

MILTON AND THE
NATURAL WORLD

Science and Poetry in *Paradise Lost*

KAREN L. EDWARDS



CAMBRIDGE
UNIVERSITY PRESS

PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE
The Pitt Building, Trumpington Street, Cambridge, United Kingdom

CAMBRIDGE UNIVERSITY PRESS
The Edinburgh Building, Cambridge CB2 2RU, UK <http://www.cup.cam.ac.uk>
40 West 20th Street, New York, NY 10011-4211, USA <http://www.cup.org>
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

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First published 1999

Printed in the United Kingdom at the University Press, Cambridge

Typeset in Monotype Baskerville 11/12½ pt. [SE]

A catalogue record for this book is available from the British Library

Library of Congress cataloguing in publication data

Edwards, Karen L.

Milton and the Natural World: Science and Poetry in *Paradise Lost* / Karen L. Edwards.

p. cm.

Includes bibliographical references and index.

ISBN 0 521 64359 7 (hb)

1. Milton, John, 1608–1674. *Paradise Lost*. 2. Literature and science – England – History – 17th century. 3. Milton, John, 1608–1674 – Knowledge – Natural History. 4. Milton, John, 1608–1674 – Knowledge – Science. 5. Science in literature. 6. Nature in literature. I. Title.

PR3562.E39 1999

821'.4–dc21 99-11230 CIP

ISBN 0 521 64359 7 hardback

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CHAPTER ONE

Corrupting experience: Satan and Eve

Experience, next to thee I owe,
Best guide; not following thee, I had remained
In ignorance, thou open'st wisdom's way,
And giv'st access, though secret she retire.

(*PL*, ix.807–10)

That Eve praises experience almost immediately after she eats the forbidden fruit has suggested to many readers that Milton intended to criticize experience as a route to wisdom. Stanley Fish argues that the form of Satan's temptation is to invite Eve to "taste of his experience."¹ She accepts and subsequently makes the same offer to Adam: "On my experience, Adam, freely taste" (*PL*, ix.988). Fish comments: "The value Eve finds in experience (things seen) is the value she assigns to it, and that will be whatever she wants it to be. Experience is only a word for what happens to reality when it is filtered through the medium of time and space – Man's medium not God's."² Georgia Christopher reads the whole of Eve's temptation scene as "a contest between the words of God and almost everything that goes under the rubric of 'experience.'"³ For Linda Gregerson, more recently, "'experience' is by this point in Milton's poem another name for the devil"; it is an "idol [Eve] erects as an instrument for and testament to self-creation."⁴

Yet even these round condemnations are tempered by an awareness that Eve has been persuaded to accept from Satan a debased and straitened version of experience, and this is what she praises. Georgia Christopher explains that Eve ought to have discounted her "new experience" (being flattered by a beautiful serpent) in the face of her "previous experience with God's word."⁵ Indeed, the premise of Christopher's book is that experience is the proving ground for Milton's Reformed hermeneutics: "faith becomes a 'poetic' activity – a passionate reading of a divine text . . . followed by a reading of experience through this text."⁶ Linda Gregerson's thesis, that "*The Faerie Queene* and *Paradise Lost* are

devices for the formation, and reformation, of subjects," is also dependent upon a notion of experience as leading to growth in understanding.⁷ The subjects to be reformed are readers in and readers of the poem. It is the experience of reading, Gregerson maintains, that effects their reformation.

Experience is in fact a concept indispensable to most critical studies of Milton's work. Historical and biographical studies assume that Milton's intellectual, political, and spiritual development occurs in response to his lived experience. Thematic and reader-response approaches assume that the experience of reading his poems instructs and enlightens the reader. Generic and formalistic studies assume that Milton becomes more experienced and hence more skillful in his handling and adaptation of poetic and rhetorical modes.⁸ Virtually any study of Milton's work, that is, which considers the manifestation of change over time (whether articulated as growth, development, rupture, revision, or response, on the part of author, character, or reader) assumes that experiencing leads to knowing. Yet scholars have dismissed Eve's praise of experience at the Tree of Knowledge as necessarily culpable. It may be that this contradictory critical stance results from post-Victorian discomfort with the term itself, tainted with suggestions of illicit sexuality when used of a woman. It is more likely that critics who condemn Eve's reliance upon experience have simply assumed that the term denotes that which is limited, ephemeral, and hence trivial, when Eve clearly ought to be concerned with that which is infinite, eternal, and essential. Such an implicit condemnation is unwarranted: historically, experience has played a complex and powerful role in theories about the gaining of knowledge. It is true that Eve is misguided in praising her experience at the Tree of Knowledge, but it is not true that praising experience is always, necessarily, misguided.

We need to begin with a basic question: what is it that Satan persuades Eve to call "experience"? The question has historical implications. At a moment in the seventeenth century when the very concept of "the natural" was being turned upside down, Milton represents Eve's experience as being fully involved in the natural world. She plucks fruit from a tree and consumes it, at the behest of a serpent, in a paradisaical garden. In the context of this depiction of the natural world, the term *experience* unmistakably gestures toward the new, or experimental, philosophy. This philosophy, notes Robert Boyle in an observation which is repeated *ad infinitum* in his own and his contemporaries' writings, "is built upon two foundations, reason and experience."⁹

Experience in its modern guise, experiment, has become virtually synonymous with the scientific revolution. Eve's postlapsarian paean to "experience," in short, is not *historically* innocent.

Experience, next to thee I owe,
Best guide; not following thee, I had remained
In ignorance, thou open'st wisdom's way,
And giv'st access, though secret she retire. (PL, ix.807–10)

If the experience Eve praises were identical to the experience endorsed by the new philosophers, then Kester Svendsen would be right about Milton's scientific backwardness. Implicating the new experimental methodology in the fall of humankind would certainly be a clear mark of Miltonic disapproval. But Eve's experience is *not* that sort of experience.

Stanley Fish is one of a very few critics to connect Eve's experience at the Tree with the "experience" of the new philosophy. He makes the connection with characteristic élan but fails to develop its rich implications. As Christopher and Gregerson do, Fish holds that the experience of reading *Paradise Lost* is intended to reform the reader. He, too, acknowledges that the experience which Eve accepts from Satan is a diminished thing. However, unlike Christopher and Gregerson, Fish is willing to name the experience Satan offers: it is, he says, "empirical science."¹⁰ He thus paraphrases Satan's proposition: "Do not believe what science does not affirm."¹¹

O sacred, wise, and wisdom-giving plant,
Mother of science, now I feel thy power
Within me clear, not only to discern
Things in their causes, but to trace the ways
Of highest agents, deemed however wise.
Queen of this universe, do not believe
Those rigid threats of death; ye shall not die:
(PL, ix.679–85)

"The true objection to Satan's method," declares Fish, "is the presumption, which the word 'science' is meant to conceal, of assuming that God cannot work effects contrary to those his creatures are able to discern in nature."¹² But the true objection to Satan's method is its fraudulence. Satan is guilty of falsifying experimental data, for he has not of course eaten any fruit. When, in effect, he invites Eve to "make experiment" of the fruit, his experiment is not the sort advocated by the new philosophers.¹³ There is a cunning resemblance, but it is only a resemblance.

The anachronistic term *empirical science* blunts Fish's analysis of Satan's method. The term posits as a finished product something that was still coming into existence in the mid-seventeenth century. By using the twentieth-century term, Fish effaces the history inscribed in Milton's representation, the history of the evolving of the discourse of the new philosophy. When he asserts that Eve should have realized that God is not limited to doing things according to *her* experience of the law of nature, Fish implies that she ought to set aside what she has learned of the regularity and order of the natural world. Yet holding fast to her own reading of nature's ordered ways would have enabled Eve to see the talking snake, with his tale of a sudden, fruit-induced transformation, for the monstrosity it is. By representing Satan as lying about the fruit, which amounts to obscuring the true nature of the created world, Milton shows that Satan has abused the potential of the new experimental philosophy for instilling wisdom – *not that it has no such potential*. *Paradise Lost* shows that the new philosophy is as liable to abuse as theology or history. It *also* shows the new philosophy to be as capable as they are of providing a clearer understanding of God's providential design. How the poem does so – how it demonstrates the ways in which the “book of knowledge fair” can open an entrance to wisdom – is the subject of the following chapters. First, however, it is necessary to look in more detail at Satan's perverting of that possibility.

To apprehend the enormity and cleverness of his perverting requires us to untangle the complicated semantic knot formed by *experience* and *experiment* in the middle of the seventeenth century. Not only are the two terms inscribed in confusingly intertwined discursive fields; the concepts they signify are in dramatic flux. Let us begin the untangling by looking at what might be thought of as the two ends of the string: the role of experience in the old deductive logic of the Aristotelian scholastics, and its role in the new inductive logic of the Baconian philosophers. Peter Dear observes that for the scholastics, “experience designated a universal statement of fact, supposedly constructed from the memory of many singular instances, and its universality expressed its intended status as an evident truth which might form a premise in a scientific demonstration.”¹⁴ A singular experience, in other words, had to be converted into a universal truth before it could be used in deductive logic. The conversion was accomplished by means of a prior induction, as Dear implies: a singular experience was observed always to fulfill certain conditions and hence could be said to represent a universal truth. Thus universalized, experience could serve as a premise in deductive argument. The

Baconian new philosophers, however, dispensed with the last step, declaring that inductive logic by itself was a sufficient basis for suggesting the truth. They claimed, Dear states, the legitimacy of experiential matter “in historical reports of events, often citing witnesses. The singular experience could not be *evident*, but it could provide *evidence*.”¹⁵ Deductive arguments can be deceptive, the Baconians held; it is better to rely solely upon matters of fact.

In his tempting of Eve, Satan offers what looks like an inductive argument. He adduces experience (eating the fruit) as evidence for a general conclusion (“whoso eats thereof, forthwith attains / Wisdom”), specifically citing the presence of witnesses: “round the tree / All other beasts that saw, with like desire / Longing and envying stood” (*PL*, ix.591–93). Induction, however, does not draw principles from a single experience – witnessed here, in any case, only by inarticulate beasts, unable to say what they have seen. In a rhetorical ploy of great cleverness, the speechlessness that ought to invalidate their witness serves instead to bolster Satan’s claim about the efficacy of the fruit: “I was at first as other beasts” (*PL*, ix.571), he says, and in the *act* of so saying, he demonstrates his difference. But of course his difference from other beasts has nothing to do with the power of the fruit, and the experience he reports never took place. It is, simply, a lie, a piece of deception designed to push Eve into superstitious apprehension of what the fruit can do.

The word *occult* is nowhere mentioned but everywhere implied at Eve’s temptation. Indeed, its manifold senses underlie Satan’s representation of the experience at the Tree. Historians of science have long noted that the scent of the occult clung to notions of experience until at least the late sixteenth century. This is a legacy, Charles Schmitt explains, from the medieval opposition between magic and its association with the contingent (available only through experience), and those disciplines “considered to be determined by a structured and logical order, knowable through reason.”¹⁶ Schmitt points to the Renaissance magus Cornelius Agrippa of Nettesheim, who constantly cites “experience” to confirm his authority.¹⁷ We will see that the figure of the magus is doubly relevant to Satan’s temptation strategy. It is, however, the politics of possessing occult knowledge which is the most immediately apparent thrust of the strategy.

When he invites Eve to taste of the fruit, Satan invites her to join a group, “the gods,” whose control is based on the shared possession of occult or privy knowledge.¹⁸ In the serpent’s promise, knowing and

belonging coalesce: “ye shall be as gods, / Knowing both good and evil as they know” (*PL*, ix.708–09). Eve assumes, as Satan intends her to assume, that to become one of this elite she need only eat the fruit, as if eating it were a kind of initiation. Indeed it is, though not of course in the way Satan implies. He ends his temptation by inviting her to taste, proleptically conferring upon her the title that depends on the tasting: “Goddess humane, reach then, and freely taste” (*PL*, ix.732). Having eaten, Eve imitates the behavior of the serpent, initiated before her. He addresses her as “sovereign mistress” (*PL*, ix.532) and licks the ground she treads on; she in turn calls the Tree “sovereign” (*PL*, ix.795) and makes “low reverence” (*PL*, ix.835) to it.

More precisely, she makes “low reverence”

as to the *power*
That dwelt within, whose presence had infused
Into the plant scintial sap, derived
From nectar, drink of gods.

(*PL*, ix.835–38; emphasis added)

Eve does not try to understand how “the power” works. The occult or hidden nature of its efficacy causes her no alarm and raises no questions; she is content simply to perceive its effect (as she thinks), its “operation blest / To sapience” (*PL*, ix.796–97).¹⁹ Earlier the serpent had claimed that the fruit’s power enabled him “to discern / Things in their causes” (*PL*, ix.681–82), that is, to discern the true connection between cause and effect. The power of the fruit is not sufficient, it appears, to disclose the cause of its *own* effect. But of course mystification is Satan’s aim. When the serpent declares that the alteration within him is “Strange” (*PL*, ix.599), Milton uses the pre-eminent seventeenth-century term for signaling something alien to be marveled at.²⁰ Do not try to understand how and why the fruit produces its effect, *strange* implies; there is a wonderful power in the fruit, and access to it is by way of ingestion, not intellection. In the word *taste*, reiterated throughout the temptation scene, the notion of testing or trying merges with the notion of eating.²¹ The implication is clear: Eve can find out the virtue of the fruit only by making experiment of it, that is, by experience.

Turning to the complex semantic histories of *experiment* and *experience*, we can discern two strands of meaning in the seventeenth-century usage of each word. One strand involves an informal, pragmatically observational mode (“let’s try it and see what happens”);²² the other, a more

formal observational mode involving, at its most extreme, artificially constructed testing whose purpose is to discover something unknown.²³ By the eighteenth century, the first strand of meaning, in which knowledge or “proof” was seen to derive largely from informal observation, had come to be signaled primarily by the word *experience*. The second strand of meaning, in which the notion of testing is dominant, had attached itself by the end of the seventeenth and the beginning of the eighteenth century to the word *experiment*. During the decades in which Milton was writing, the strands of meaning had just begun to separate. As terms and as concepts, *experience* and *experiment* were almost, but not entirely, interchangeable.

What a repentant Eve calls in book x her “sad experiment” would today be called her “sad experience”:

Adam, by sad experiment I know
 How little weight my words with thee can find,
 Found so erroneous, thence by just event
 Found so unfortunate; (PL, x.967–70)

This is the sole occurrence of *experiment* in *Paradise Lost*; *experience* is Milton’s usual choice.²⁴ Insofar as the two terms *are* interchangeable, Eve’s words indicate how thoroughly repentance has altered her view of her actions. The experience she had earlier announced with some complacency – “On my experience, Adam, freely taste, / And fear of death deliver to the winds” (PL, ix.988–89) – she now regards as “sad,” that is, as lamentable or calamitous.²⁵ Assigning *experiment* rather than *experience* to Eve allows Milton to suggest a further refinement of her repentance: she realizes in book x not only that she has misunderstood her experience but also that she has failed to use its potential for discovery. Rather than to “make experiment” of the serpent’s claims, she chooses to accept the experience he offers.

Yet Eve’s initial response to the serpent is a scientific one, entirely worthy of a new philosopher. Upon hearing the serpent’s words, she asks, “What may this mean? Language of man pronounced / By tongue of brute, and human sense expressed?” (PL, ix.553–54). She perceives at once, correctly, that she needs to test the truth of the serpent’s speech, in the double sense of *how* and *what* he speaks. Had she persisted in this line of inquiry, she might have arrived at the truth: the serpent’s “speaking” is but a feat of natural magic. But she does not persist. Instead, Eve the budding natural philosopher lets herself be dazzled and deceived by Satan the natural magician.

The success of Satan's seduction of her hinges upon Eve's initial willingness to believe that the serpent is actually speaking. To accomplish this effect, Satan draws upon the resources of natural magic. Against these, a shrewd application of the principles of the new philosophy might have prevailed. This does not imply that natural magic and the new philosophy are inherently antithetical. On the contrary, as Stuart Clark states, natural magic in the early modern period ought to be seen as "a branch of natural philosophy which specialized in occult causation."²⁶ We will return to the way in which Satan produces the effect of speaking in the serpent, but first we need to consider more carefully the relationship between natural magic and the new natural philosophy. Allies in their shared interest in occult causes, they become antagonists whenever natural magic seeks to mystify rather than to elucidate the marvels of Creation.

Francis Bacon, vehement in his condemnation of a "degenerate" natural magic, calls a "pure" or "reformed" natural magic "the science which applies the knowledge of hidden forms to the production of wonderful operations; and by uniting (as they say) actives with passives, displays the wonderful works of nature."²⁷ As Bacon's definition suggests, natural magic and the new philosophy have in common an interest in "hidden forms" or occult qualities. The old Aristotelian orthodoxy had declared that occult (as opposed to manifest) causes could not be explained or studied because they were imperceptible to the senses. The new philosophers disagreed. With their more expanded notion of "the natural" and a greater readiness to admit ignorance, they placed occult causes within the bounds of legitimate inquiry.²⁸ True miracles were the only exception to this rule, for they involved the abrogation of natural law. All other occult events, no matter how remarkable, were properly regarded as "the result of developing natural powers . . . miracles only in the etymological sense: things worthy of wonder," that is, "*mira* not *miracula*."²⁹

Daniel Sennert passionately defends the study of the new "scientific" occult:

all more learned Philosophers and Physitians . . . have constantly taught, that the Causes of many things in natural Philosophy and Physick do depend upon hidden Qualities . . . if the true Original of these qualities be sought into, (whereof few have taken care) the knowledg thereof wil produce as certain science as that of the first Qualities . . . it is a ridiculous thing to deny that which is manifest by Experience, because we cannot tel the reason thereof. As if it were impossible any thing might happen in Nature of whose cause we are ignorant. We are ignorant of most things.³⁰

The operation of antipathies and sympathies, stellar and planetary influences, the activities of spiritual and angelic beings – all were considered occult in the seventeenth century.³¹ So were magnetism, gravitation, and purgation. So, too, were the baleful effect of the basilisk's gaze and the power of the remora to halt a moving ship. All of these, Clark notes, “were ‘occult’ simply because their causes were hidden beyond the reach of human intellect, and because their remarkable effects were merely manifested to experience, not rationally explained.”³² When natural magic concerned itself with the investigation of these hidden causes and the mimetic production of their remarkable effects, its ends were compatible with those of the new philosophy.³³

Bacon thus welcomes the contributions of a natural magic “restored to its ancient and honourable meaning” and condemns a corrupt version of it that lends itself to the glorification of the magus and depresses an energetic inquiry into occult causes.

But this popular and degenerate natural magic has the same kind of effect on men as some soporific drugs, which not only lull to sleep, but also during sleep instil gentle and pleasing dreams. For first it lays the understanding asleep by singing of specific properties and hidden virtues, sent as from heaven and only to be learned from the whispers of tradition; which makes men no longer alive and awake for the pursuit and inquiry of real causes, but to rest content with these slothful and credulous opinions; and then it insinuates innumerable fictions, pleasant to the mind, and such as one would most desire, – like so many dreams.³⁴

A degenerate natural magic, in other words, tempts humanity to assume that patience, labor, co-operative endeavor, and the passage of time are not necessary to the advancement of learning. Clark observes that Bacon's praise of a “restored” natural magic is related not only to his hopes for natural philosophy but to his assertion that even the marvels attributed to sorcery and witchcraft should not be dismissed without investigation. “For it is not yet known,” Bacon asserts,

in what cases, and how far, effects attributed to superstition participate of natural causes; and therefore howsoever the use and practice of such arts is to be condemned, yet from the speculation and consideration of them (if they be diligently unravelled) a useful light may be gained, not only for the true judgment of the offences of persons charged with such practices, but likewise for the further disclosing of the secrets of nature.³⁵

Bacon's assertion rests on the belief that no matter how marvelous they appear, the effects produced by or attributed to demons and witches are natural. Only God is capable of supernatural effects – Satan is but

“Gods Ape,” notes King James – and anything natural can be profitably investigated. It is hardly surprising to find new philosophers borrowing techniques of investigation from the skeptical tradition of demonology.³⁶

Older than humanity, incorporeal, “Not tied or manacled with joint or limb . . . in what shape they choose / Dilated or condensed” (*PL*, 1.426, 428–29), demons were held to have the advantage over human beings in understanding occult causes. Satan, said King James, voicing a commonplace of the age, was “farre cunningner then man in the knowledge of all the occult proprieties of nature” and hence a better natural magician.³⁷ Thomas Browne in *Pseudodoxia Epidemica* acknowledges Satan’s superior ability to exploit the natural world:

Beside being a naturall Magician he may performe many acts in wayes above our knowledge, though not transcending our naturall power, when our knowledge shall direct it; part hereof hath been discovered by himselfe, and some by humane indagation which though magnified as fresh inventions unto us, are stale unto his cognition: I hardly beleeeve, he hath from elder times unknowne the verticity of the loadstone; surely his perspicacity discerned it to respect the North, when ours beheld it indeterminately. Many secrets there are in nature of difficult discovery unto man, of easie knowledge unto Satan, whereof some his vain-glory cannot conceale, others his envy will not discover. (*PE*, 63)

Small wonder that a natural magician might resort to demons’ aid when the attempt to understand and manipulate the occult virtues of nature became too frustrating. Such “aid,” needless to say, invariably led to the confusion of the magician: though gifted in the understanding of occult causes, Satan and his minions were known to provide only false enlightenment to their human disciples. Natural law limited what Satan could effect, but “there was nothing that he might not *appear* to effect.”³⁸ He has thereby “inveigled no small part of the world into a credulity of artificiall Magick” (*PE*, 63), observes Thomas Browne.

Ascertaining the cause of marvelous effects was a project to which seventeenth-century natural philosophers and demonologists alike devoted themselves. It was a project requiring great acuity. Clark notes that there were in effect four explanatory categories for natural marvels: “real demonic effects, illusory demonic effects, real nondemonic effects, and illusory nondemonic effects.”³⁹ Among the benefits of natural philosophy, argues Robert Boyle, is the protection it affords against being ensnared by illusory effects, demonic or real. Someone who genuinely understands the workings of nature, Boyle claims in *The Christian Virtuoso*,

will not mistake the effects of natural magic, for those of a divine power. And by this well-instructed wariness, he will be able to discover the subtil cheats and collusions of imposters; by which, not only multitudes of all religions, especially heathen, but even learned men of most religions, for want of an insight into real philosophy, have formerly been, or are at this day, deluded, and drawn into idolatrous, superstitious, or otherwise erroneous tenets or practices.⁴⁰

Milton's Eve is drawn into precisely the idolatrous and superstitious practices that Boyle warns against. To use Clark's terms, she mistakes an illusory demonic effect for a real nondemonic one. Two undeluded explanations for the serpent's speaking appear at the outset of the temptation at the Tree.⁴¹ The narrator proposes that Satan, having caught Eve's attention,

with serpent tongue
Organic, or impulse of vocal air;
His fraudulent temptation thus began. (*PL*, ix.529–31)

At the word *Organic* in line 530, the apparently figurative "serpent tongue" (roughly equivalent to "forked tongue") reveals itself to be material, though not organic in the physiological sense.⁴² Satan does not, for he cannot, turn the serpent's tongue into an organ of speech. Rather, he uses the tongue as a mechanical means (*organum*) of producing sounds, as if it were a musical instrument (specifically, an organ).⁴³ "[O]r impulse of vocal air" expresses both an alternative to and an elaboration of the use of the instrumental tongue. The phrase suggests that Satan harnesses the speech-like sounds made naturally by the inanimate air; it equally suggests that he manipulates pulses of air to produce sounds from the serpent's tongue, as air produces sounds from an organ.⁴⁴ These explanations would have occasioned no surprise to Milton's contemporaries. Thomas Browne points out that the "naturall effects" Satan achieves typically derive from "his owne principality the ayre" (*PE*, 67). As King James observes, the "stile of *the Prince of the aire* is given unto him," for he has "affinitie with the aire as being a spirite," and hence "the power of the forming and mooving thereof."⁴⁵

Upon hearing herself addressed by the serpent, Eve's first reaction is to marvel at his voice (*PL*, ix.551) and then to question whether his tongue can be an organ of speech – a possibility, she reflects, which was "denied / To beasts, whom God on their creation-day / Created mute to all articulate sound" (*PL*, ix.555–57). Eve initially displays, that is, what Robert Boyle would call a "well-instructed wariness." She also possesses the "insight into real philosophy" that Boyle posits as the

complement to wariness. She has, after all, some experience of the effects produced by air. It is true that she does not know Satan's title, "Prince of the Air." However, as part of the "fit audience" for Raphael's tale, she might have noticed that the archangel repeatedly associates Satan with the air. In addition, she has heard from Raphael a description of the angelic symphony, which includes "all organs of sweet stop" (*PL*, vii.596) and whose sounding harps make the earth and air *resound* (*PL*, vii.560–61). She herself has enjoined the winds to "Breathe soft or loud" in praise of their maker (*PL*, v.193), implying a recognition that in its movement, air imitates human sounds. Yet Eve fails to apply her insight to the marvelous talking snake and misses the opportunity to "make experiment." What she greets at first as a marvel, and hence a candidate for further investigation, swiftly becomes in her eyes a "miracle" (*PL*, ix.562), by definition beyond the reach of human understanding. Her command to the serpent, "Redouble then this miracle, and say, / How camest thou speakable of mute" (*PL*, ix.562–63), hints that she is too willing to renounce the possibility of a natural explanation.

After they arrive at the Tree, Eve asks no more questions about "the tongue of brute." Satan is wholly successful in diverting her attention from the puzzle of the serpent's speaking to the "miracle" of the fruit's effects. He does so by speaking with the passion and inventiveness of "some orator renowned / In Athens or free Rome" (*PL*, ix.670–71). But the "great matter" he comes to praise is a great lie; as his subject matter is base, so is his eloquence debased. He resembles a great orator of old precisely as a mountebank does – and indeed, the "new part" Satan "puts on" at the Tree is that of a mountebank. He gives a performance of enormous inventiveness and energy, one which combines the arts of political oratory, theatre, and preaching, as Fowler notes.⁴⁶ But every element of the performance is directed towards enhancing the value of the fruit in order to make it more desirable in Eve's eyes. Just so, the bravura performances of the *ciarlatani* haunting the piazzas of seventeenth-century Italian cities functioned as advertisements for the "secrets" they hawked, i.e., the secrets of nature. Eating the fruit is the "secret" Satan sells to Eve. In this context, *secrets* refers to recipes or prescriptions that lay claim to unlocking the occult powers of things and making them available for use.⁴⁷ William Eamon traces the "secrets" tradition back through the Middle Ages, and notes that at its most learned and respectable, it shared the philosophical assumptions of Bacon's "restored" natural magic:

The professors of secrets affirmed the superiority of experience over reason in the search for scientific knowledge. They believed that nature was permeated with “secrets” and occult forces that lay hidden underneath the exterior appearances of things. Neither reason nor authority, nor any of the traditional instruments of inquiry, they insisted, were capable of gaining access to the occult interior of nature.⁴⁸

By the late sixteenth century, inexpensive, popular collections of secrets had begun to appear in print, and the tradition gradually declined from respectable erudition.⁴⁹ The *ciarlatano* who, mounted on his bench, performed in the marketplace of Italian cities to draw a crowd and sell his secrets, represents the debased end of the tradition.

Ben Jonson draws the portrait of a mountebank in Act II of *Volpone*, when Volpone, dressed accordingly, enters and proclaims “the miraculous effects of this my oil . . . the admirable virtues of my medicaments, and mine own excellency in matter of rare and unknown secrets.”⁵⁰ The art of the mountebank, suggests Jonson’s portrait, lies in persuading an audience, first, that his nostrum has an inherent, secret virtue, and, second, that he has no art except that of knowing the secret. Jonson thus puts a claim to knowledge at the heart of mountebankery. Before Volpone enters, two characters disagree about that claim:

SIR POLITIC

They [the mountebanks] are the only knowing men of Europe!
Great general scholars, excellent physicians,
Most admired statesmen, professed favourites,
And cabinet counsellors to the greatest princes!
The only languaged men of all the world!

PEREGRINE

And I have heard they are most lewd imposters,
Made all of terms and shreds; no less beliers
Of great men’s favours than their own vile medicines;
Which they will utter upon monstrous oaths,
Selling that drug for twopence, ere they part,
Which they have valued at twelve crowns before.⁵¹

Sir Politic Would-Be is naive and gullible; Peregrine is worldly wise. The latter’s condemnation of mountebanks is clearly endorsed by the play – as is Sir Politic’s inadvertent equation between mountebanks, on the one hand, and scholars, physicians, statesmen, favorites, and cabinet counsellors, on the other.

Whereas Jonson assigns credulity and skepticism to separate

characters, historical accounts suggest a rather more mixed response to mountebanks on the part of individual spectators. Fascinated by the dramatic performances of Italian *ciarlatani*, several early modern English tourists recorded what they saw. Thomas Coryate's description of Venetian mountebanks in 1608 contains a mixture of admiration and distrust, the mixture that characterizes Eve's first response to the talking serpent in the garden of Eden. Coryate's description reveals quite clearly that his half-reluctant willingness to credit the mountebanks' claims for their "drugs and confections" comes from the power of their dramatic performances:

while the musicke plays, the principall Mountebanke which is the Captaine and ring-leader of all the rest, opens his truncke, and sets abroach his wares; after the musicke hath ceased, he maketh an oration to the audience of halfe an houre long, or almost an houre. Wherein he doth most hyperbolically extoll the vertue of his drugs and confections:

Laudat venales qui vult extrudere merces.

Though many of them are very counterfeit and false. Truly I often wondred at many of these naturall Orators. For they would tell their tales with such admirable volubility and plausible grace, even *extempore*, and seasoned with that singular variety of elegant jests and witty conceits, that they did often strike great admiration into strangers that never heard them before: and by how much the more eloquent these Naturalists are, by so much the greater audience they draw unto them, and the more ware they sell . . . I have observed marveilous strange matters done by some of these Mountebankes . . . I have seen a Mountebanke hackle and gash his naked arme with a knife most pittifully to beholde, so that the blood hath streamed out in great abundance, and by and by after, he hath applied a certaine oyle unto it, wherewith he hath incontinent both stanchd the blood, and so thoroughly healed the woundes and gashes, that when he hath afterward shewed us his arme againe, we could not possibly perceiue the least token of a gash.⁵²

The essential elements of the mountebanks' performance as detailed by Coryate – their elaborate preparations (designed to draw a crowd), their "admirable volubility and plausible grace," the "marveilous strange matters" they recount, and their ability "most hyperbolically [to] extoll the vertue" of their remedy – are present in Satan's performance at the Tree of Knowledge in *Paradise Lost*. There is no need for the serpent to "hackle and gash" himself, as Coryate's mountebank does: merely *saying* that he feels the power of the fruit appears to demonstrate that power.

In true mountebank fashion, Satan first elevates himself, then holds Eve's attention with an elaborate show of preparation:

now more bold

The tempter, but with show of zeal and love
 To man, and indignation at his wrong,
 New part puts on, and as to passion moved,
 Fluctuates disturbed, yet comely and in act
 Raised, as of some great matter to begin.
 As when of old some orator renowned
 In Athens or free Rome, where eloquence
 Flourished, since mute, to some great cause addressed,
 Stood in himself collected, while each part,
 Motion, each act won audience ere the tongue,
 Sometimes in highth began, as no delay
 Of preface brooking through his zeal of right.
 So standing, moving, or to highth upgrown
 The tempter all impassioned thus began. (PL, ix.664–78)

One is put in mind of Olivia's observation in *Twelfth Night*: "Sure you have some hideous matter to deliver, when the courtesy of it is so fearful."⁵³ The serpent's initial "courtesy," unlike Viola/Cesario's, captivates his audience rather than putting her on her guard (though even the canny Olivia eventually succumbs to the speaker's charms). As any mountebank knows, holding an audience's attention is equivalent to extorting from them an investment of time; having invested their time, they are more likely to invest their coins. For charlatans, the art of oratory is the art of salesmanship. Mountebanks, remarks Peregrine in *Volpone*, are they not "quacksalvers, / Fellows that live by venting oils and drugs?"⁵⁴ The gerund perfectly combines selling and windy oratory.

In the final speech of the temptation scene, Satan vents the fruit of the forbidden tree with as much fervor as any mountebank venting his oils and drugs.

O sacred, wise, and wisdom-giving plant,
 Mother of science, now I feel thy power
 Within me clear, not only to discern
 Things in their causes, but to trace the ways
 Of highest agents, deemed however wise.
 (PL, ix.679–83)

Just as the nostrum-mongering *ciarlatani* of the late Renaissance claimed occult curative powers for their wares, so Satan claims those powers for his fruit. But we should not conclude that Milton has depicted an Eve gullible enough to be taken in by the equivalent of a snake-oil salesman or a fairground confidence trickster. Satan's promotion of his marvelous remedy, like the venting of other mountebanks, is not completely

dissimilar to the mode of respectable medical practitioners of the period, for the periphery of medical respectability was not far from the center in the seventeenth century.⁵⁵ In particular, the rise of Paracelsian medicine encouraged an acceptance of remedies with occult powers by inserting elements of natural magic into “physic.”⁵⁶ The humoral basis of traditional Galenic medicine was thoroughly understood by patients and physicians alike; the drugs it favored were intended to balance the humors, a familiar and hence explicable process. Paracelsians, in contrast, drew upon “literature and techniques wellnigh incomprehensible to the uninitiated.”⁵⁷ They introduced “chemical” or “metallic,” i.e., non-herbal, drugs into the medical marketplace. Such drugs were understood “to operate in an occult way on ‘the total substance’ of the body rather than on one of its humours.”⁵⁸ The notion of medicine that affected the whole body, long accepted by practitioners of magic healing, gained favor among mainstream doctors as the influence of Paracelsianism spread in England after 1640.⁵⁹ Europe’s increasing colonial trade, moreover, insured a constant supply of exotic new substances for medicinal use, substances whose marvelous efficacy was not infrequently proclaimed. It is not surprising that trained physicians and irregular practitioners alike found a public willing to try their secret remedies. If respectable physicians were not averse to admitting what looked like magical elements into their practice, who could be certain that untrained and irregular healers were necessarily wrong in their claims for occult cures?

Volpone exuberantly lists the complaints his medicine will cure – “the *mal caduco*, cramps, convulsions, paralyse, epilepsies, *tremor cordia*, retired nerves, ill vapours of the spleen, stoppings of the liver, the stone, the stranguary, *hernia ventosa*, *iliaca passio*.”⁶⁰ Satan’s “secret,” too, is a panacea. His first task is therefore to represent Eve’s condition to her as diseased. (That she calls the fruit “the cure of all” (*PL*, ix.776) before consuming it marks his success.) He begins by representing God as a magus powerful only in the possession of secrets – representing him, that is, as Thomas Browne and others represent Satan, as “a naturall Magician [who] may performe many acts in wayes above our knowledge, though not transcending our naturall power.” Therefore God has to resort to intimidation, implies Satan:

Queen of this universe, do not believe
 Those rigid threats of death; ye shall not die;
 How should ye? By the fruit? It gives you life
 To knowledge

* * *

Why then was this forbid? Why but to awe,
 Why but to keep ye low and ignorant,
 His worshippers; (PL, ix.684–87,703–05)

The role of skeptical unmasker is the perfect mask for a charlatan. Even as he seems to de-mystify God's power, Satan continues to mystify the fruit, apparently offering experiential evidence for its virtue: "Look on me, / Me who have touched and tasted, yet both live, / And life more perfect have attained" (PL, ix.687–89). Of course the serpent has not "touched and tasted" the fruit, but on the basis of his fabricated evidence, he constructs a persuasive narrative: "I have tried this fruit; the divine impostor derives his power from it; it has remarkable powers; it will cure all your ills; try it." Eve does try it. What she later calls her experience – "On my experience, Adam, freely taste" – is in fact the experience of being gulled by a charlatan's tale.

We can now return to Fish's claim that the diminished experience Eve accepts from Satan is "empirical science," and that she should have known that God can set aside the law of nature when he pleases. This amounts to saying that Eve ought not to trust her own experience of the natural world. Fish cites in evidence of his claim *Samson Agonistes*, lines 300–25, "where the chorus explains that the operation of natural causes does not bind God."⁶¹ But the opinions of the chorus are not necessarily those of Milton, and in any case the cited passage refers not to natural but to Jewish ceremonial or ritual law. The passage forms part of a specific theological argument. The lines at issue are the following:

As if they would confine the interminable,
 And tie him to his own prescript,
 Who made our laws to bind us, not himself,
 And hath full right to exempt
 Whom so it pleases him by choice
 From national obstruction, without taint
 Of sin, or legal debt;
 For with his own laws he can best dispense. (SA, 307–14)

Puzzled that God had allowed Samson to marry the (Philistine) woman of Timna, the Chorus concludes that God can exempt anyone he chooses from obedience to the ceremonial law. It is futile to look for rational explanations; "Down Reason then" (SA, 322), they shrug. In fact, the Chorus has just excused itself from the responsibility of seeking the spirit behind the letter of the law.⁶² They have made the mistake, as Joan

Bennett remarks, of seeing “God’s right as based on his omnipotence rather than on the justice which defines his divine nature.”⁶³ Instead of assuming God’s consistency and trying to understand how it manifests itself in the matter of Samson’s marriage, the Chorus falls back on superstitious fear of God’s power. Even if the Chorus were speaking here of divine disruptions to nature’s order, their thinking provides no model for Eve.

Nothing warrants, in fact, applying the passage from *Samson Agonistes* to the law of nature. When in *De Doctrina Christiana* Milton does speak of miracles (Fish’s “effects contrary to those [God’s] creatures are able to discern in nature”), it is to assert that God makes use of them under only two circumstances: either “to demonstrate divine power and strengthen our faith” or “to ensure a weightier condemnation for those who do not believe.”⁶⁴ Neither of these conditions obtains at the scene of Eve’s temptation in Eden. Milton does not in fact have a great deal to say about the “extraordinary providence of God.” He is much fuller in his description of “God’s ordinary providence,”

by which he maintains and preserves that constant and ordered system of causes which was established by him in the beginning.

This is commonly and indeed too frequently called Nature; for nature cannot mean anything except the wonderful power and efficacy of the divine voice which went forth in the beginning, and which all things have obeyed ever since as a perpetual command.⁶⁵

Milton is insisting here upon the created character of nature. In an earlier chapter of *De Doctrina*, he notes that nature and fate have sometimes been treated “as if they were to be identified with this supreme being.”⁶⁶ On the contrary, Milton states: just as “fate” means that which is “*fatum*, spoken, by some almighty power,” so “nature or *natura* implies by its very name that it was *natam*, born.”⁶⁷ Nature is not a self-sufficient, independently functioning system that operates apart from God’s will. Nonetheless, except for the very restricted occasions when God’s “extraordinary providence” is put into effect, nature can be depended upon to act in a consistent and regular fashion, according to the law established for it at the Creation.

Given Milton’s presumption that nature is a “constant and ordered system of causes” (and as such, available for rational analysis), Eve should indeed have been more skeptical about an articulate snake. This is the charge usually laid against her. Fish inverts it, claiming that Eve ought not to have believed Satan’s claim that God is bound by nature’s

laws. To make this claim, Fish confines himself to discussing Satan's arguments (about eating the fruit) and ignores Satan's physical manifestation (as a serpent). But separating what he says from how he appears is not possible in this instance. The extraordinary talking snake says to Eve, according to Fish, "Do not trust anything extraordinary." This is a paradox along the lines of "'All Cretans are liars,' said the Cretan." The point is that Eve ought to have been more, not less, of an empiricist; she ought to have pitted her experiential knowledge more polemically against Satan's. Fish's accusation –

The value Eve finds in experience (things seen) is the value she assigns to it, and that will be whatever she wants it to be. Experience is only a word for what happens to reality when it is filtered through the medium of time and space – Man's medium not God's⁶⁸

– needs to be turned inside out: Eve does not assign *enough* value to her experience. There *is* value in things seen, in a world created good by the Creator, in a reality filtered through time and space, if his creatures approach it in the proper frame of mind.

If Eve had adequately valued her previous experience of the natural world, how might she have responded to a mountebank with a magical nostrum? Our answer does not have to be entirely speculative. The most eminent of Milton's experimentalist contemporaries, Robert Boyle, carefully recorded his encounters with untutored and irregular practitioners of physic, encounters which it is instructive to compare with Eve's encounter at the Tree. Boyle maintained the need to take seriously the experiential knowledge claimed even by empirics and their ilk. Indeed, he warns his readers against allowing "the mistaken name of emperick" to cause them to dismiss the remedies such physicians have discovered, though the discoveries may be the result of accident or chance.⁶⁹ Boyle's seizing upon the term *empiric* is significant. Derived from the name of the ancient sect of Greek physicians, *empiric* came to denote one whose knowledge was based on experience rather than on theory or training; hence, one who was an untrained physician; hence, a quack.⁷⁰ The assumptions at work in this semantic history are ones which Boyle needed to combat. His worry about *empiric* is not a quibble; it encapsulates the turmoil attendant upon establishing a new basis for authority in knowledge. Thus he warns against assuming that those who lack formal training in physic and who claim to base their knowledge on experience are necessarily quacks. The knowledge that they have to offer

must not be dismissed out of hand, he insists; nor must it be accepted without making experiment. In the second part of *The Usefulness of Natural Philosophy*, Boyle reflects:

but probably the knowledge of physicians might not be inconsiderably increased, if men were a little more curious to take notice of the observations and experiments, suggested partly by the practice of midwives, barbers, old women, empiricks, and the rest of that illiterate crew, that presume to meddle with physick among our selves.⁷¹

Wariness mingles here with grudging respect for a knowledge born of experience.⁷² Rose-Mary Sargent argues that “[i]n Boyle’s usage, *learned* and *illiterate* are clearly descriptive, not evaluative, terms.”⁷³ It is hard to see, however, how “that illiterate crew” can be anything other than derogatory. In combination with the charge of presumptuous meddling, the phrase suggests that Boyle’s attitude toward untrained practitioners is more mixed than Sargent allows.

Boyle is indeed remarkable in preserving a balance between open-mindedness and skepticism in his accounts of “the observations and experiments” of untrained practitioners. Let us look at one such account, the account of a chemical remedy peddled by an empiric of Amsterdam.⁷⁴ Boyle employs here all the methodological tools which Eve needed in order to guard against culpable credulity. The account is lengthy, but providing exhaustive detail is one of the central features of Boyle’s method.

And now I am upon the discourse of the peculiar operations of mercury, and of unusual ways of evacuation, I am tempted to subjoin an odd story, which may afford notable hints to a speculative man, as it was related to me both in private, and before illustrious witnesses, by the formerly commended chymist of the French king: he told me then a while since, that there is yet living a person of quality, by name Monsieur *de Vatteville*, well known by the command he hath or had of a regiment of *Switzers* in *France*, who, many years ago following the wars in the Low Countries, fell into a violent distemper of his eyes, which, in spite of what physicians and surgeons could do, did in a few months so increase, that he lost the use of both his eyes, and languished long in a confirmed blindness; which continued till he heard of a certain empirick at *Amsterdam*, commonly known by the name of *Adrian Glasmaker* (for indeed he was a glazier) who being cried up for prodigious cures he had done with a certain powder, this colonel resorted to him, and the empirick having discoursed with him, undertook his recovery, if he would undergo the torment of the cure: which the colonel having undertaken to do, the surgeon made him snuff up into each nostril about a grain of a certain mercurial powder, which in a strangely violent manner quickly wrought with him almost all imaginable ways, as by vomit,