D. M. Rosenberg

THE GEORGIC MODE IN THE SEVENTEENTH-CENTURY ENGLISH EPIC

The epic poem in the Renaissance was regarded as the most important literary genre, the culmination of a civilized culture. This exalted genre was the ultimate goal of a serious poet's career. John Dryden, at the end of the seventeenth-century, asserted that "A HEROIC poem, truly such, is undoubtedly the greatest work of the soul of man is capable to perform." [1] In the mid-seventeenth century the epic poem had undergone significant transformations, which were in large part a response to an age of historical revolt. I refer here not only to the calamitous events of the Civil War, the political revolution and the counter-revolution that followed, but also to the Reformation and the scientific movement, which Alfred North Whitehead called "two aspects of the historical revolt which was the dominant intellectual movement of the Renaissance." [2] In this period of intellectual, political, and cultural upheaval, several poets attempted to reform the epic. The decades of the 1650s and 60s saw the publication of a number of neoclassical epics by both Royalist poets, most notable among them Sir William Davenant and Abraham Cowley, and the anti-monarchist Puritan poet, John Milton.

The Renaissance epic was encyclopedic in that it subsumed various literary genres and modes. Renaissance critics discussed the principle of generic inclusion, and viewed epic, in its comprehensiveness, as the apex and standard of genres.

A major characteristic of the epic poem in the mid-seventeenth century is its growing accommodation of the georgic mode. This georgic modulation reflects the popularization of Baconian ideas and is clearly part of the emerging scientific culture of the period. This study considers the transformation of the epic poem, in an examination of Davenant's Gondibert (1651), Cowley's Davideis (1656), and Milton's Paradise Lost (1667). Adapting the discoveries in natural philosophy to the purpose

of heroic verse, these poems introduce the georgic mode to the epic. The incorporation of the mode, it will be argued, became a major means of showing how natural philosophy integrates science and Christian belief.

The Renaissance conception of georgics seems to have been quite pliant. In his Apologie for Poetrie (1583), Sir Philip Sidney discusses the "art of imitation," categorizing its several kinds, one of which is about philosophical matters, including natural philosophy. His examples of poems of natural philosophy are " Lucretius and Virgils Georgicks ." [3] The georgic mode, narrowly understood, is related to agriculture and husbandry, but De Rerum Natura of Lucretius and the Georgics treat the much more comprehensive and intellectually complex subject of natural philosophy, especially the nature of the physical universe and humanity's place in it.

Of these two classical didactic epics, it is the Georgics that has most influenced the georgic mode in seventeenth-century Christian culture. Lucretius presents an exposition of Epicurean "atheistic" philosophy, based on the atomic principles of Democritus. By contrast, Virgil's theistic Georgics presents Jupiter as the deity who sustains and providentially guides the cosmos and whose power is revealed in the natural world.

When in mid-seventeenth century England, Christianity and natural philosophy were interacting with each other, the Georgics provided a model for epic poets. Religious belief in this period was chiefly theistic, emphasizing the transcendental God and the natural world as his work of Creation. This philosophy revealed the idea of God's ordered Creation and the divinely imposed laws of nature. [4]

I

Both Virgil's Georgics and Sylvester's translation of Du Bartas's The Divine Weeks

and Works, based on Genesis, are important literary works representing two great traditions, classical and biblical, which provide paradigmatic examples of georgic theodicies.

The central loci of the Georgics are the poet's account of the theodicy of labor and the celebration of the happy husbandman's life. Virgil first briefly describes the primal Golden Age of natural spontaneity, abundance, and justice. It is Jupiter's initiative, however, which puts an end to a life of prelapsarian ease: "The great father himself has willed that the path of husbandry should not be smooth, and he first made art awake the fields, sharpening men's wits by care, not letting his realm slumber in heavy lethargy" (1.1.121-24). [5] Initiating strenuous effort, he has provoked the invention of the arts through humanity's continual mental and physical struggle, and this is seen as the means by which human potential is realized. Men are deprived of an easy life because Jupiter wants them by enterprise to discover and learn, and as a result, improve their own condition. The Jupiter theodicy passage pays a tribute to man's active life and his resourcefulness.

Virgil shows the direct relationship between the husbandman and the fundamental laws of nature. He exhorts the husbandman "to learn the culture proper to each after its kind" (2,35), He is to learn the appropriate cultivation of each kind of crop so that it will not grow wild or become diseased. This discipline has a parallel in the education and conduct of humankind, which must learn to cultivate its own mental abilities in order to civilize both nature and itself. [6]

The celebration of the happy husbandman's life, the O fortunatos agricolas section in Book 2, praises the life of philosophical contemplation. In dramatic contrast to

Virgil's usual emphasis upon the cares and duties of georgic life, is the peace and security of "the life golden Saturn lived on earth" (2.538). For Virgil, the thoughtful man is "blessed" because he has been "able to win knowledge of the causes of things" (2.490. felix, potuit rerum cognoscere causus).

Francis Bacon, who quotes several passages from the Georgics in his philosophy of science, The Advancement of Learning (1605), says of these famous lines that "Virgil did excellently and profoundly couple the knowledge of causes and the conquest of all fears together, as concomitantia ." [7] When Bacon comments on another Virgilian passage (3.289-90) about instructing and inducing an active life, he uses the phrase, "these Georgics of the mind" (Bacon, III.419), which also has particular relevance to "felix, potuit rerum cognoscere causus." Here Virgil, like Bacon centuries later, praises intellectual inquiry that leads to a greater comprehension of natural philosophy.

Throughout the Georgics, Virgil explores the interrelationship of nature, humankind, and the gods. He praises man himself as a natural philosopher who examines physical phenomena, seeking natural causation. He suggests, moreover, that the blessed man apprehends the immanence of the divine in nature. That is, the power of the natural, human, and divine have freed him from bondage to the deterministic forces of fate. The knowledge of the thoughtful man has led him to perceive the essential divinity of the natural world. This winning "the knowledge of the causes of things" is the goal of natural philosophy that unites scientific inquiry and religious devotion .

In Renaissance England, the assumption was that the world had been created for humanity, and nature existed solely to serve its needs. Those thinkers who wished to justify this view appealed both to the classical philosophers and Scriptures.

Many English readers of the seventeenth century were familiar with Du Bartas, in Josuah Sylvester's translation of Les Semaines as The Divine Weeks and Works.[8] Le Semaine is a hexameral epic, a detailed elaboration of the first two chapters of Genesis, divided into seven books, one day for each day of the Creation and one for the first Sabbath. Susan Snyder, the editor of Sylvester's translation, describes the First Week as "a kind of Christian-scientific poem, usually called 'Uranian'" (I.79), after Du Bartas's muse of both astronomy and Christian poetry. Du Bartas later added Le seconde semaine, which takes the biblical story up to Abraham. In addition to conventional theological speculation and moral reflection, these works cover wide fields of scientific interest, including astronomy, zoology, botany, and mineralogy. Sylvester's very popular and influential translation went through nine editions between 1592 and 1641. Du Bartas's poem, according to Snyder, is "encyclopedic in the epic mode. It is, in fact, an epic of the divine plan in the physical universe, with God the Maker as its epic hero" (I.2). The comprehensive nature of this epic incorporates and gives emphasis to the georgic mode.

Sylvester's Du Bartas shows that the Garden of Eden was put in innocent man's hands so that he had dominion over all living things, and the creatures knew him for their lord. This gift of authority is confirmed when God gives Adam the power to name the creatures. Hexameral tradition interprets the naming of the creatures as a sign of Adamic man's dominion as well as proof of his wisdom [9] in that he shows knowledge of God's creation.

Adam and Eve breach God's eternal law in rebellious pride, and, in an act of disobedience, eat of the forbidden Tree. By the hand of heaven, our first parents are driven out of Eden. In this biblical version of the theodicy of labor, God punishes them

by condemning them to hardship and toil. Now cursed, the ground has degenerated and lost its fertility, and many of the creatures rebel against humanity. Because of their rebellion against God, they have forfeited their dominance over the natural environment.

Exiled from Eden, primitive man is driven by necessity to make discoveries. Adam, striking a flint stone against a rock, by happy chance discovers fire. Tubal learns to make tools to build things for human use. Adam's pious son Seth observes the stars and is able to make a calender., dividing the year into seasons, months and days, and he learns to predict fair and foul weather.

Noah, warned of an imminent Flood, directs the construction of a huge vessel that will save his family, paired creatures, and himself. The many beasts, even wolves and panthers, humbly come to Noah, "th'holy Patriarke " (l.391,414), and under his command are rescued from death. After the Flood, God renews humankind's authority over the animal creation:

> Increase (quoth God) and quickly multiply,
> And fill the world with fruitful Progenie;
> Resume your scepter, and with new beheasts
> Bridle againe the late revolted Beasts,
> Re-exercise your wonted rule againe,
> It is your office over them to raigne:
> Deare Children, use them all (Du Bartas,I,439-45).

Noah has "sav'd the store-seed-World from wrack" (l.513,417), and as an instrument of God's providential plan,he becomes a productive planter actively engaged in the rehabilitation and regeneration of the natural world.

II

In his study of the relation between theology and the scientific imagination, Amos Funkenstein argues that under the impact of Protestantism, theology became secularized and at the same time encouraged the sacralization of the world, including 'everyday life.' Thus human labor acquired its own religious value, not as a mere preparation for the future life, but as a way of increasing the worth of God. Similarly, the study of the world revealed the ingenuity of its Creator, and the world, according to Scriptures, is "very good" (Gen.1.31). In the sixteenth and seventeenth centuries, this "secular theology" had manifested itself in the works of scientists and philosophers, among them Galileo, Descartes, Leibniz, Newton, Hobbes, and Vico. Funkenstein says that "never before or after were science, philosophy, and theology seen as almost one and the same occupation." [10]

Bacon, the philosopher of modern science, observes in The Advancement of Learning that a new vitality in philosophy and the sciences coincided with the Protestant Reformation:

> And we see before our eyes, that in the age of ourselves and our fathers, how it pleased God to call the church of Rome to account for their degenerate manners and ceremonies, and sundry doctrines obnoxious and framed to uphold the same abuses; at one and the same time it was ordained by the Divine Providence that there should attend withal a renovation and new spring of all other knowledges.
>
> (Bacon, III.300)

Bacon turns to the Genesis myth with new applications regarding how Paradise

could be regained. He writes in Novum Organum: "For man by the fall fell at the same time from his state of innocency and from his dominion over creation. . .Both these losses however can even in this life be in some part repaired; the former by religion and faith, the latter by arts and sciences" (Bacon, IV.247-48).

The purpose of the arts and sciences, then, is to restore to man that dominion over nature that he had partly lost at the Fall. Bacon believed that by knowledge man could regain his dominion "for whensoever he shall be able to call the creatures by their true names he shall again command" (Bacon, III.222). His Great Instauration was intended to provide the method by which the intellect could recover itself:

"For creation was not by the curse made altogether and for ever a rebel, but in virtue of that charter 'In the sweat of thy face shalt thou eat bread,' it is now by various labours . . . .at length and in some measure subdued to the supplying of man with bread; that i s, to the uses of human life" (Bacon, IV.248).

Bacon developed the idea that theology and natural philosophy are complementary. In his early Thoughts and Conclusions (1607), he writes that "Natural Philosophy is the most certain cure for superstition and the most approved nutriment of faith. Its rightful station is as the accepted and loyal handmaid of religion, for religion reveals the will of God, Natural Philosophy His Power."[11] Bacon affirms that God laid before us "two books or volumes to study." The first is the Scriptures, which reveal the will of God; the other is the book of "the creatures expressing his power; for that latter book will certify us that nothing which the first teacheth shall be thought impossible" (Bacon, III.221), We are able to pass from the Book of Scriptures to the Book of God's Works, and discover what can be known about nature and through nature about God. Bacon speaks of "Divine Philosophy or Natural Theology," or "that knowledge

concerning God which may be obtained by the contemplation of his creatures" (Bacon, III.349),

Bacon expresses his concern that "a little or superficial knowledge of philosophy may incline the mind to atheism," but explains, "a further proceeding therein doth bring the mind back again to religion" (Bacon, III.267-68). He urges the natural philosopher not to presume that by the contemplation of nature he attains the mysteries of God. Therefore the natural philosopher must eschew insolence but cultivate humility towards the Creator and charity toward humankind. In this sense, the vocation of the scientist, in its selflessness and concern for human welfare, is something like "the office of a true priest" (Bacon, IV.26).

Discussing the parallels between religion and science, Bacon says that "the rule of religion, that a man should show his faith by works, holds good in natural philosophy too. Science also must be known by works. It is by the witness of works, rather than by logic or even observation, that truth is revealed and established. Whence it follows that the improvement of man's mind and the improvement of his lot are one and the same thing" (Farrington, 93).

In his philosophical romance, New Atlantis (published posthumously in 1626), Bacon shows good works in a scientific institution, known as "Salomon's House" or "the College of the Six Days ' Work," a utopian variant of the hexameral tradition. Salomon, the King of the Hebrews, had instituted the House for georgic purposes: "the finding out the true nature of all things, (whereby God might have the more glory in the workmanship of them, and the more fruit in use of them)" (Bacon, III.145). The Father of Salomon's House sets forth the end of the foundation: "the knowledge of Causes, and secret motions of things; and the enlarging of the bounds of Human Empire, to the

effecting of all things possible" (Bacon, III.156).

The "priests" of natural philosophy in Salomon's House collaborate industriously toward the common end of restoring the original creation. The College of the Six Days' Work presents the ideal of cooperative scientific research and applied knowledge, with a strong emphasis on innovation and invention. The fruits of their empirical observation and experimentation have practical benefits for humanity, especially the improvement of cultivation, the curing of diseases, and the preservation of health. The laboratories, towers, mines, and gardens are designed to make possible human control of the environment. In his prophetic fantasy of scientific and technological progress, Bacon envisions new artificial metals, new composts and soils, and new applications of waterpower, and even air-conditioning, telephones, airplanes, and submarines.

In his Novum Organum Bacon quotes the prophecy of Daniel, "touching the last ages of the world": "Many shall go to and fro, and knowledge shall be increased." Bacon says that this prophecy clearly intimates "that the thorough passage of the world (which now by so many distant voyages seems to be accomplished, or in the course of accomplishment), and the advancement of the sciences, are destined by fate, that is, Divine Providence, to meet in the same age" (Bacon, IV.92).

That Abraham Cowley in his ode "To the Royal Society" used biblical figures and events to celebrate the scientific enlightenment is in keeping with Bacon's own allusive biblicism. The poet elevates the philosopher of science to the role of prophet, liberator, and lawgiver:

> Bacon, like Moses, led us forth at last,
>
> The barren Wilderness he past,

Did on the very Border stand
Of the blest promis'd Land,
And from the Mountains top of his Exalted Wit,
Saw it himself, and shew'd us it.[12]

Just as Moses died before reaching the "blest promis'd Land," so Bacon never lived to see the establishment of the Royal Society, dedicated to the rational progress of learning.

III

During the three decades between the death of Bacon and the foundation of the Royal Society in 1662, natural philosophy and experimental knowledge had attracted growing interest. In England several scientific groups emerged that generally adhered to certain Baconian principles, such as his anti-scholasticism, utilitarianism, and collaborative, experimental science. The'1645 Group" of scientists, including John Wallis the mathematician and John Wilkins, later to become the first secretary of the Royal Society, met weekly, sometimes in Gresham College in London. Several years later this scientific society split into various groups, some members continuing to gather in London, and others moving to Oxford and holding meetings at Wadham College. Scientists independent of this group had associated with Baconian enthusiast and Puritan educational reformer Samuel Hartlib, to whom John Milton addressed his Tractate of Education.

Robert Boyle, natural philosopher and one of the founders of modern chemistry, took a prominent place in the "Invisible College," first at Gresham and later at Oxford

where he settled. In 1663 the "Invisible College" became the "Royal Society of London for improving natural knowledge," and the charter of incorporation by Charles II named Boyle as member of the learned body.

Boyle was friends with well-known men of letters who were proponents of scientific thinking. Thomas Birch in his Life of Boyle (1744) reports that Boyle "distinguished himself by so copious and lively flow of wit, that Mr. Cowley, and Sir William Davenant, both thought him equal in that respect to the most celebrated genius's of that age." [13]

Both Cowley and Davenant were writers with progressive views who kept up with the new philosophy. In his odes of 1650, "To Mr. Hobs," "To Dr. Scarborough," and "Upon Dr. Harvey," Cowley honored contemporary philosophers and men of science. He joined the Royal Society the year that it was established, and wrote an ode to that institution to introduce Thomas Sprat's History of the Royal Society (1667). Moreover, Cowley's "Proposition for the Advancement of Experimental Philosophy" (1661) demonstrates his familiarity with Baconian ideas about the advancement of knowledge. Similarly, some of Davenant's poems, "To the Lord Cary of Lepington," "To Henry Jarmin," and "To My Friend Mr. Ogilby," give evidence of his Baconian views, particularly the poet's attacks on the "useless subtilities" of Aristotelian-Scholastic philosophy. Davenant and Cowley, in the spirit of inquiry and innovation, experimented with, and strove to reform, the epic poem. Their reforming mission and self-conscious innovations are in many ways analogous to the experimental science of their day. The georgic episodes in their epics, the House of Astragon in Gondibert and Samuel's College of Prophets in the Davideis, best exemplify the importance to these poets of natural philosophy and its relation to religious belief.

Davenant, a Royalist exile in Paris and then a prisoner of parliamentarians in

Cowes Castle, wrote the first three books of Gondibert : An Heroick Poem, an epic that he never completed. According to some accounts, it was through the intervention of John Milton, then Latin secretary to the Cromwellian Council of State, that Davenant was released from imprisonment in the Tower and escaped possible execution. A decade later, at the Restoration, Davenant in repayment of assistance, intervened on Milton's behalf.[14]

Davenant's lengthy "Author's Preface" and "The Answer of Mr. Hobbes," published together in 1650, constitute a landmark in mid-seventeenth century poetic theory, laying out the principles of the neoclassical epic.[15]

In his Preface, he presents himself as an innovator, and inventor of a modern poetic that is a response to recent progress in philosophy and science: "Nor have I refrayn'd to be oblig'd to men of any science, as well as mechanicall, as liberal" (Davenant,22). He draws upon the work of men of science and philosophy throughout the Preface and poem, and as Gladish the editor of Gondibert notes, he echoes and reflects the ideas of Francis Bacon, William Harvey, Sir Thomas Browne, and Thomas Hobbes (Davenant, xi).

The setting of his unfinished romantic epic is early medieval Lombardy. Duke Gondibert, wounded in a duel in which he kills his rival Oswald, is taken to be healed in the country house of Astragon, a natural philosopher and religious contemplative.

During the period in which Davenant wrote Gondibert, many of his immediate contemporaries, especially those who were Royalists, wrote works praising a peaceful rural retreat from public life. The poems of Herrick, Mildmay Fane, Vaughan, and the essays of Cowley, in a version of the Horatian ideal, describe a life of contemplation in a country landscape remote from the tumult of politics and war. [16] Maren-Sofie Rostvig

has described several variants of the classical motif of the happy man, one of these variants being "a supreme type of mental serenity. . .achieved by the man who obtains a knowledge of the universe by studying the 'causes of things.'" [17] The final phrase echoes Virgil's second Georgics. This "good life" that Gondibert witnesses is a combination of georgic retirement and scientific inquiry.

The rural retreat in the Astragon Cantos takes him away from the conventional areas of heroic action to a place for "the Georgics of the mind," a Baconian research center. Here Astragon's investigating the facts of the natural world has a utilitarian and humanitarian purpose, for the discoveries he and his colleagues make are in the interest of human welfare. Because of his experience in the House of Astragon, Gondibert feels a growing contempt for the world of court politics and war.

Davenant's collaborative community of scientific researchers at the House of Astragon is a successor to Salomon's House in New Atlantis and looks forward to the ideals of the historical Royal Society established in the decade following the publication of Gondibert. These scientists have already discovered the loadstone and developed the heliocentric view of the universe, which, says Earl Miner, is "the first clear English advocacy of the 'Copernican' heliocentric universe." [18]

The poet describes scientists actively engaged "In studying Nature for the aid of life." [19] Baconian scientists of diverse skills, metallurgists, apothecaries, chemists, meteorologists, astronomers, are "busy as intentive Emmets" (Gondibert, 9,2,152). These "wise Observers" (10,1, 152) learn and teach truth based on empirical knowledge. They gather plants and minerals, searching for "virtues" in nature to extract as medicine for "instant cure" (11,2,153), and thus working, in Bacon's words, for "the benefit and relief of the state and society of man" (Bacon, III.222).

Astragon has built on his estate not only a center for scientific research, but three temples dedicated "to daies of Praise, of Penitence and Pray'r" (Gondibert,44,160). In both the Preface and the Astragon Cantos, Davenant reveals his Deistic inclinations, showing that human reason is the means by which humanity understands the rational laws of nature and thus of God as the intelligent Creator of a law-abiding universe. In the Preface, Davenant writes that "Nature is the best Interpreter of God; and more cannot be said of Religion" (Davenant, 41). In these Cantos, we are told that Astragon and his team of natural philosophers are "wise tow'rds God" and that their study of nature is in God's service. As Bacon had asserted, the knowledge "of natural philosophy tendeth highly to the magnifying of the glory of God in his power, providence and benefits" (Bacon,III.501).

Embedded in the Astragon Cantos is Davenant's own miniature hexameral poem, a brief retelling of the Creation story. In the House of Praise are tableaux of "the great Creation" from the beginning, when God "first struck Light" out of Chaos (Gondibert,54,1-2,165), to the creation of humankind, and thence to a Bartasian "Second Week," including the story of Noah and the Flood and extending to the story of Christ, Nature's "franke Redeemer" (72,2,167).

The many biblical allusions in the Astragon Cantos function in large part in an emblematic way, frequently linking the biblical past to the present world, especially with regard to scientific knowledge. An example is Astragon's gallery, which Gondibert visits on his tour. This gloomy gallery contains "The Cabinet of Death" (35,4,155), which resembles the "cabinets of curiosities" that were kept in the mid-seventeenth century by private collectors such as Sir Thomas Browne. Collections of this type displayed, among other things, specimens of natural history as the wonders

of creation. John Evelyn, who was chosen by Charles II to be a Fellow of the Royal Society in 1661, wrote in his Diary that he visited the university at Leyden, and "was much pleased with a sight of their Anatomy Schole, Theater and Repository." This was "very well furnish'd with Naturall curiosities; especially with all sorts of Skeletons, from the Whale and Eliphant, to the fly and the Spider." [20] Astragon's gallery too is hung with skeletons, including an elephant and a whale, and specimens of other dead creatures, like those mortal remains of Noah's Ark, "in payres of ev'ry kind" (34,3,155). Among "nature's various Dead" housed in Astragon's cabinet are "Skelitons of ev'ry kinde;/ Humane, and all that learned humane pride/Thinks made t'obey Man's high immortal Minde" (32,2-4,155). The poet then briefly describes the skeletons of Adam and Eve: "Yet on that wall hangs he too, who so thought;/And she dry'd by him, whom that He obay'd" (32,1-2,155). Although it would seem that Davenant's description of of these skeletons is an emblem of memento mori and thus an occasion for moralizing on human pride, [21] it is significant that he places the mortal remains of the first man and woman by "an El'phant" and next to them a whale in "high Cables ty'd" (Davenant,24,1,155). The poet does not name the human pair on display, and he depersonalizes them. Moreover, by placing them in a naturalistic context, he divests them of their mythic status. Adam and Eve are seen briefly in this passage in a pre-Darwinian menagerie of creatures, one of many, no more wonderful or curious than the other specimens of nature for scientific study.

Another major biblical allusion in the Astragon Cantos is the Ark of Noah. One of the murals, "A noble painted vision" (66,1,167) that Gondibert views in the House of Praise depicts "The World's one ship," Noah's Ark, which is "from th'old to a new World bound" (67,1,167). Saved from the Flood, Noah, his family, and paired creatures are

the "Joynt Tennants to the World" (69,3,167), humbled by their salvation.

The poet then shows the typological relation between "this first redemption" to "another led" by Christ (72,2,167). What is suggested in this typological treatment of Noah is that his story is about the first salvation and the second Creation. It is the story of how nature was redeemed in this "new World," and how Noah represents the renewal of humanity's dominion over it. Here, Davenant's treatment of Noah resembles Du Bartas's movement from suprarational to rational knowledge. [22] Noah is both a prefigurative type for Christ and a georgic hero who, as an instrument of God's redemptive plan, plays a significant role in the rehabilitation and mastery of the natural world .

IV

Abraham Cowley's Davideis, a Sacred Poem of the Troubles of David, published in 1656, is a neoclassical eoic on a subject drawn from biblical history. Cowley had completed only four of the twelve projected books that, we are told in his Preface to Poems of 1656, he designed "after the Pattern of our Master Virgil." [23] In his apparatus of Preface and Notes, the poet makes claims of originality for his epic, and like Davenant, he shows that he has reformed the genre by means of his innovations. He remarks in one of his notes that "though some in other Languages have attempted the writing of a Divine Poem; yet none, that I know of, hath in English." [24] "We must sometimes be bold to innovate," he asserts in another note (Davideis,I,41,179). Cowley's claims to originality are that he has converted the epic into a "sacred poem" by combining the literary imitation of the classical epic and the subject taken from the Old Testament.

The major georgic episode in Cowley's epic is the account at the end of Book I of Samuel's College of Prophets at Rama. In many ways this episode is similar to Davenant's Astragon Cantos. Just as Gondibert retreats from the violent world of war and politics to be healed of his wounds in the House of Astragon, so David flees from King Saul's murderous pride and envy, finding asylum at the College of Prophets. Both the House of Astragon and Samuel's College episodes are georgic utopias on the order of Bacon's New Atlantis, prophetic of the Royal Society.

The College of Rama is a School of Natural Philosophy, and the prophets reverently study nature, mathematics, and the history of mankind. Cowley says of Samuel and the other prophets that they were not "foretellers of future things, but Religious persons, who separated themselves from the business of the world, to employ their time in the contemplation and praise of God" (I,n47,184). He explains, "Nathan and Gad were famous prophets in Davids time; and therefore it is probable they might have lived with Samuel in his College, for their particular Professorships, the one of Astronomy, the other of Mathematicks, that is a voluntary gift of mine to them. . .Seraia was afterwards Scribe or Secretary to David, . . .Mahol the Reader of Natural Philosophy" (I,n 20,193).

Nathan teaches "the course and power of Stars , which bring home to the natural philosopher "those distant wonders" (I, 733-34,133). Mahol traces "the turns of Matters Maze. . .Great Natures well-set Clock." This celestial machinery is made up of "all the Springs and smallest Wheels. . .Of Life and Motion" (I,741-45,134), an orderly system of the heavens. This description of Nature's Clock anticipates Robert Boyle's famous analogy between the universe and the great clock at Strasbourg. Boyle denied the autonomy of the clockwork, but enlisted this and other mechanical images to support

the view that nature is a system designed by the sovereign God. Gad the geometer explores mathematical and metaphysical infinity, and "designes/Th'immortal solid rules" (I,747-48,134). He studies number, which Cowley calls a "Turn'd Pyramide," explaining in a note: "because the bottom of it is the point of One. . .from whence it goes up still larger and larger" (I,752,n.59,134). Richard Hinman points out that "in attitude and achievement Gad recalls John Wallis, who devised methods of measuring irregular planes and solids and demonstrated the impossibility of squaring the circle."[25] Seraiah reads "Of Men, and Ages past. . .Embalm'd in long-lived History the Dead." He examines order and disorder in past events, tracing "the steep falls, and slow ascent of States;/What Wisdom and what Follies make their Fates" (Davideis, I,753-56, 134-35).

Finally, "Samuel himself did Gods rich law display," and taught "doubting men with Judgment to obay" (I,757-58,135). Relating all studies to the law of God, he rises above both natural phenomena and human history, to an encompassing vision: "And oft with ravisht Soul with sudden flight/Soar'd above present times, and humane sight" (I.759-80,135).

As in Davenant's epic in which a hexameral poem follows an account of scientific activity, so Cowley here proceeds from "the Georgics of the mind" in the College of Prophets to a miniature hexameron. This hexameral poem is a hymn in praise of God's "active word" fulfilled by the six days of Creation, and culminating in the creation of Man. The Bartasian "Second Week" that follows includes an epic of biblical history from the later chapters of Genesis, Exodus, and I Samuel. God's commands, his creative power, and providential acts both in nature and human history are emphasized throughout.

The hymn of the prophets moves from nothingness to the created order, from the metaphysical abstract to concrete, physical particularities: "From Nothing, and from Nowhere" God "call'd forth All" (I,783-84,136-37). The culmination of God's diverse but orderly Creation, of course, is "Man," who is "the bond of all before." He is presented as a microcosm of the universe: "In him he all things with strange order hurl'd;/In him, that full Abridgement of the World" (I.826-28,139).

Throughout his Notes, Cowley himself assumes the role of the natural philosopher, explaining those passages of poetry that seem to be incompatible with scientific truth. Cowley the poet describes "th'aeternal Fountain of all Waves/Where their vast Court the Mother-waters keep" (I.78-9,93-4), and Cowley the natural philosopher explains in his note, which concludes with a reference to William Harvey's studies of the circulation of the blood: "To give a probable reason of the perpetual supply of waters to Fountains and Rivers it is necessary to establish an Abyss or deep gulph of waters, into which the Sea discharges it self, as Rivers do into the Sea; all which maintain a perpetual Circulation of water, like that of Blood in mans body" (I.n 18,152). Commenting on a passage in which he describes the music of the spheres, Cowley admits that "In this, and some other places, I would not have the Reader judge of my opinion by what I say; no more then before in divers expre ssions about Hell, the Devil, and Envy" (I.n 24,166). His disclaimer here is symptomatic of the discrepancies between Cowley the poet and Cowley the seventeenth-century rationalist and skeptic who, as Shadduck notes, does not believe in the cosmological map that as a poet he has drawn (Davideis, 511). Cowley speaks in the Notes of the falsehood of that cosmology, but "in so far from being a fault in Poetry, that it is the custom even of Scripture to do so; and that not onely in the Poetical pieces of it" (I.n 24,166). The

Bible "attributes the members and passions of mankind to Devils, Angels, and God himself; where it calls the Sun and Moon the two Great Lights, whereas the latter is in truth one of the smallest; but is spoken of, as it seems, not as it Is, and in too many other places to be collected here" (I.n24,166). Cowley makes it explicit here, as in his many references both to the "poetical sense" and probability, that as poet and man he is working with different criteria of truth, one rhetorical ("seems") and the other scientific ("Is").

Cowley, that is to say, reveals himself as a poet who cannot reconcile fiction and fact, or in the famous critical terms of Hobbes, cannot reconcile fancy and "Judgment the severer Sister" who "busieth her selfe in a grave and rigide examination of all the parts of Nature, and registring by Letters, their order, causes, uses, differences, and resemblances" (Davenant, 49). The reader senses that in the Davideis fiction and fact are fatally segregated, and consequently so are poetry and prose.[26]

Cowley's Notes ultimately reveal his distrust of his own poetic fiction, and he contradicts what he consciously set out to do, which was to write an epic that would bring into harmony science and imagination. Cowley's failure to create a synthesis of rationalism and belief led him to abandon his ambitious epic project. At the close of his Preface, Cowley acknowledges the failure, calling his epic "this weak and imperfect attempt of mine." He says, however, that he is "ambitious of no other fruit" than that this failed attempt will mean "a way to the courage and industry of some other persons, who may be better able to perform it thoroughly and successfull" (Spingarn, II, 90). Less than two years after the publication of the unfinished Davideis, Milton began Paradise Lost.

V

According to Milton's widow, Elizabeth Minshull, Milton's three favorite English poets were Shakespeare, Spenser, and Cowley (Parker, I, 584). That Milton should have known Cowley's Davideis is very probable, and such knowledge would have better prepared him to compose his own neoclassical biblical epic. Whereas Cowley's unfinished epic is a fragment, Paradise Lost has an impressive wholeness. In the Davideis, there are contradictory truths, symptomatic of a divided consciousness in a divided age. By contrast, Milton's epic is a work of unified sensibility, narrative integrity, and imaginative vision. His great synthesizing power enables him to integrate religious faith and scientific knowledge.

Milton discusses learning, including natural philosophy, and its relation to religious belief, in his earlier treatise, Of Education (1644) , addressed to Samuel Hartlib. Here Milton designs a curricular program including a comprehensive study of the sciences,which are based in large part on Bacon's view of their practical utility, for what he called "the relief of man's estate" (Bacon, III.294) through the cultivation of human reason. Central to Milton's view of natural philosophy, however, is that it is a means of knowing God through his book of works. The student's early instruction includes readings that will make him "capable to read any compendious method of natural philosophy."[27] Included in this lengthy list of works in natural philosophy are Lucretius's De Rerum Natura and "the rural part of Virgil" (IV.284).

Milton's curricular "Georgics of the mind" are ambitious and sweeping. After studying "Natural Philosophy," for example, students "may proceed leisurely from the history of Meteors, Minerals, plants and living Creatures as far as Anatomy" (IV.283).

Natural philosophy and the study of ethics, Scripture, and literature, provide the student with a humanistic education that teaches the principles of virtuous action, but this is ultimately an education that has as both its moral and religious purpose "an universal insight into things" (IV.286) .

The historian of seventeenth-century science, Charles Webster, contends that "Bacon gave precise and systematic philosophical expression to the anti-authoritarianism, inductivism and utilitarianism that were such important factors in the puritan scale of values."[28] The biblicism that reemerged during the Civil War period in England had considerable impact on the thinking of many seventeenth-century scientists. The puritans used the Bible to encourage the active exploration of God's book of nature, as they emphasized natural theology and utilitarianism. Moreover, the millenarian excitement of the Revolution and Commonwealth stimulated the scientific movement, and the study of natural philosophy appeared to Protestants to be consonant with religious reformation.

The Royal Society, despite its royal, aristocratic, and episcopal patronage, exemplified the intellectual continuity of the mid-century. Webster argues that the Royal Society was "not so much a new and spontaneous manifestation of intellectual creativity peculiar to the restoration, but rather . . .the end-product of a long process of growth and development which had taken place during the Puritan Revolution" (Webster, 486).

Robert Boyle shared millenarian views with the Hartlib Circle, and later with some of his colleagues in the Royal Society. He contributed freely to theological as well as scientific subjects, asserting the intellectual compatibility of revealed religion and scientific inquiry. In his letter (1649) to his sister, Lady Ranalegh, Boyle makes

reference to his plan to present her with a discussion "of the theological use of natural philosophy, endeavoring to make the contemplation of creatures contributory to the instruction of the prince & to the glory of the author of them."[29]

In Paradise Lost, Milton's God, like Boyle's, is "the worlds great author" [30] who identifies himself to Adam: "Whom thou sought'st I am . . .author of all this thou seest/ Above, or round about thee, or beneath" (8.316-18). Boyle thought of the human Christ as the exemplar of all heroes who become agents of God. "Christ," says Boyle, has "all Vertus in a heroicall Degree." "Whomsoever it pleases God," Boyle continues, "to worke some great Reformation in Sciences or Arts, or some notable change in Kingdoms or Common-welths; or generally any extraordinary Alteration in the state of humane things; he does for the most part excite Heroick Spirits, which he makes his instruments to effect it" (quoted in Jacob, 66-9). Christ is also Milton's exemplary hero, the "greater man" (I.4) who redeems humanity, in Boyle's phrase, in an "extraordinary Alteration in the state of humane things," regaining the blissful seat of Eden. Two years before the publication of Paradise Lost, Boyle was calling "the style of [Virgil's} Georgics as well noble . . .as that of his Aeneids ." [31] Boyle's praise of the *Georgics* suggests his admiration for its reverent attitude toward God's book of nature as well as its encouragement of "greate Reformation in Sciences or Arts."

Literary scholars have recently treated Paradise Lost as georgic and epic. Two important studies, Anthony Low's The Georgic Revolution and Barbara K. Lewalski's "Paradise Lost" and the Rhetoric of Literary Forms, both published in 1985, include chapters that discuss the relationship between the georgic and Paradise Lost.[32] More recently, Alastair Fowler in his essay (1993) notes that the georgic mode in Milton's epic predominates "at strategic points," and "stands out in such passages as the

descriptions of Eden and of creation, but may also be said to work unobtrusive furrows throughout" (Fowler,97).

The georgic is far more pervasive in Milton's epic than in either Davenant's Gondibert or Cowley's Davideis. However, the reader can identify local modulations of the georgic in Paradise Lost, as in Books 7 and 8, which in the 1667 edition form a single book. By focusing on passages in these books in which Milton treats astronomy, the reader may see an example of the georgic mode, which teaches humans how to think about their place in the physical universe.

The angel Raphael visits the prelapsarian garden to carry out God's command by advising Adam of "his own free will" (5.238) and warning him of his enemy, but also by teaching "whatever else may avail Adam to know" ("Argument," 5). Raphael speaks, to use Bacon's phrase, as one of " the angels of knowledge and illumination" who are "placed before the angels of office and domination" (Bacon,III.296). He responds to Adam's desire "to know/Of things above this world" (5.454-55). Intellectually stimulated by Raphael's explanation of the Scale of Nature, Adam expresses his appreciation to his "Divine instructor" (5.546) and wishes to know more: "Well hast thou taught the way that might direct/Our knowledge . . .whereon/In contemplation of created things/By steps we may ascend to God" (5.508-12). The account that Raphael then gives of the Creation and his dialogue with Adam, especially the exposition of the two world systems, includes much about cosmology and astronomy.

Raphael explains to Adam that in his narration of the Creation, like that of the war in Heaven (5.571-76), his language will be accommodated to man's limited powers of comprehension: "but to human ears/Cannot without process of speech be told,/So told as earthly notion can receive" (7.177-79). His account of the six days of Creation, in

other words, is analogous to what the Creator performed instantaneously: "Immediate are the acts of God, more swift/Than time or motion" (7.176-77). Bacon, in his Advancement of Learning, describes the "work of creation" as "a double emanation from God" of power and wisdom. In the history of Creation, he argues, "the confused mass of matter of heaven and earth was made in a moment, when the order and disposition of that chaos or mass was the work of six days." The first emanation, divine power, is "expressed in making the subsistence of matter," and the second, the works of divine wisdom, "in disposing the beauty of form" (Bacon,III.295-96).

The poetic style of Milton's hexameron of Book 7 makes manifest both this power and "beauty of form." As in the brief Creation poems of Gondibert and the Davideis, Milton's epic follows the hexameral tradition in amplifying the Genesis account with details from natural philosophy. Achieving unity on the largest scale, Milton expresses in images the grandeur of cosmic immensity, the goodness of created matter, and the mystery of plenitude.

The whole universe is described as being filled and sanctified by God's presence, which is an inexhaustible source of cosmic creativity. In his narration of the fourth day, for example, when God created the celestial bodies of the "firmament of heaven" (7.344), the Creator is represented as a husbandman who "sowed with stars the heaven thick as a field" (7.358). This georgic figure of the husbandman scattering seed-stars both exemplifies the generosity of the Creator and suggests the life and inherent fertility of the whole physical universe that guarantee its continual regeneration and plenitude.

The Creator's "Masterwork, the end/Of all yet done" (7.505-06), which is Man, constitutes the climax of the hierarchical order in the Creation. Man shares with the

beasts their creatureliness; unlike them, however, he is made in the image of the Creator. Accordingly, he is a creature "not prone/And brute" as they are, "but endued/With sanctity of reason . . .erect/His stature, and upright with front serene" (7.506-09). He is "self-knowing, and from thence/Magnanimous" and "grateful to acknowledge whence his good/Descends" (7.510-13). [33]

As Harinder S. Marjara has recently argued (1992), "Milton's scientific imagery shows sufficient awareness of the changed scientific picture of the seventeenth-century." [34] His scientific references in Paradise Lost are indebted to the views of natural philosophers of the period, especially to Galileo and Bacon. Throughout Milton's epic there are many references to Galileo's telescopic observations reported in his Sidereus nuncius in 1610. The Miltonic narrator alludes to the "Tuscan artist" who views the moon "through optic glass" the "new land,/Rivers or mountains in her spotty globe" (1.286-91). He describes spots on the sun that the astronomer might see "through his glazed optic tube" (3.588-90) and refers to the glass/Of Galileo" through which he "observes/Imagined lands and regions of the moon" (5.261-63). Raphael , in his account of the Creation in Book 7, refers to the phases of the planet Venus (7.366), which were among Galileo's discoveries; the new conception of the moon (7.375-78); the newly sighted "Thousand thousand stars" (7.382-84) and "the galaxy, that Milky Way . . .Powdered with stars" (7.382-84), all of which were first observed by Galileo's use of the telescope. In his Two Chief World Systems (1632) , Galileo, speaking through Salviati, proudly asserts the scientific advances made possible by telescopic observation:

> Now we, thanks to the telescope, have brought the heavens thirty
> or forty times closer to us than they were to Aristotle, so that we can

> discern many things in them that he could not see; among other things these sunspots, which were absolutely invisible to him. Therefore we can treat of the heavens and the sun more confidently than Aristotle could.[35]

Further, he says that with the progress of astronomical knowledge, "One may hope that in time things will be seen which we cannot even imagine" (Galileo, 67). Galileo's hitherto unimaginable discoveries had encouraged all kinds of speculation regarding the nature of the universe, including mid-seventeenth-century theories of the plurality of worlds, to which there are several allusions in Milton's epic. Milton's characteristic descriptions of the breadth and depth of space are a reflection of Galileo's expansion of humankind's concept of the cosmos, demonstrating what Marjorie Nicolson calls "the aesthetics of the new space." [36]

Adam expresses his wonder and delight in hearing Raphael's account of the Creation, which gives evidence of the "glory attributed to the high/Creator" (8.10-13). He confesses to the angel, however, that "something yet of doubt remains" (8.13). He raises the same question that troubled Eve when she asked Adam about the stars, "But wherefore all night long shine these, for whom/This glorious sight when sleep hath shut all eyes?" (4.657-58). Here Adam tells the angel that he does not understand why "this earth a spot, a grain,/An atom, with the firmament compared/And all her numbered stars" rolling in "Spaces incomprehensible" (8.16-20) should be of use to humankind, other than "merely to officiate light/Round this opacous earth" (8,22-3). He asks how nature, being "wise and frugal," could have committed "such disproportion" and why her "superfluous hand" created all those heavenly bodies. If the stars were created merely for "this one use," giving light to humankind, they are

"useless besides" (8.25-9). Adam's questions, based on his supposition of the earth's centrality in the cosmos, are naively critical of what he perceives as the inefficiency, wastefulness, and disproportion of God's creation. His questions are presumptuous because, as Galileo's Salviati says, "It is brash for our feebleness to attempt to judge the reason for God's actions, and to call everything in the universe vain and superfluous which does not serve us" (Galileo, 368.)

Raphael views Adam's questions about the physical universe, however, as a blameless intellectual activity. The angel's words are "Benevolent and facile": "To ask or search I blame thee not, for heaven/Is as a book of God before thee set,/Wherein to read his wondrous works" (8.65-8). The position that Raphael takes is that studying the book of nature will reveal the omnipotence and wisdom of the Creator. However, an important aspect of Raphael's role as Adam's teacher is his instruction in what Bacon called, in his Interpretation of Nature, "the limits and end of knowledge" (Bacon,III,217). He cautions Adam, for example, against any tendency that he may have to fall into "the vanity of curious speculations" (Bacon,III,481), to use another phrase of Bacon's. "For the contemplation of God's creatures and works," Bacon says in The Advancement of Learning, "produceth . . .knowledge; but having regard to God, no perfect knowledge but wonder" (Bacon,III,267). Similarly, Raphael tells Adam that rather than vainly attempt to penetrate those mysteries that "the great architect/Did wisely conceal from man or angel," he "ought/Rather admire" (8.72-5) God's work.

It is clear that Raphael questions the power of human reason to arrive at what Bacon termed "absolute and infallible evidence of truth" (Bacon,III,242). Accordingly, Raphael will not dogmatically assert ideas. Instead he engages his student in the Georgics of the mind, challenging Adam to consider the geocentric and heliocentric

views of the universe. Raphael the angelic instructor creates interest by conjecture, and although he is at times evasive he is always intellectually stimulating. Like Bacon, the angel knows that "in comparison with the subtility of things . . .the subtility of words, arguments, notions, yea of the senses themselves, is but rude and gross" (Bacon,III,242).

Much of the dialogue on cosmology is based on Galileo's scientific treatise, the full title of which is Dialogue Concerning the Two Chief World Systems--Ptolemaic & Copernican. In a friendly spirit of intellectual inquiry, Raphael plays with the opposing views of Galileo's "interlocutors," Simplicio, a defender of Aristotelian doctrines and orthodox Ptolemaic geocentricism, and Sagrado and Salviati, urbane intellectuals who are the followers of the Copernican system.

Raphael begins the exploration of these two hypothetical systems, asking "Whether heaven move or earth" (8.70). The answer to this question, Raphael tells Adam, "Imports not" (8.71), for God has wisely concealed from man and angel cosmological certainty. Indeed, Raphael argues that men's presumption in fabricating an anthropocentric model of the cosmos and imposing it on the heavens may very well move God to "laughter at their opinions wide" (8.78). What is really important to know, Raphael tells Adam, is that "the heaven's wide circuit" speaks of "the maker's high magnificence, who built/So spacious, and his line stretcheth out so far;/That man may know he dwells not in his own" (8.100-03).

In his explanation of the Ptolemaic system, Raphael refers to "Cycle and epicycle, orb in orb" (8.84), hypothetical concepts used to account for irregularities in planetary motion. Further, Raphael as Ptolemaist speaks of "the fruitful earth," which though small, is not inferior to the other stars which are great and bright. The earth, "so

small,/Nor glistering, may of solid good contain,/More plenty than the sun that barren shines" (8.92-4).

Raphael, discussing the 'Copernican' heliocentric theory, which is really that of Kepler and Galileo, reveals his skill as a teacher when he makes Adam think about its possible validity, and suggests "the subtility of things" in God's universe. "Not that I so affirm," the angel says, implying that either cosmological theory depends on one's particular physical perspective (Lewalski, 48): "Though so it seem/To thee who hast thy dwelling here on earth" (8.117-18). Heliocentrism is suggested in his hypothetical question, "What if the sun/Be centre to the world. . ." (8.122). Milton's angel recalls Bacon's view with regard to the rival claims of the Ptolemaic and Copernican theories:

> . . .for the same phaenomena in astronomy are satisfied by the received astronomy of the diurnal motion and the proper motions of the planets with their eccentrics and epicycles, and likewise by the theory of Copernicus who supposed the earth to move; and the calculations are indifferent to both; so the ordinary face and view of experience is many times satisfied by several theories and philosophies . . . .(Bacon,III, 365) .

Raphael describes the earth as "industrious" (8.137), that is, in motion, and he adds, it might move "Insensibly three different motions" (8.130). The spots on the moon might be atmospheric clouds that "produce/Fruits in her softened soil, for some to eat/Allotted to them" (8.145-48). Raphael's references to the possibility of the plurality of inhabited worlds, which is an implication of the heliocentric theory,[37] is followed by another conjecture, "perhaps with some that live" on suns, moons, or other celestial bodies, "for such vast room in nature unpossessed/By living soul, desert and

desolate,/Only to shine . . .is obvious to dispute" (8.152-58). After intellectually tantalizing Adam with mind-boggling conjectures, a more sobering Raphael turns from speculation to assertion: "Dream not of other worlds, what creatures there/Live" (8.175-76).

Nevertheless, Raphael, like Bacon, is critical of our "impatience of doubt" which causes hastening "to assertion without due and mature suspension of judgment" (Bacon,III,295). No one with a naive or presumptuous belief in the exclusive truth of a scientific hypothesis understands the mystery of God's creation. Raphael offers himself as a role model to Adam for this "mature suspension of judgment."

Raphael tells Adam to "Think only what concerns thee and thy being" (8.174), stressing the Baconian ideal of the utility of knowledge: what is most important to humankind is

> not to know at large of things remote
> From use, obscure and subtle, but to know
> That which before us lies in daily life
> Is the prime wisdom (8. 191-94).

"Be lowly wise," the angel tells Adam. In this terse advice, he both criticizes Satan's pride and disobedience, and admonishes Adam to be self-knowing, humble, and obedient with respect to God and his works. Implicit in his aphorism is that Adam avoid what Bacon described as "proud knowledge" whose intent is to give law to oneself (Bacon,III,265) and "make a total defection from God" (Bacon,III,297). To "Be lowly wise" is to experience Bacon's "true and legitimate humiliation of the human spirit" (Bacon,IV,19), by which he means that without the virtue of philosophical humility, a human is inclined to impose upon objective reality the fabrications of his

presumptuous ignorance. Finally, the paradox of lowly wisdom recalls Bacon's statement in Thoughts and Conclusions: "One might say that the kingdom of nature is like the kingdom of heaven, to be approached only by becoming a little child" (Farrington, 99).

VI

Just as the fall of Charles I made political exiles of the Royalists Davenant and Cowley, so the fall of the Puritan Commonwealth was later to make Milton an exile during the restoration of the Stuart monarchy. It was during a period of defeat and alienation, however, that the three poets produced their epic poems (Helgerson, 238-40). Each of these poets repudiated the ideals of martial heroism and warfare that had been the central theme of the traditional epic. They turned to the georgic mode to help them discover the natural philosopher as the new heroic exemplar.

Virgil himself conceived his Georgics during a long and brutal civil war. The traumatic experience of the Roman civil wars is felt through Virgil's poem, for war, as Michael C. J. Putnam says, is "a corrupt version of man's enmity with the natural." The lesson that Virgil teaches in the Georgics is that human beings must civilize their own nature as well as that of the physical environment (Putnam,71).

In the Georgics there are many allusions to war, for "so many wars overrun the world" (I.505). Virgil places in opposition the destructiveness of the epic warrior and the productiveness of the peaceful husbandman. The poet speaks of his hope for the future of his nation:

> Yea, and a time shall come when in those lands, as the farmer

toils at the soil with crooked plough, he shall find javelins eaten up
with rusty mould, or with his heavy hoes shall strike on empty helms,
and marvel at the giant bones in upturned graves. (I.458-50)

In what Raymond Williams calls Virgil's "epic of husbandry,"[38] the poet elevates the husbandman/natural philosopher in heroic passages, endowing him with the dignity, knowledge, and virtue of the epic hero.

In each epic discussed here, the protagonist (Gondibert, David, Adam) learns to understand the difference between the warrior and the natural philosopher: in Gondibert, Oswald lusts for power, and his brother is driven by revenge, whereas Astragon and his colleagues are engaged in productive, useful work for humanity; in the Davideis, King Saul is irrational, violent, and disobedient to God, whereas Samuel and the other prophets in the College of Rama are rational, peaceful, and reverent; in Paradise Lost, Satan is proud, ambitious, and envious of God, whereas the regenerate man of faith, represented by the Miltonic narrator, is humble, inspired, and searching for "an universal insight into things."

These natural philosophers, who have united scientific inquiry with religious contemplation, are heroes in the georgic epics of the mid-seventeenth-century. Bacon wrote that Virgil, in his Georgics, "got as much glory of eloquence, wit, and learning... as of the heroical acts of Aeneas" ; and "no less worthy than the heroical descriptions of Virtue, Duty, and Felicity" are "these Georgics of the mind" (Bacon,III,419). They are heroes because they labor, in Virgil's phrase, "far from the clash of arms" (I,459); they are "blessed" because they have been "able to win knowledge of the causes of things" (II,490).

NOTES

1. "To John, Lord Marquess of Normandy," in Of Dramatic Poesy and Other Critical Essays, ed. George Watson, 2 vols. (New York: Dutton-Everyman, 1962), II, 223-24.
2. Science and the Modern World (New York: Free Press, 1925), 8.
3. In Elizabethan Critical Essays, ed. G. Gregory Smith, 2 vols. (Oxford: Clarendon P, 1909), I, 106.
4. For a fuller discussion, see Eugene M. Klaaren, Religious Origins of Modern Science: Belief in Creation in Seventeenth-Century Thought (Grand Rapids, Mi.: Wm. B. Eerdman, 1977).
5. Latin text and translation is from Virgil, ed. H. Rushton Fairclough. Loeb Classical Library, 2 vols. (Cambridge, Mass.: Harvard U P, 1953), I, 121-24. Subsequent references in my text are by book and line numbers.
6. See Michael C. J. Putnam, Virgil's Poem of Earth: Studies in the Georgics (Princeton: Princeton U P, 1979), 71.
7. The Works of Francis Bacon, eds. James Spedding, R. L. Ellis, and D. D. Heath, 14 vols. (London: Longman, 1858-74), III, 315. Subsequent references in my text are to Bacon, volume and page,
8. Josuah Sylvester, transl., The Divine Works and Weeks of Guillaume De Saluste Du Bartas, ed. Susan Snyder, 2 vols. (Oxford: Clarendon P. 1979), I, 79. Subsequent references in my text are to Du Bartas, volume, line numbers, and page.
9. Arnold Williams, The Common Expositor: An Account of the Commentaries on Genesis, 1527-1633 (Chapel Hill: University of North Carolina P, 1948), 81.
10. Theology and the Scientific Imagination from the Middle Ages to the Seventeenth Century (Princeton: Princeton U P, 1986), 3-6.
11. In The Philosophy of Francis Bacon, transl. and ed. Benjamin Farrington (Chicago: University of Chicago P, 1964), 78-9.
12. The English Writings of Abraham Cowley, ed. A. R. Waller (Cambridge: Cambridge U P, 1908), Stanza 5, 11, 5-10, 450.
13. The Life of the Honourable Robert Boyle (London: A. Millar, 1744), 83.
14. William Riley Parker, Milton: A Biography. 2 vols. (Oxford: Clarendon P. 1968), II, n.13, 1017.

15. In Sir William Davenant's Gondibert, ed. David F. Gladish (Oxford: Clarendon P, 1971), 3-44 and 45-52. Subsequent references in my text are to Davenant, and page,

16. Richard Helgerson, Self-Crowned Laureates: Spenser, Jonson, Milton and the Literary System (Berkeley and Los Angeles: U California P, 1983), 224-25.

17. In The Happy Man: Studies in the Metamorphoses of a Classical Ideal, 1600-1700 (Oslo: Akademisk Forlag, 1954-58), 42.

18. In The Restoration Mode from Milton to Dryden (Princeton: Princeton U P, 1974), 71.

19. Citations from Gondibert in my text are to Sir William Davenant's Gondibert. Argument, 151. Subsequent references in my text to Gondibert are by stanza, line number, and page.

20. The Diary of John Evelyn, ed. John Bowle (New York: Oxford U P, 1985), 25.

21. See Jonathan Sawday, "The Leiden Theatre as a Source for Davenant's 'Cabinet of Death' in Gondibert," N & Q (Oct. 1983, vol. 221), 437-39.

22. Don Cameron Allen notes that in Jean Le Mair De Belges' legendary romance, Les Illustrations de Gaule et singularitez de Troyes (1510-12), Noah, after the Flood, studied agriculture and conducted a college in which he taught astronomy and religion. See The Legend of Noah: Renaissance Rationalism in Art, Science, and Letters (Urbana: U of Illinois p, 1949), 115-16.

23. Citations from Abraham Cowley, "Preface to Poems," in Critical Essays of the Seventeenth Century, ed. J. E. Spingarn, 3 vols. (Bloomington: Indiana U P, 1957), II,86. Subsequent references in my text are to Spingarn, with page.

24. Citations from the Davideis in my text are to A Critical Edition of Abraham Cowley's Davideis, ed. Gayle Shadduck (New York: Garland, 1987). I, n.3, 147. Subsequent references in text are to Davideis, with book, line numbers, and page.

25. In Abraham Cowley's World of Order (Cambridge, Mass.: Harvard U P, 1960), 261.

26. See David Trotter's discussion of this point in The Poetry of Abraham Cowley (New York: MacMillan P, 1979), 101.

27. The Works of John Milton, gen. ed. F. A. Patterson (New York: Columbia U P, 1931-38), IV, 284.

28. In The Great Instauration: Science, Medicine and Reform, 1626-1660 (London: Gerald Duckworth, 1975), 514,

29. Boyle, quoted in J. R. Jacob, Robert Boyle and the English Revolution (New York: Burt Franklin, 1977), 98.

30. Citations from Paradise Lost in my text are to Paradise Lost, ed. Alastair Fowler (London: Longman, 1971). 5. 183. Subsequent references in my text are by book and line number.

31. Boyle, quoted in Alastair Fowler, "Genre and Tradition," in The Cambridge Companion to English Poetry, Donne to Marvell, ed. Thomas N. Corns (Cambridge: Cambridge U P, 1993), 96.

32. "Milton and the Georgic Ideal," in Anthony Low, The Georgic Revolution (Princeton: Princeton U P, 1985), 296-352; "'Our Pleasant Labor': Georgic and Comedic Modes in Eden," in Barabara K. Lewalski, "Paradise Lost" and the Rhetoric of Literary Forms (Princeton: Princeton U P, 1985), 196-219.

33. In this discussion of the Creation in Paradise Lost, I have incorporated some language from my Oaten Reeds and Trumpets: Pastoral and Epic in Virgil, Spenser and Milton (Lewisburg, Pa.: Bucknell U P, 1981), 224-26.

34. In Contemplation of Created Things: Science in Paradise Lost (Toronto: U Toronto P, 1992), 34.

35. Galileo Galilei, Dialogue Concerning the Two Chief World Systems---Ptolemaic & Copernican, transl. Stillman Drake (Berkeley and Los Angeles: U California P, 1953), 56.

36. In Breaking of the Circle: Studies in the Effect of the 'New Science' upon Seventeenth-Century Poetry (New York: Columbia U P, 1962), 187.

37. See Steven J. Dick, Plurality of Worlds: The Origins of the Extraterrestrial Life Debate from Demoncritus to Kant (Cambridge: Cambridge U P, 1982), 119.

38. In The Country and the City (London: Chatto & Windus, 1982), 24