carried on by radical groups in Milton's day. But interest in the visual as another opposition to the literary has still not received much attention. R. M. Frye's *Milton's Imagery and the Visual Arts* was until recently the major exception

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to this rule.²⁰ His approach, however, remains firmly within the tradition of scholarly high culture that Hill criticizes: Fry compares the allusions in *Paradise Lost* to “an extensive vocabulary of visual imagery relating to sacred subjects” developed over centuries.²¹ Diane McColley’s *A Gust for Paradise: Milton’s Eden and the Visual Arts* serves as a corrective to what she describes as Fry’s failure to treat the Fall “as a violation of a good creation whose repair is part of the process of regeneration.”²² Accordingly, McColley’s study investigates the relationship between Milton and those other artists who have depicted “an energetic ‘state of innocence’” and elaborated the “topos of original righteousness.”²³ By thus defining their approach as the investigation of sacred or high art and its relationship to Milton, both Fry and McColley exclude from consideration what is arguably the most important feature of representing the natural world in Milton’s day: its *separation* from a tradition of representing sacred subjects.

We must not underestimate the hunger of the seventeenth century to *know what things looked like*. Some of the representations and descriptions circulating in Milton’s day, like those in Robert Hooke’s *Micrographia*, were what we would now call “scientific.”²⁴ Others were not, like those which Thomas Browne considers in book v of *Pseudodoxia Epidemica*, “*Of many things questionable as they are commonly described in Pictures*.”²⁵ A distinction between the “scientific” and the “popular” is one that the seventeenth century did not yet make, although Browne regards traditional renditions of the creatures with some amusement and the occasional flash of exasperation. But he and his contemporaries regard with unalloyed excitement the wonders being discovered by macro- and microscopical observers. The illustrations in *Micrographia* demonstrated to seventeenth-century readers an astounding beauty in even the humble mite (fig. 1). Moreover, it was beauty fresh and unexpected, beauty never seen before on earth. Viewers of the book’s engravings were able to share in the sense of astonishment and exhilaration that Hooke expresses in his preface:

*By the means of Telescopes, there is nothing so far distant but may be represented to our view; and by the help of Microscopes, there is nothing so small, as to escape our inquiry; hence there is a new visible World discovered to the understanding. By this means the Heavens are open’d, and a vast number of new Stars, and new Motions, and new Productions appear in them, to which all the antient Astronomers were utterly Strangers. By this the Earth it self, which lyes so neer us, under our feet, shews quite a new thing to us, and in every little particle of its matter, we now behold almost as great a variety of Creatures, as we were able before to reckon up in the whole Universe it self.*²⁶

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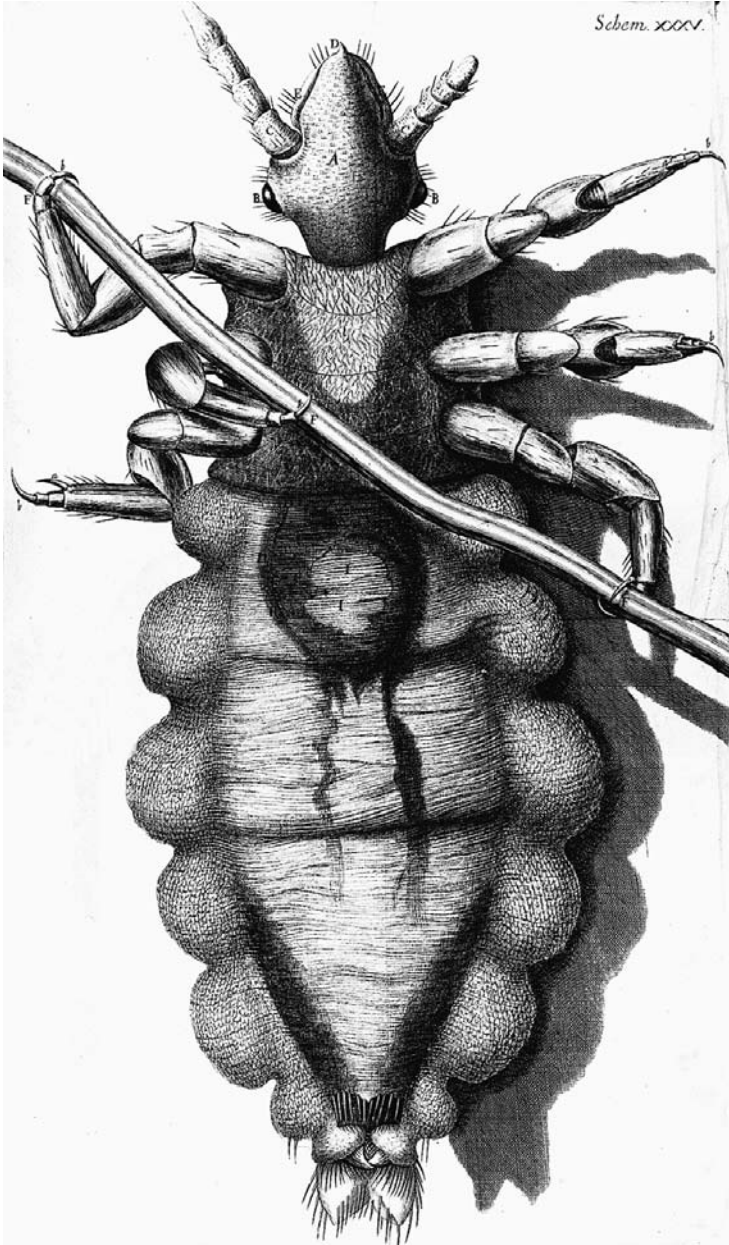
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1 Mite, from *Micrographia* (1665) by Robert Hooke; “by the help of Microscopes . . . a new visible World discovered to the understanding.”

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At the conclusion of the preface, Hooke affects modesty in presenting his “little Objects” to the world:

hoping also, that I should thereby discover something New to the World, I have at length cast in my Mite, into the vast Treasury of A Philosophical History. And it is my hope, as well as belief, that these my Labours will be no more comparable to the Productions of many other Natural Philosophers, who are now every where busie about greater things; then my little Objects are to be compar'd to the greater and more beautiful Works of Nature, A Flea, a Mite, a Gnat, to an Horse, an Elephant, or a Lyon.²⁷

But the pun on “mite” with its allusion to the biblical story of the widow’s offering (Mark 12.42–44) indicates that Hooke knows very well the surpassing value of what he offers to his readers. *Micrographia* is a feast for the sense of sight and a celebration of its power. Hooke expresses the hope in his preface that “*there may be found many Mechanical Inventions to improve our other Senses, of hearing, smelling, tasting, touching,*” but the need for hope suggests how far sight was already outstripping the other senses as the surest way to discover the world.²⁸ Milton did not need to have looked through the lenses of a microscope to be aware of the age’s intense desire to see and know, and to feel again the anguish of being presented with a universal blank.

It is entirely characteristic of the mid-seventeenth century that Hooke should assert the value of his undertaking by linking his new observations of creatures to the Bible by way of a play on words. Excitement at the prospect of a natural world infinitely richer and more complex than had before been imagined, abiding engagement with modes of reading the sacred text, and delight in the way words play with each other – these features are constantly in evidence when we consider not only Milton’s treatment of the natural world but that of his experimentalist contemporaries. My project allies itself with those studies which embrace the implications of what has always been maintained about the early modern period: that it is artificial and misleading to separate poetry from other disciplines. Exploring the implications of this intellectual seamlessness for Milton’s poetry means looking at *Paradise Lost* in its relationship to seventeenth-century natural history and the work of such contemporaries as Thomas Browne, Robert Boyle, John Evelyn, and Robert Hooke. My book offers a counter version to the critical tradition that compares Milton’s “encyclopedic” epic solely to literary and theological encyclopedias (i.e., hexameral poems and patristic and Renaissance commentaries on Genesis). New *kinds* of encyclopedias were reflecting the new interests of the experimental philosophers – among them, illustrated natural histories, herbals, atlases, curiosity

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cabinets and their catalogs, botanical gardens, and menageries. I will argue that *Paradise Lost*, while not ignoring the learning of the traditional encyclopedias, nonetheless fully acknowledges the new encyclopedias in its depiction of plants and animals. Milton would have considered it the duty of a writer of epic to embrace *all* the learning of his day, even if some of it was in the process of being discredited and some of it was still highly speculative.

The old emblematic natural history is indeed present in *Paradise Lost*; Svendsen is not mistaken to point to it. But it is not given the poem's representational endorsement. The old science is invariably invoked for the less interesting, and less demanding, interpretive option. Its presence in the poem is often marked by sly humor, its inclusion carried out in such a way as to incorporate an acknowledgment of its unreliability. At the same time, the poem consistently makes available new representational possibilities suggested by the experimental philosophy, and it does so with excitement, wit, and creative relish. What I see as the mark of experimentalism upon the poem's depiction of a creature is this: the necessity for a reader's imaginative engagement in the process of making meaning. This is, in part, because experimentalism in the mid-seventeenth century tends to open areas of uncertainty rather than to establish certainties; more precisely, it opens up areas of *scientific* uncertainty which are *poetically* liberating. Again and again in the poem, Milton's representation of creatures allows a reader to find meaning in that space between old certainties partially eroded and new uncertainties beginning to emerge. When Adam and Eve – and the fit reader – turn to the book of the world that Milton has represented in *Paradise Lost*, they find a text of glorious and meaningful “verses” which can be formed into a pattern, and then recombined to form another. To think in terms of a kaleidoscope rather than of two sharply delimited paradigms helps one avoid the danger of construing a Milton untouched by the constraints of his historical moment, whether manifested in a free choice between paradigms or in complete ignorance of one of them.

To find “science” in *Paradise Lost*, it is necessary to look very closely at the way the poetry works. Such a thing as a survey of the poem's entire natural history is therefore not possible, and I have chosen a number of crucial representations to focus on in part one, which deals with animals, and part two, which deals with plants. Before we turn to specific representations, however, we need to think in more detail about how fit readers of the seventeenth century set about reading the book of the