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science possibilities for new ways of seeing and new ways of thinking, which had the potential not only to turn the physical world upside down, but love, society, and individual consciousness as well.

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MILTON AND THE HERMENEUTICS OF TIME: SEVENTEENTH-CENTURY CHRONOLOGIES AND THE SCIENCE OF HISTORY

In a recent article on *Paradise Lost* 11-12, Stanley Fish challenges Miltonists who assume that history provides neutral ground for the legislation of interpretation. Reviewing the critical incorporation of Books II and 12 into the canon, Fish envisions “another kind of history, one that begins with the assumptions that literary works are the products as well as the objects of our activity.” The critical genealogy of the final books supplies ample examples. What C. S. Lewis found an “untransmuted lump of futurity,” and John Broadbent labelled “arthritic” and Louis Martz called “the Biblical paraphrase of an almost ordinary versifier,” Fish pinpoints as formalist sparring between Miltonists and Leavisites about Milton’s place within the canon.

But while Fish’s argument makes good sense, it is not taken far enough. The rhetorical history of criticism that he writes about appears far removed from the “real” history of say the English Revolution. It is not. Whether one seeks to understand Jacques Derrida’s interpretation of Paul de Man’s collaboration with the Nazis or Eikonoklastes’ answer to *Eikon Basilike*, one does not deal with history as a stable or fixed entity but rather as a hermeneutical practice occupied with the analysis and formulation of narratives. Rather than providing a neutral ground, history itself is a configuration of rhetorical and epistemological constructs laid over each other like sediments in the earth’s own layered natural history. The stability that historical scholars discover in their research says more about the construct they work with than “history,” however one defines that term. To the adage about history as ever changing we might add another: what appears fixed is the result of institutionally legislated interpretation.

The final books of Milton’s epic do not simply engage the rhetorical


history of modern Milton criticism. They confront history as a hermeneutical practice. Paradise Lost is a conflation of narratives and time frames which become assembled in our own mental construction. Satan's psyche-history, the heavenly war, the ejection of Satanic forces from heaven, the creation of the world and of Adam and Eve—all are narrative fragments that become modulated and synthesized into Milton's evolving history. Reading the poem might be compared to laying multiple transparencies one over another. Ultimately, Milton does not leave the assembly or a master-narrative to a Montaigne-like reverie, but requires us to negotiate it through the shaping narrative of history set forth in the final books. The poetic narrative does not simply appeal to historical narrative but becomes one. Boiardo tacitly distinguishes between poetry and history by interrupting his Orlando innamorato to fight against the French. Spenser's Faerie Queene configures history through allegory. Milton brings the two together. Milton's epic not only parallels history but itself poses as a vehicle for historiography. In an important sense the final books do remain untransmuted; not because Milton failed to integrate them into the epic but precisely because a deliberately unfinished task is left to the reader.

The final books of Paradise Lost do not convey a simple history lesson involving a tedious array of dates and events but extend a practice of discerning patterns promoted by seventeenth-century chronologies. The chronologies or time-tables of universal history that occupy my attention first may be thought of as grand historical laboratories. But we would be even more accurate to characterize them as instruments which define spaces on which narrative patterns may be plotted. With their grid-work, they survey time much as the longitude and latitude of the new geography or the coordinates of analytic geometry bring new meaning to space. In the second part of my discussion I argue that the chronologies demonstrate how Milton's own formulation of history is a construct of intersecting narrative patterns comprised of an overarching tragic metanarrative associated with religion and a romance narrative generated by science. The third part shows how historical patterns discerned by Milton provoke us to challenge another prejudice as well. Although it is widely assumed that Milton held conservative views about science and technology, I will suggest that such an assumption tells us more about a modern idea of science, emphasizing revolutionary breaks with the past rather than a seventeenth-century idea of natural philosophy. Finally grounds for reassessing Milton's attitudes toward science come from exploring the affinity his historiography has with the life-long historical research of that other famous Puritan, Isaac Newton.

Since antiquity, the composition of chronologies had offered a means to discover synchronisms (simultaneous or related occurrences) among the myths and historical records of different cultures. In the Christian era synchronisms allowed historians to realign the reported events of pagan myths and histories along a time-line formulated on Biblical history. In their efforts to group narratives that would simultaneously order the history of multiple nations, these Christian historians followed the models of their pagan predecessors: Dionysius of Halicarnassus, Diodorus Siculus, and Polybius, among others. By the seventeenth century, the larger prose histories such as Sir Walter Ralegh's History of the World (1601) were often supplemented by abbreviated chronologies arranged in tabular form. In part, their abbreviated form testifies to the growing amount of information with which the seventeenth century had to contend. Comprised of column after column setting forth numerical figures and events, these chronologies convey an idea of rigorous but simplified order. In one respect, they represent a tabular encoding of Francis Bacon's plea that science organize otherwise discrete information about the natural world in tables. Without any exaggeration we may also think of the tables as forms of technology. In the narrative bundles found in these works, thousands of pages of historical narrative become abbreviated with the result that history may be scanned with the glance of the eye. Hayden White has stressed that all historical narrative functions as abbreviation that becomes amplified by the reader.


*See Francis Bacon, Thoughts and Conclusions in Benjamin Farrington, The Philosophy of Francis Bacon (Chicago: Univ. of Chicago Press, 1964), p. 99: “[T]he material collected should be sorted into orderly Tables, so that the understanding may work upon it and thus accomplish its appropriate task.”

White’s argument applies even more to chronologies where blank spaces literally invite the reader to invent coupling narratives. The relationships discovered in the synchronic order work very much as an \textit{ars combinatoria} which provoke discoveries by making hitherto unobserved connections.

For the seventeenth-century chronologists, time-tables provided both a visual scheme of metaphysical order and an incentive to conduct further research. According to a well-known table of the time, “The Mass of Historians would prove but a confused Heape, and be like a Monster, if Chronology did not helpe to forme and frame them into fashion, by digging them into a certainiety of articulate Times. And lastly, it is termed the Soule of History giving life to it, as the Soul doth to the body.” What comprises the “Soule” of history emerges as the plot discovered by the historian himself. Just what plot or narrative ordered the disparate parts “into fashion” depended very much on the ingenuity of the author. Henry Isaacson’s \textit{Saturni Ephemerides} (1633), from which I have just quoted, is an enormous table or chart in which the reader may have at a glance a synchronic view of world history and its relation to Biblical chronology. The rows of columns are not all filled and their large empty spaces seem to invite emendation and expansion. Several years earlier, George Sandys had noticed that the earliest periods of history were called obscure or even referred to as “the Emptie times.” The columns in Isaacson’s work quite literally frame such “Emptie times.” At the same time they allow one to see the room that the seventeenth-century historian had for invention. In \textit{A Table from the Beginning of the World} (1593), John More reveals that the date 2513 is significant not only because it was the year that the law was given to Moses on Mount Sinai but also because this was when “Phaeton burnt.” In \textit{A Briefe Chronicle of the Successe of Times from Creation} (1611), Anthony Munday notes that during the same year Joshua became the leader of the Jews, 2465, “Cadmus brought the Characters of letters into Greece.” The tables depend on the construction of a plausible set of diachronic and synchronic relations and function as a narrative matrix that, at once, represents historical plots in an abbreviated form and offers a vehicle for the discovery or invention of others. Consequently, the blanks that occasionally appear between one year and the next are richly provocative. Every new relationship discovered within or among the accounts of various nations becomes a means to elaborate additional narrative structures. The tabular form works as a developing bath from which images from the past take shape as narratives.

The blank spaces that appear within the chronologies are different from the blank margins of a book. In a commentary on Ovid’s \textit{Metamorphoses}, for example, the margins are more or less full as the editor has more or less to say about a text that continues to march in measured lines more or less without gap. When the text does lapse—when a lacuna is perceived—or when the text is judged less complete, the margins become fuller as the editor or reader fills in. In the chronologies, however, the blanks do not appear in the margins but are literally internalized in the vacancies left in the table.

In retrospect, the universal chronologies seem almost a game played with figures from antiquity—a scholarly game within a closed system in which all the pieces fit together according to the rules one chooses to follow. Such books were widespread in the seventeenth century and appealed to King and commoner alike. But beyond the disavowal that the chronicles could offer, they also mark a serious preoccupation with locating individual experience in a universal, Christological context. As the chronologist plots a moment in time, he inserts himself into an already formulated historical narrative. His compilation of historical events allows him (and by implication his readers) to graph his own limited experience into the general narrative whose assurance for the future was a matter of faith. Certain chronologies invite the reader to situate himself or herself even more directly in time. Although the first edition of \textit{Historical and Chronological Theatre} by Christian Helvetius was published in 1609, it was augmented throughout the seventeenth century by subsequent editors to include the most recent events. References to the murder of Archbishop Laud and the martyrdom of Charles I in the

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\* The chronologies’ “discoveries” of relationships may be compared to the encyclopedic memory theatres described by Frances Yates in \textit{The Art of Memory} (Chicago: Univ. of Chicago Press, 1966).


\* John More, \textit{A Table from the Beginning of the World} (London, 1593), n.p.


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\* In referring to chronology as a form of gaming, I have in mind the idea of sciolinguistic play discussed by Jean-François Lyotard and Jean-Loup Thébaud in \textit{Just Gaming} (Minneapolis: Univ. of Minnesota Press, 1985).

\* Isaacson’s \textit{Saturni Ephemerides}, elaborately printed elephant folio dedicated to Charles I, was prepared for readers at court. Other works, including More’s \textit{Table from the Beginning of the World}, Munday’s \textit{Briefe Chronicle}, and Lodowick Lloyd’s \textit{The Consent of Time} (London, 1590), were prepared for educated merchants.

\* Christian Helvetius, \textit{The Historical and Chronological Theatre of Christopher Helvius} (London, 1687); original ed. 1609.
English edition of 1687 suggest the interpretive force of the additions. The inclusion of not only recent monarchs but also of local administrators in other English chronicles offers another example of the integration of local into universal history. Munday concludes his work by tracing the provenance of London’s mayors and listing municipal London offices and the men who held them. The most recent events thus become part of a narrative fabric that includes King David, the Trojan War, and the Death of Queen Mary.

As instruments for a totalizing vision, the chronologies legitimate a Christian, Eurocentric view of the world. In this regard, they are important for suppling a mechanism or technological apparatus useful for the assimilation of other cultures into an authoritative master narrative. Rather than relying on single texts, the tables indicate that their authors have surveyed all available sources and compiled a universal encyclopaedia. The very act of sorting through various sources and representing their narratives in tabular form encourages the author to assume—or present the fiction of assuming—an omniscient vantage point. It is not a coincidence that the expansion of such tables in the seventeenth century complements the growing popularity of cartographic collections which extend one’s limited sense of space. In another sense the time-tables acknowledge and supplement the limitations of the mechanical clock whose hands can tell time but are frozen in the present, ever unable to take one into time past or future.

The chronologies, then, provoke the expectation that a larger narrative pattern will emerge from the myriad details that have been collected. For millenarians of the seventeenth century, the tables supply a mechanism that permits them to plot the very end of the world. But even if the exact calculation of the world’s destruction was not the issue (as it had been for the Bishop of Exeter who had calculated the exact moment of creation), there was a profound belief that time had a narrative structure and could be read and understood. Milton’s final book(s) of Paradise Lost offer a vision of this belief. Watching the procession of historical events set before him, the reader, like Adam, finds ample encouragement to discover providential patterns of God’s grand design and find his or her place among them.

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14 Munday, Briefe Chronicle, p. 393.
15 Stephen Jay Gould’s recent book, Time’s Arrow, Time’s Cycle: Myth and Metaphor in the Discovery of Geological Time (Cambridge: Harvard Univ. Press, 1987), demonstrates not only the early application of seventeenth-century chronological investigation to natural history, but shows that early geological research was perceived as constructing narratives that could be read into the layers of the earth.

II

Since Books II and 12 were faulted for being little more than a history lesson, critics have responded by arguing how they fit within the work’s poetic architecture. But in defending Milton as poet, Milton as historian has been played down. This is surprising especially since Milton himself readily turned his attention to chronology and historical narrative. Besides assuming the study of history in any adequate pedagogy, his polemical and theological writing is unthinkable without historical research. There are important exceptions to the common silence about Milton’s historiography. Mary Ann Radosznowicz suggests that for Adam the historical narrative works as a laboratory of historical time, and Marshall Grossman has recently argued that the historical laboratory includes the entire poem. In what follows, I concentrate on the final books in order to suggest how Milton challenges Adam and his audience to become readers of chronologies.

As the previous review of chronologies has suggested, the concatenation of events along a timeline does not comprise the object but the vehicle of historical inquiry. The chronologies are a developing bath where each inquiry may reveal new patterns or a matrix in which one may configure a plot. Invariably the discovery of patterns from chronologies involves self-projection. Adam does not passively view the history set before him but comprehends it by drawing forth patterns in which he sees the result of his own actions. From the murder of Abel and suffering exhibited in the Lazar-house, he draws forth the moral of his own sin and learns of his own dissolution [11:552]. From the beauty of Cain’s daughters, he learns how easily he can still be deceived by outward appearance [11:628-32]. From the panorama of warring cities, he learns of death’s multiplication. As we follow Adam’s response to the scenes set before him we are like the art historian who silently follows a docent giving a tour to someone who visits a museum for the first time. For every question the visitor asks and the docent answers, the art historian sees patterns the visitor has not yet perceived.

Broadly complementary patterns emerge from Michael’s chronology. While Book 11 describes an evolutionary pattern that turns away from God, Book 12 portrays a series of divine revelations promising guidance. The enunciation of ultimate catastrophe is balanced by the assurance of
providential meaning. But beyond the evolutionary stages and incremental revelations that make up the final books, the reader discerns another pattern as well. Returning at each stage is a recurrent attraction to the place of technology in the transmission of culture.

The episodic representation of Hebrew history set before Adam is introduced through a geographical representation of the rise and fall of ancient and modern empires. Since the geographic panorama is described by the narrator and receives no commentary from Michael, it is primarily intended to give orientation to the reader. While the description alludes to various poetic models, it above all sets before the reader the ordered accomplishment of seventeenth-century cartography.

His Eye might there command wherever stood City of old or modern Fame, the Seat of mightiest Empire, from the destin'd Walls of Cambalu, seat of Cathaian Can, And Samarchand by Oxus, Temir's Throne, To Paquin of Sinaean Kings, and thence To Agra and Lahor of great Mogul Down to the golden Chersonese, or where The Persian in Ecbatan sat, or since In Hispahan, or where the Russian Tsar In Mosco, or the Sultan in Bizance, Turcoman-born; nor could his eye not ken Th' Empire of Negus to his utmost Port Erasco and the less Maritime Kings Mombaza, and Quiloa, and Melind, And Sofala thought Offir, to the Realm of Congo, and Angola farthest South; Or thence from Niger Flood to Atlas Mount The Emperors of Alkmansor, Fez and Sus, Mocaroc and Algiers, and Tremichen; On Europe thence, and where Rome was to sway The World: in Spirit perhaps he saw Rich Mexico the seat of Montezume. And Cusco in Peru, the richer seat Of Atabalia, and yet unspoild Guiana, whose great City Geryon's Sons Call El Dorado: [11:385-411]

Although the passage broadly conflates a cosmological dream poetry such as Cicero's Somnium Scipionis with topographic poetry like Dry-
effect the reference to a “Land-mark” in Book 11 is another reminder of Eden's termination. It also suggests how misleading it is to render the territories of the “New World” as quasi-Edenic by naming them “New England,” “New France,” and “Nova Scotia.” In his early approach to Eden, Satan appears much like a surveyor [3:555]. Even the description of the Lazar-house becomes a substantial extension of the agricultural manipulation, for death and disease are not separated from agriculture, but come from its perversion. “by Intemperance more/in Meats and Drinks, which on the Earth shall bring/Diseases dire” [11:472-74].

An age of technological advance, linked to Tubal-Cain (Genesis 4:22, 41; 42), follows the description of agriculture. Although the invention of musical instruments, mining, metallurgy are described, the epoch is associated most with women who come to represent technology's seductive power.

The Men though grave, ey'd them, and let thir eyes
Rowe without reit, till in the amorous Net
Fast caught, they lik'd, and each his liking chose; [11:585-87]

The association is hardly casual but at once casts the danger of technology as a gender specific characteristic and depicts women as technological objects themselves. In effect the feminization of machinery provides a psychological explanation for male weakness—their effeminization—before the engines they have created. In their most threatening form women become goddesses and mark the initiation of idolatry. The configuration also provokes comparison with Eve, who at times appears like a deceptive fabrication. In its general form Milton draws his argument from church fathers such as Tertullian who referred to cosmetics as a form of technological corruption. The description of grave men entrapped “in the amorous Net” may also bear an allusion to the myth of Vulcain as a lecherous iron worker. The militaristic organization of cities intensifies the misuse of agriculture and technology.

He look'd and saw wide Territory spread
Before him, Towns, and rural works between,
Cities of Men with lofty Gates and Tow'r's,
Concourse in Arms, fierce Faces threat'ning War,
Giants of might Bone, and bold emprise; [11:638-40]

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For examples of altar-like boundary markers see the illustrations from Ptolemy, Geography (Rome, 1490) included in A. E. Nordenskiöld, Facsimile-Atlas to the Early History of Cartography (New York: Dover, 1973). XVII, XX.
The dominant image of the city is as center for violent strategies or as a stronghold against attack. The city is the locus for heroic military feats, a place where men are giants [11:658] and perform "gigantic deeds" [11:659]. The scene both anticipates the building of Babel and looks back to Pandemonium.

I have emphasized ways in which technology poses a threat. Milton, however, is not a Leveller and does not universally condemn technology. Instead he warns how it appears to affect the authority of human beings alone: "studious they appear/Of Arts that polish Life, Inventors rare,/Unmindful of thir Maker, though his Spirit/Taught them, but they their gifts acknowledg'd none" [11:609-12]. When combined with recognition of God's authority, technology contributes to the selective transmission of culture. Noah signifies not only a man who follows the laws of God but one whose justly employed technological skills [11:728-33] permit the human race to continue.28

The destructive evolution of technology is balanced by an affirmation of God's guiding control of time in Book 12. From a representation of "Sword-law" with its implicit technological base, Milton shifts to a narration of humans who are to become registers of divine law. The transition does not mark a repudiation of technology, however. While individuals may receive covenants from God, their revelations become institutionalized and shared with the public through building programs. After leading the Hebrews from Egypt, Moses builds a temple for the ark of the covenant. Milton's description indicates that the structure has cosmic significance. Here before the Cherubim burn "Sev'n Lamps as in a Zodiac representing/The Heav'ly fires" [12:249-56]. Next Solomon, "for Wealth and Wisdom fam'd" [12:332] builds his "glorious Temple" [12:334]. The cosmological wisdom represented by the ark actually explains the form of Michael's historical transmission.

The cycles of degeneration and generation surveyed in Books 11 and 12 themselves witness to the scientific source of revelation. Adam's vision of time involves more than the projection of angelic visions and whispers during a drug-induced trance. Michael's appearance at the beginning and end of these books suggests that Adam is taken inside a universal clock or time machine. When we see him first Michael embodies the movement of the planets. His martial dress appears like a rainbow ["Iris had dipt the woof" 11:244]; his helmet is made of stars ["starry Helm" 11:245]; and his sword hangs as if suspended between the zodiac ["As in a glistening Zodiac hung the Sword" 11:247]. The description recalls the constellation Orion. The fact that the time of Adam's encounter with the


In the foregoing discussion we noticed how Milton practices the kind of synthetic historiography found in seventeenth-century chronologies. By abbreviating events and condensing them into narrative bundles, patterns emerge which allow Adam and the reader to discern signs of divine
providence in time. As we have seen, such signs are not mysterious but can be distinctly related to human response to technology. In the final section, I want to compare Milton's historiographic project with the chronological research that occupied Isaac Newton for much of his life. Differences may be noticed immediately. Rather than Milton's selective poetic representation of Hebraic history, Newton's prose work intends to be exhaustive and quantitative. Indeed, the most obvious difference is Newton's attempt to apply mathematics to history through the formulation of an accurate system of dating based on astronomical calculation. In short, the Chronology would extend the accomplishments of the Principia to history. But before we hastily affirm common prejudices about the separation of poetry and science, we must pause. While Newton's method seeks to establish scientific grounds for the study of universal history and envisage a definitive measure of calculating time that looks toward carbon dating, it simultaneously engenders an array of narrative patterns that may be compared to those in Paradise Lost. For Newton, as for Milton, social development is marked by the increasingly sophisticated organization of society signified by changes in agriculture, technology, and the development of cities. For Newton, as for Milton, the use of technology defines the very force of change in history.

The location of technological innovation lies at the center of Newton's historiographic research. This is hardly surprising considering that Newton was substantially responsible for overseeing the technological development of England both as the President of the Royal Society and as Head of the Mint. It is also an expression of how thoroughly Baconian philosophy helped formulate late seventeenth-century ideology. At the conclusion of the New Atlantis, Bacon describes a seventeenth-century museum of science and industry that would venerate the famous discoveries in history. Newton's chronology revisits Bacon's museum and in doing so takes the figures from their static museum pedestals and stresses their dynamic force in time. He does so because he identifies not simply technology but technology transfer as the most crucial evidence of historical development.

By tracing the transmission of technical arts, Newton identifies what is crucial in the fabric of intercultural relations. Rather than being overwhelmed by detail, Newton factors out unnecessary material by looking for the technological nodal points. “These Edomites carry to all places their arts and sciences; amongst which were their navigation, astronomy, and letters: for in Idumæa they had constellations and letters before the days of Job, who mentions them; and there Moses learnt to write the Law in a book. These Edomites, who fled to the Mediterranean, translating the word Erythraea into that of Phoenicia, gave the name of Phoenicians to themselves...” It is the Phoenicians and Syrians under the command of Cadmus who “introduce letters, music, poetry, the Octaeteris, metals and their fabrication, and other arts, sciences and customs of the Phoenicians (10). Also: “The Idae Icesti find out iron in mountain Idæ in Crete, and work it into armour and iron tools; and thereby give a beginning to the trades of smiths and armours in Europe: and by singing and dancing in their armour, and keeping time by striking upon one another’s armour with their swords, they bring in music and poetry” (11). But narrative bundles, such as these, do more than gather up cultural connections. They also formulate stages in cultural development.

Newton's account of the Egyptian empire of Ammon and Sesac provides an example of the stages he finds throughout history. With the reign of Ammon the Egyptians build “long and tall ships with sails” (14) and begin to navigate in the open sea. “For enabling them to cross the seas without seeing the shore, the Egyptians began in his days to observe the stars: and from this beginning, Astronomy and Sailing had their rise.” (14) For his accomplishments, Sesac, the son of Ammon, causes his father to be worshipped as a god in the regions he conquers. “Sesac also erected temples and oracles to his father in Thebes, Ammonia, and Ethiopia; and thereby caused his father to be worshipped as a god in those countries, and I think also in Arabia Felix: and this was the original of the worship of Jupiter Ammon, and the first mention of oracles that I met with in prophane history.” (18) Following the delation of his father, Sesac sets off again and after invading India and conquering Thrace he returns to Egypt to institute an elaborate religious administration to oversee thirty-six regional temples which “were the sepulchres of his great men; where they were to be buried and worshipped after death, each in his own temple, with ceremonies and festivals appointed by him.” When Sesac and his queen die they come to be worshipped “in all Egypt” (22) by the names of Osiris and Isis.

The account of Ammon and Sesac also reveals Newton's interest in the expansion of empire. Once more the survey of imperial expansion may be seen as an ideological expression of concerns identified by Bacon.

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*All references, henceforth included in the text, are to Sir Isaac Newton, The Chronology of Ancient Kingdom Emended (London, 1728), p. 10.
and questioned by Milton. Beginning from a rural and primitive state, a particular people congregates to form cities, confederates into a nation with a single political leader, makes alliances, and eventually seeks to extend its control over other nations. In the earliest periods scrutinized by Newton, the Egyptian model of civilization—empire and administration—is contrasted to the more animal-like existence of the Canaanites who “fed on flesh; and sacrificed men after the manner of the Phenicians; and were called shepherds by the Egyptians.” (9) Europeans exhibit a similar, uncivilized behavior. “Before those days Greece and all Europe was peopled by wandering Chimerians, and Scythians from the backside of the Euxine Sea; who lived a rambling wild sort of life, like the Tartars in the northern parts of Asia.” (9) What attracts Newton the most is not the description of particular states but the identification of contact. It is the dynamic interaction of cultures that bears the greatest significance. Newton privileges that advanced nomadic existence we think of as commerce.

It would be a mistake to think of Newton glorifying scientific advances for their own sake. While technology offers the means for explaining the history, it also identifies aberrations in the history of religion. As Ammon and Sesac suggest, technology brings forth great advance, but also religious corruption when it leads to the deification of mortals. When read euhemeristically, Greek mythology not only registers scientific advance, but the debasement of religious practice. Ceres is a good example. After coming in to Attica from Sicily, an historical figure named Ceres “teaches the Greeks to sow corn: for which Benefaction, she was Deified after her death.” (15) As this example suggests, Newton’s euhemeristic method does not stop at registering a single event but invites the formulation of a large narrative sequence. Once she is identified as an historical figure, a range of other phenomena may also be explained: “Ceres being dead, Eumolpus institutes her Mysteries in Eleusin: the Mysteries of Rhea are instituted in Phrygia, in the City Cybale. About this time Temples begin to be built in Greece.” (17) Newton’s linkage of temples honoring Ceres to temples in general marks a further stage of interpretation. Without any overt comment, a euhemeristic explanation of Ceres is used to account for a widespread cultural phenomenon and religious corruption apparent in the deification and worship of mortals.

Technology hardly remains restricted to the Egyptians or Greeks but stands behind the very rise of the Hebrew nation. The references to Job and Moses above show Newton’s interest in identifying the relay of science to the Hebrews. Moses especially appears as an agent of technology transfer from Egypt to Israel. But Newton reserves his most elaborate study of Hebraic science for Solomon’s Temple. While the attention given to Solomon marks another sign of Newton’s extension of Baconian

themes, Newton’s research far exceeds anything imagined by Bacon. Newton’s study of the temple occupied him for decades. The most obvious indication of his detailed work appears in the architectural plan published in the *Chronology.* By reproducing a schematic drawing of the temple, gathering together material on Hebraic ritual, and by coordinating his interpretation of Revelation with his spatial understanding of the temple, Newton concludes that the temple is literally a scientific structure embodying cosmic truths found in astronomy. In contrast to temples dedicated to the mortal Ceres, Solomon’s temple becomes an ever present witness to God’s law and a means for comprehending time.

I want to remark at this point how Newton’s configuration of technology is closer to Milton’s than we might think. At the same time that Milton stresses the idiolatrous use of technology—cannons, for example—he is fully aware of the way it sustains the human race. But at the same time that technology promotes the successive development of human culture it also becomes central to the very idea of religion. The survey of land, the invention of cannon, the construction of great cities, the invention of great sailing ships, and the capacity to measure the globe in order to gain profit for modern empires—all mark ways in which technology asserts itself upon religion and claims allegiance. In its most developed form religion is neither divorced from science nor a complementary discipline. Instead religion and science may converge. The subjunctive is important for while I would argue that Milton has such a vision of science, it is a vision being clouded and even closed off by the very developments he witnessed taking place about him. Rather than being a Christian musem, *Paradise Lost* registers conflict between the degenerative and generative force of seventeenth-century technology.

* If we think of *Paradise Lost,* at least in part, as an epic of technology,
Newton's *Chronology* might be seen as a prose romance dealing with technological expansion. Considering Newton's extraordinary status as a natural philosopher during his lifetime, we may even think of him as the hero of his romance. By plotting scientists from Egyptian antiquity and the prophet-scientists from the Old Testament, Newton's calculations invariably lead to himself. In tracing the rise of ancient empires so grounded on technology, Newton is also thinking of the astonishing developments taking place in England. Newton, like Milton, was persuaded to think of England as God's chosen nation in the modern epoch and Newton himself was acknowledged a sign of God's covenant with England. The *Principia* was a sufficient sign. But while we may think of Newton as the concealed hero of his romance, the characterization is also incomplete. Like Milton, Newton bore a developed awareness of the danger that arose from the separation of science and religion. While he was certainly prepared to accept scientific fame, he was also aware that it permitted him to become construed much like an ancient scientist-benefactor who became deified by his people. The editorial history of the *Principia*, with its addition and subtraction of theological material, registers even more Newton's anxious wrestling with the convergence of science and God. The *Chronology* itself, even in its published form, testifies to his desire to corroborate his mathematical revelations with the Bible. In the broadest sense Newton's historical research is both a vehicle for affirming his own prophetic authority and for cautioning an idolatrous self-elevation.

Even though traditional ideas of genre separate Milton's *Paradise Lost* from Newton's *Chronology*, the two works employ history in similar ways. Inherent in each is not simply the belief that divine patterns may be discerned in history, but the assumption as in a historical play that the end of the story is already known. At the same time, each discerns a tragic metanarrative in the events they sort through, and each also formulates subplots that mark local revelations over time. In effect, the tragic metanarrative comprehends a proliferation of romance narratives. The double configuration of plots is helpful because it permits us to identify the changing ideas of time enacted in Milton and Newton. While each believes in an apocalyptic end of time that draws us toward a transcendent telos, they also find themselves surrounded by patterns of scientifc and technological discovery that place greater authority in human beings. For Milton and Newton alike technology might be situated at the very boundary between tragedy and romance. Finally it is not Newton at all who is the hero of his romance, but technology itself.

Our closing assessment of their chronological work may be even more exact. Their value emerges not in simply identifying the importance of technology in history, but in identifying technology's place in history as an interpretive problem. At the end of *Paradise Lost* Michael's sword blazes "Fierce as a Comet" [12:634] and inscribes in the heavens God's law. What Milton imagines, Newton defines. For each, the comets signify not only God's law, but humans' still evolving capacity to extend the bounds of their understanding in time.

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88 Newton is not only referred to as a sign of God's favor with England but himself explores such an identity. As Manuel notices, Newton used *Jeova sanctus unus* as an anagram for Isaacus Newtonus, and in a notation made in the 2nd edition of the *Principia*, he parallels his own life with God: "One and the same am I throughout life in all the organs of the senses, one and the same is God always and everywhere." Frank Manuel, *The Religion of Isaac Newton*, p. 19.