

Schuyllkill

Vol. 7, No. 1

Spring 2009

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The Grand Narrative of Science and
Imperialism in Alfred Noyes's
The Torch-Bearers: Watchers of the Sky

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Although once considered an important British poet of the late nineteenth century and early twentieth century, Alfred Noyes (1880-1958) has suffered the neglect of modern readers. With the exception of a few anthologized poems, he has virtually vanished from any critical discussions. In 1922, in his first major publication since the end of World War I, Noyes released *Watchers of the Sky*, the first of three books comprising *The Torch-Bearers* (1922-30), a trilogy which would, according to its prefatory note, celebrate the achievements of the scientists whom Noyes believed “handed on the fire [of knowledge], from age to age” (ii). Noyes’s goal was to show that “[t]he story of scientific discovery has its own epic unity—a unity of purpose and endeavor—the single torch passing from hand to hand through the centuries” (v). Although heralded as a work of genius by contemporary critics at its inception, *The Torch-Bearers* would signal the progressive decline of one of the nineteenth century’s leading poets; in fact, *The Torch-Bearers* has not been written about in any form of scholarship in over fifty years. My study is not concerned with reviving Noyes as a poet, however, but in making manifest the narratological contrivance of Noyes’s futile war against modernism, against a Godless universe, and against the imminent end of the British empire. Narrative, for Noyes, is rhetoric and *Watchers of the Sky* is a rhetoric of race, empire, and nation. It functions as a site of cultural control in that it privileges a white, European ideology that echoes, indeed perpetuates, the notion of imperialism and Europe’s stronghold on culture and thought. Noyes’s trilogy bears serious reconsideration not for its inherent literary value but because it is a critical site for

examining the literary and cultural transformations of the early twentieth century.

Noyes, troubled by the shape of early twentieth-century ideas and literature, created a meta- or grand narrative of science. The term “grand narrative” was coined by Jean-François Lyotard in *The Postmodern Condition: A Report on Knowledge* (1979) to distinguish the types of “totalizing” narratives that attempt to connect numerous events (and narratives) in order to understand history. For Noyes, the grand narrative was an appropriate rhetorical enterprise to persuade a “shattered world” to battle against modernism and post-World War I literary innovations (*The Torch-Bearers* x). Unable to continue perceiving the world in pre-World War I terms, many authors were beginning to answer the demands for literary originality and modernism. James Joyce’s *Ulysses* and T.S. Eliot’s *The Waste Land* were both published in 1922, the same year as Noyes’s first book of *The Torch-Bearers*. But for Noyes, this era marks a site for his own personal struggle to challenge these literary innovations. Noyes writes the history of science according to the previously existing forms of both eighteenth- and nineteenth-century literature, favoring order over disorder, and tradition over innovation. In rejecting the innovations of post-World War I literature through an adherence to traditional literary and religious forms, *Watchers of the Sky* serves as an important text to illustrate the difficult transition to twentieth-century literary modernism, which for Noyes was manifested in three separate but overlapping areas: the poetry and prose of contemporary writers; the threat of the loss of God in the post-Darwinian and post-World War I age; the accelerating decline of the British empire.

Noyes chooses science as his vehicle for taking on the chaotic, fragmented, and degenerative nature of modernity because science had become an increasingly trusted and authoritative voice whose workings and developments were traditionally thought of as continuous, seamless, and progressive. As Noyes states in *Watchers*

of the Sky, “It is not the province of science to attempt a post-Copernican justification of the ways of God to man; but, in the laws of nature revealed by science . . . poetry may discover its own new grounds for the attempt. . . . [after it has] endeavored to follow the torch of science to its own deep-set boundary-mark in that immense darkness of Space and Time” (x-xi). But Noyes’s “new grounds” for poetry merely mimic the well-entrenched story promulgated by scientists and writers for hundreds of years—the grand narrative of scientific progress and the heroes of enlightenment. Noyes sees science as manifesting the supreme Victorian struggle against disorder. In a time when science began to ask new questions about creation, the existence of God, and our “true” understanding of the universe, Noyes re-emphasizes the great tradition of science to make a case for the following: the philosophical rightness of traditional literary forms; the scientific evidence of design in the universe; and the ratification of the concept of a righteous empire bringing light to the “benighted savages” of other cultures. In other words, Noyes’s creates a narratological schema that aims to prolong the credibility of the Victorian narratives of empire.

To understand accurately the paradigm Noyes creates, we must examine the preceding paradigms from which his own emerged. The Romantic and Victorian periods, with which Noyes most fervently affiliated himself, set the stage for the underlying framework of *Watchers of the Sky*. In fact, Noyes’s title may have had its genesis in Keats’s “On First Looking into Chapman’s Homer” (1816), where the poet is perhaps referring to the 1781 discovery of Uranus by William Herschel, one of Noyes’s own torch-bearers. Keats writes, “Then felt I like some watcher of the skies / When a new planet swims into his ken” (9). But as with modernism, the Romantic and Victorian periods forced many to reshape their understanding of the world. As Jacob Korg writes in “Astronomical Imagery in Victorian Poetry,” “a decisive bifurcation in thought occurred” between Romantic imagination and

rationality in the Romantic period (141). Korg argues: “The ground of Romantic metaphor is the premise that man and nature share common moral and spiritual values, and that the external world, approached imaginatively, can be seen as a symbolic embodiment of human feelings. This continuum and the universe of discourse based on it were threatened from two directions by science in the Victorian period” (141). First, “science could often validate rationally the insights Romanticism attributed to the imagination” (141). And second, “conceptions of imagination were easily dwarfed by the awesome facts of the nature that science was discovering, so that reportorial and referential uses of language threatened to displace poetic ones” (142). As Korg points out, William Herschel’s findings, which established the fact that the solar system was merely a small part of a vast universe, signaled serious cosmological and spiritual dilemmas. Herschel’s “thrusts into the unthinkable depths of space and time had reduced man to an unimportant accident in the vastness of an indifferent cosmos. . . [T]he displacement of man and his earth from a position they held in earlier cosmologies led to cultural episodes of pessimism and anxiety in the Victorian and modern periods” (139).

However, many Victorians still reacted optimistically, interpreting new discoveries in accordance with principles of a natural religion, seeing scientific advancement as evidence of the design of a creator. Fundamental to the Victorians were the notions of order and meaning, each step a progressive advancement of their culture. According to Richard Altick in *Victorian People and Ideas*, the Victorians’ belief in the notion of progress had its “immediate source . . . [in] the great strides man had lately taken toward fulfilling his oldest dream, the conquest of his physical environment. Man and nature had always been at strife, and now at last, thanks to the advance of scientific knowledge, man was winning, bringing nature meekly to heel” (107). In physics and chemistry alone, the nineteenth century abounded with scientific discoveries: the periodic table by Dimitry

Mendeleyev, x-rays by Wilhelm Roentgen, and the electron by Joseph John Thomson. There were also new developments: Thomas Young and Augustine Fresnel's wave theory of light, which replaced Newton's corpuscular theory; Michael Faraday's and James Clerk Maxwell's theory of electromagnetism; Herman Helmholtz's first two laws of thermodynamics; and John Dalton's new atomic theory, which enabled scientists to calculate the weights of atoms. The progress of science, however, had fostered in the Victorian consciousness a self-centeredness regarding Victorians' place in the universe. Their confidence in progress extended to less tangible aspects of life, to social relations and even mortality Somehow . . . the conquest of the material universe would be accompanied by man's mastery of himself. . . . [The Victorians] were so convinced of the definitiveness of their moral and social values that, by a singular exercise of anthropomorphism, they read their aims into the progress of change itself. (Altick 108)

In 1859, this optimistic view was subverted by arguably the most controversial scientific text ever written, Charles Darwin's *On the Origin of Species*. Darwin's text would replace the Victorian view of a benevolent and harmonious world, in which humanity's progress indicated a divine purpose, with a violent, seemingly purposeless world where species struggle to survive:

Intelligence, for instance, the "right reason" which had long been fondly thought to be the unique characteristic that differentiated man from his inferiors, a proof that God loved him above all other creatures, was not his alone. He simply possessed it in a greater degree because of his more advanced stage of evolution. . . . If man now happened to occupy the choicest location, his

supremacy was but the incident of a moment. (Altick 228) Darwinism, though not entirely removing “man” from the center of things, reduced him to a coincidence of nature. Evolution did not necessarily mean “progress.” As David Trotter writes in *The English Novel in History, 1895-1920* (1993), “Environment operated in various ways to different effects, and the most adaptive inherited characteristics were not necessarily the ‘highest’ or most ‘civilized’ ones. Gradually, attention shifted to examples of regression” (111). Although emerging from the natural and medical sciences, the paradigm of regression filtered through to social theory. Many began to fear a decline of the “white race” and the implications of regression on the political economy. These factors led to an atmosphere of cultural anxiety in turn-of-the-century England.

In “In Darkest England: The Terror of Degeneration in *Fin-de-Siècle* Britain” Sally Ledger writes: “Whilst traditionally characterized as Britain’s ‘Age of Empire,’ a time when Britain ruled the world, the economic boom years of the mid-Victorian age had come to an abrupt end with the slump of the 1880s. . . . [The period can be seen] as one of instability, of social and economic turbulence” (71). Like Darwinism, which reshaped our place within the cosmos, the *fin de siècle* reshaped England’s position within the world. Ledger explains that “The fear of imperial and economic decline . . . very quickly filtered through to the socio-cultural and scientific discursive spheres. . . . The avalanche of socio-political and cultural challenges to the norm of an earlier, more self-confident Victorian age led to a proliferation of motifs of degeneration and even apocalypse in textual productions of the period” (71). Eugenics, a term coined by Darwin’s relative Sir Francis Galton, and itself a response to Darwinism, became a popular science of the period as it was concerned with the control of hereditary traits through selective human mating (often through deliberate control, by law or social pressure). The political importance of eugenic discourses was to preserve and continue the

English middle and upper classes. Max Nordau, “the *fin de siècle*’s prophet of doom,” according to Ledger, “was presaging a ‘Dusk of Nations, in which all suns and all stars are gradually waning, and mankind with all its institutions and creations [was] persisting in the midst of a dying world’” (72). As Trotter points out, Nordau’s lurid and influential treatise . . . proclaimed the end of civilization in biblical cadence. . . . Physicians, he said, had recognized in the behaviour of the European elites a “confidence” of “degeneracy” and “hysteria.” All the new tendencies in the arts—decadence, naturalism, mysticism—could safely be regarded as “manifestations” of this confluence. The arrival of the new century did not altogether lay these anxieties to rest. (112)

Alfred Noyes, in an attempt to battle these anxieties, resurrects the more traditional subject matter and form of Romantic and Victorian poetry “to point where, in the great rhythmical laws of the universe revealed by science, truth and beauty are reunited. . . . [and are necessary for] the reconstruction of [our] shattered world” (*Watchers of the Sky* ix-x). Disturbed by the discontinuity and disorder of the time, Noyes rewrites the history of science to emphasize order, coherence, harmony, and meaning. Thus, for Noyes, narrative is a way to re-conceptualize the disturbing picture of the world that had been painted by the competing narratives at the end of the nineteenth- and early twentieth-century. Noyes’s project, as he states in his “Prefatory Note,” was to show that [t]he story of scientific discovery has its own epic unity—a unity of purpose and endeavor—the single torch passing from hand to hand through the centuries; and the great moments of science when, after long labour, the pioneers saw their accumulated facts falling into a significant order—sometimes in the form of a law that revolutionized

the whole world thought—have an intense human interest, and belong essentially to the creative imagination of poetry. (v)

The first of the trilogy, *Watchers of the Sky*, traces the works of the astronomers whom Noyes believed “handed on the fire [of knowledge], from age to age”: Nicolaus Copernicus, Tycho Brahe, Johannes Kepler, Galileo Galilei, Sir Isaac Newton, and William and Sir John Herschel. But Noyes’s torch-passing metaphor of science is too simplistic and naïve. Science is not as cumulative as Noyes would have us believe. As Thomas Kuhn states in *The Structure of Scientific Revolutions*, “Science does *not* develop by the *accumulation* of individual discoveries and inventions. Simultaneously, . . . historians confront growing difficulties in distinguishing the ‘scientific’ component of past observation and belief from what their predecessors had readily labeled ‘error’ and ‘superstition’” (emphases mine, 2). In Noyes’s version of how science works, “error” and “superstition” are pure impediments problematically related to truth, and that the real story of science lies with the great scientists and their redemptive, heroic achievements.

Noyes mimics the already well-entrenched story of enlightenment promulgated by scientists and writers for hundreds of years. The story is particularly important to Noyes because it allows him to depict science as evidence of a specified goal of God in a time when the world had called into question this teleological and religious belief. Noyes states in *The Unknown God* (1934) that in

the mind of the *decivilized world* as we know it today, “evolution” has been made to mean something that no real thinker could accept for a moment. . . . The *modern world*, at the end of the nineteenth century, really believed that this gigantic and intricately organized universe of ours, with all its science, art and religion (true or false),

had been born of a lifeless and homogenous cloud of gas,
*uninfluenced and uncontrolled by any higher or
 deeper Power.* (emphases mine, 67-8)

Noyes believed “in a God who created the universe as a harmonious whole” (Brenner 256). Theories and events in science that contradicted this harmony were to be either written off or re-written to further an opposing view or paradigm. For example, the ramifications of Herschel’s findings, and the theories of the man whom he prefigures, Charles Darwin, were subsumed by Noyes’s own paradigm and theory of progress—a Christian cosmological model of the universe; Noyes uses Herschel and Darwin to substantiate his claim that science is controlled by God and that through science His methods are revealed.

In Noyes’s second volume, *The Book of Earth*, Noyes describes Darwin as dismissing the “argument from design.” This was a popular eighteenth-century argument postulated by the natural theologian William Paley (1743-1805), who held that because of the intricate design of the universe, a great designer (God) must exist. The passage below has Noyes witnessing Darwin’s refusal of the design theory:

Far off, I heard
 The murmur of human life, laughter and weeping;
 Heard the choked sobbings by a million graves,
 And saw a million faces, wrung with grief,
 Lifted forlornly to the Inscrutable Power.

I saw him raise his head. I heard his thought
 As others hear a whisper—*Surely this
 Implies design!*

And worlds on aching worlds
 Of dying hope were wrapped in those four words.

He stared before him, wellnigh overwhelmed
 For one brief moment, with instinctive awe

Of Something that . . . determined every force
 Directed every atom. . . .

Then, in a flash,
 The indwelling vision vanished at the voice
 Of his own blindfold reason. (238-39)

According to Noyes, Darwin, initially overwhelmed “with instinctive awe,” recognized that design implied a designer that “determined every force / Directed every atom,” but dismissed the argument because of his own “blindfold reason.” Thus, by arguing that Darwin abandoned his own best insight, Noyes actually uses Darwin to further his point. But as Thomas Kuhn explains, evolution is not a goal-oriented process:

For many men [sic] the abolition of that teleological kind of evolution was the most significant and least palatable of Darwin’s suggestions. The *Origin of Species* recognizes no goal set either by God or nature. Instead, natural selection, operating in the given environment and with the actual organisms presently at hand, was responsible for the gradual but steady emergence of more elaborate, further articulated, and vastly more specialized organisms. Even such marvelously adapted organs such as the eye and hand of man—organs whose design had previously provided powerful arguments for the existence of a supreme artificer and advance plan—were products of a process that moved steadily *from* primitive beginnings but *toward* no goal. (172)

Perhaps even more startling is not the notion that humans evolved without any goal, but that under different circumstances humanity might not have evolved at all.

Noyes’s heroes of the Scientific Revolution bring enlightenment and reason to the dark and chaotic time of modernity. The grand narrative is an appropriate vehicle for

Noyes's project because grand narratives attempt to unify all narratives into one, to make all discontinuities continuous and all unknowns known. But Noyes's narratological reliability must be seriously called into question. Grand narratives, by their very nature, omit or resist smaller narratives. Noyes similarly omits these narratives of science or reworks them into his own rhetorical grand narrative. The narrative, indeed, is a fallacious version of the history of science; any theories, events, or facts that contradict Noyes's view of the harmonious progress of science are changed, rewritten to say otherwise, or left out entirely.

Noyes begins his history of scientific progression in *The Torch-Bearers* by giving a brief overview of the geocentric or Ptolemaic view—in which the earth was believed to be at the center of the universe:

It was our moving selves that made the sky
Seem to revolve. Have not all ages seen
A like illusion baffling half mankind
In life, thought, art? Men think, at every turn
Of their souls, the very heavens have moved. (27)

Celebrating the new science of Nicolaus Copernicus (1473-1543), Noyes criticizes geocentric and anthropocentric views of the solar system; the Ptolemaic notion that the earth and “man” are at the center of the solar system can now be vilified in light of the Copernican theory. But the new science that Noyes celebrates has not freed itself from bias. Noyes, earlier in the poem, alludes to the notion (stemming from Rutherford's 1911 model of the nuclear atom) that atoms are miniature solar systems: “Those planetary systems far within / Atoms, electrons, whirling on their way” (17). Noyes ignores, however, the physicist Niels Bohr's 1912-13 quantization of Rutherford's nuclear (solar-system-like) model of the atom: the quantized atom was found *not* to conform to

mechanical (solar-system-like) law.¹ The notion that atoms are miniature solar systems is a naïve projection at its worst, what Noyes calls—disparaging others—“Think[ing], at every turn / Of their souls” (27). Indeed, Noyes’s narrative seems to be protecting the anthropocentric view, displacing it into a Copernican model of the solar system. And moreover, Ptolemaic science still has its uses. For example, we can neglect the small orbital motion of the Earth when discussing stellar positional astronomy. As Kuhn says, “[F]or the stars, Ptolemaic astronomy is still widely used as an engineering approximation” (68). Preceding paradigms are not completely obliterated by newer ones, nor do they lose all relevance or importance, as Noyes would have us believe.

Later, Noyes invents the dying words of Copernicus:
 I caught the fire from those who went before,
 The bearers of the torch who could not see
 The goal to which they strained. I caught their fire,
 And carried it, only a little way beyond;
 But there are those that wait for it, I know,
 Those who will carry it on to victory. (31)

Here Noyes’s grand epic of science presents the classic notion that science is a victorious progression toward truth. However, Copernicus’s “victory,” ironically, produced a model of the solar system that did not predict planetary motion as well as Ptolemy’s system. Although the heliocentric part of Copernicus’s system was later proven to be true, Copernicus believed that planetary orbits were circular (the circle being the most perfect of all geometric

¹ By elucidating Johann Jacob Balmer’s “trial and error” discovery of the formula for wavelengths of spectral lines, Bohr showed that electrons do not move in specific orbits around the nucleus of an atom, but rather occupy certain *energy levels* in the atom. Bohr provided mathematical evidence that an electron can jump from one energy level to another (Kaufmann 95-96). However, the solar-system-like model remains deeply rooted in modern theory; for example, the different energy levels of an atom are still referred to as *Bohr orbits*.

shapes). To explain away the discrepancies that remained with his model, Copernicus had to apply the epicycle, a small circle in which each planet moved within its larger circular orbit; thus, Copernicus had to “fudge” his numbers in his quest for truth. Science here is more a construct than a search for truth.

Copernicus reworked the universe to fit his conception of it. Similarly, Noyes reworks (i.e., rewrites) the history of science to fit his conception of it; he creates the appearance of progress by blotting out Copernicus’s reworking of the universe.

Noyes is guilty of a similar omission when he addresses Tycho Brahe (1546-1601), whom he says “sought the truth” (39). Noyes recreates Brahe’s observation of a “new star” as it appeared in 1572. According to sixteenth-century thought, the heavens were unchangeable; the presence of this “new star” helped to disprove such a notion. Noyes describes the moment of discovery and supposed enlightenment:

There, in its most familiar patch of blue,
Where Cassiopeia’s five-fold glory burned,
An unknown brilliance quivered, a huge star
Unseen before, a strange new visitant
To heavens unchangeable, as the world believed,
Since the creation.

Could new stars be born? (57)

The “huge star” that Noyes describes is not actually a new star being born but an old star dying. Noyes understandably never acknowledges Brahe’s error because the science of 1922 was itself unclear about stellar evolution. What Brahe had seen, we now know, was a supernova—an exploding star in its final stages of stellar evolution—in the constellation of Cassiopeia. However, the words “new visitant” imply that the object was thought to be, at the time of its observation, not part of the heavens, but a visitor “to heavens unchangeable, as the world believed.” Noyes states that people had believed the heavens were unchangeable “since the creation.” But Noyes shows his bias here because while the

European “world” may not have noticed the changing heavens, Chinese astronomers had for centuries cataloged dozens of such “new visitants”—their paradigms had not prevented them from looking for change in the cosmos (Kuhn 116). In addition, the Anasazi petroglyph of the supernova of 1054 at Chaco Canyon, New Mexico, reveals that Native Americans had also observed and recorded such astronomical events hundreds of years before the Europeans did. Europeans hadn’t noticed change in the heavens because they weren’t looking for it, believing it couldn’t exist. How can you find mutability in eternal harmony?

Brahe observed that the “new star” had no parallax; that is, it did not appear to move relative to background stars. This discovery, William J. McPeak writes, “allowed [Brahe] to accomplish two big breakthroughs: he showed [to Europeans] that the heavens were changeable (which Aristotle had denied), and he concluded that the new star was as distant as the ordinary stars, because it had no detectable parallax” (31). Had the “new star” been some phenomenon close to the earth, the earth’s rotation would have shifted the supernova’s apparent position relative to the more distant stars. Because it disproved the Ptolemaic theory, Brahe’s discovery undoubtedly helped in substantiating the Copernican system. Noyes neglects to show, however, that Brahe would conduct further observations that would change this view. At his grand observatory, Uraniborg, Brahe began testing the Copernican idea that the earth moved around the sun. Brahe tested this theory much the same way he tested the “new star” of 1572, this time finding contradictory results: “Tycho argued that if the Earth was in motion, then nearby stars should appear to shift their positions with respect to background stars as we orbit the Sun. Tycho failed to detect any such parallax, and so he concluded that the earth was at rest and the Copernican system was wrong” (Kaufmann 62). To have made Brahe’s failure part of his poem, Noyes would have had to show failure rather than “truth.” Such

failure would not have fit Noyes's grand narrative of science as a progression to truth.

We now know that the stars Brahe tried to measure are too distant to observe any appreciable parallax, and require telescopic observations. And while Brahe's analysis of the supernova of 1572 shed light on (i.e., exposed the fallaciousness of) the ancient belief of an unchangeable universe, his further studies passed on an unlit torch in terms of enlightening Johannes Kepler (1571-1630) about the heliocentric model of the solar system. Noyes, though, argues the opposite: Kepler was "[w]aiting to seize the splendour from [Brahe's] hand [and become] the swift, young-eyed runner with the torch" (98). Brahe, rejecting the Copernican theory of heliocentrism, constructed his own system. Although Brahe's system had five planets revolving around the sun, the entire system revolved around the earth. For those who were skeptical about Ptolemy and Copernicus, Brahe's model proved to be an acceptable one and was adopted by many even though Brahe's model simply reverted back to a Ptolemaic-like system. While Brahe did not pass on the torch of Copernicanism to Kepler, he did pass on his astronomical data.

Kepler, who found the notion of circular orbits unsuitable for an accurate model of planetary motion, began working with various geometrical patterns. It was Kepler's discovery of elliptical orbits that allowed the Copernican model to be once again rekindled. Noyes, however, fails to mention that the metaphysical aspect of Kepler's ideas caused many to refute his work. Kepler's most important contribution to astronomy, and perhaps the reason he is most famous, consists of three laws of planetary motion. Noyes describes these three laws poetically:

First, how the speed of planets round the sun
 Bears a proportion, beautifully precise
 As music, to their silver distances;
 Next, that although they seem to swerve aside
 From those plain circles of old Copernicus

Their paths were not less rhythmical and exact,
 But followed always that most exquisite curve
 In its most perfect form, the pure ellipse;
 Third, that although their speed from point to point
 Appeared to change, their radii always moved
 Through equal fields of space in equal times. (115)

Noyes, here, while ostensibly celebrating the progressive stripping away of the “errors” and “superstitions” of the ancients, unknowingly validates Kuhn’s argument of paradigm shifts, for Noyes has Kepler merely replacing the harmonies of the Aristotelian universe and its “circle of perfection” with new proportions and perfections. For example, what were once perfect circles are now called “plain circles,” and now the ellipse is called “most perfect form”—again, science is constructed to fit Noyes’s conception of it.

Noyes’s next recipient of the torch of knowledge is Galileo Galilei (1564-1642). Noyes describes the astronomer’s observations of Jupiter and its four largest moons (now called the Galilean Moons). The discovery of Jupiter’s moons orbiting the planet provided not only the proof of Kepler’s third law but also additional proof for a heliocentric model of the universe. It is interesting to point out, however, that Galileo, while believing in Copernicanism, still held to the notion of circular (rather than elliptical) orbits. Thus, it was actually a flawed torch that Galileo passed on to Noyes’s most noble scientist: “[T]he mightiest of the sons of light / Was born to lift the splendour of this torch / And carry it . . . / Into the great new age” (183). This “mightiest of sons of light,” this hero, born the year Galileo died, was Isaac Newton (1642-1727).

Although Newton is still revered as one of the world’s greatest scientists, Newtonian physics has its limitations. For example, for years scientists had been unsuccessful in explaining the discrepancies in the orbit of Mercury. It had been discovered in the nineteenth-century that the perihelion precession of Mercury was not in accordance with Newtonian mathematics. To explain

this conundrum, scientists had to wait for a new paradigm that would give them a better understanding of gravity. This occurred when Albert Einstein's general theory of relativity (1915) was proven correct in 1919 by Arthur S. Eddington's observation of a total eclipse. But *Watchers of the Sky* (1922) never mentions Einstein.² Because Newtonian gravitation is only accurate for low speed and low gravitational computations, many of the recent advances in astronomy (e.g., complex stellar systems, black holes) have had to be determined through Einstein's mechanics. However, as with the Ptolemaic model of the universe, the Newtonian model has not been fully replaced. Modern physicists comfortably see Newtonianism as a limited, special case of the Einsteinian model, fitting usefully within its framework. Torch passing is too simple a metaphor for such constellations of models.

One of Noyes's last torch-bearers in *Watchers of the Sky* is the astronomer William Herschel (1738-1822). Through a process known as "star gauging," Herschel mapped the sky in terms of star density. Because he had observed the greatest density of stars located around the sun, he concluded that the sun was at the center of the Milky Way. Like the ideas of many of his predecessors, Herschel's theory did not advance science, but brought it back to the ideas of Ptolemy and to geocentric and anthropocentric beliefs, only on a galactic level. Whereas Copernicanism removed "man" from the center of our then-known universe (the solar system), Herschel's new model re-centers "man" by placing the sun, and by extension the solar system, at the center

² Rhetorically, Albert Einstein could have proven to be one of Noyes's greatest torch-bearers. Einstein's special theory of relativity (1905) seemed to call into question the very discontinuities Noyes wishes to make continuous; Einstein's special theory of relativity conceived space and time as a continuum, thus positing, in a sense, a new kind of continuity to subsume discontinuities (Spears 21).

of the Milky Way. Noyes, however, has Herschel seeing through the darkness and beyond to complete understanding:

I see beyond this island universe,
 Beyond our sun, and all those other suns
 That through the Milky Way, far, far beyond,
 A thousand little wisps, faint nebulae,
 Luminous fans and milky streaks of fire. . . . (240)

Noyes looks through Herschel's eyes, from the sun center outwards, claiming to see "beyond this island universe" (the solar system). Ironically, the phrase "island universe" was coined by Immanuel Kant in 1775 to suggest the existence of matter *outside* our galaxy. Kant suggested that nebulae, or island universes, were "collections of stars beyond the confines of the Milky Way" (Kaufmann 501). Noyes uses this term, however, to describe our solar system. Noyes doesn't see beyond the Milky Way, but instead sees other galaxies (grouped wrongly with nebulae) as within his own—as myopic a view as Ptolemy's geocentrism. Noyes not only doesn't see beyond his galaxy, he doesn't see very far within it either: "[I]t is the dust, which dims the light of distant stars, that makes the true extent of the galaxy and misled Herschel into thinking that the sun is at the center of our stellar system [the Milky Way]" (Abell 413). Noyes's view is blocked by "[I]uminous fans and milky streaks." In 1924, Edwin Hubble determined the distance to what was then called the Andromeda Nebula, establishing a clearer notion of intergalactic distance. We now refer to the Andromeda Nebula as the Andromeda Galaxy.³

³ The famous "Shapley-Curtis debate" of 1920 (Harlow Shapley and Heber D. Curtis) tried to settle the two different views of spiral nebulae. Shapley believed the spiral nebulae to be objects orbiting closely around the Milky Way. Curtis argued that spiral nebulae were other stellar systems (galaxies) like our own. In 1924, Edwin Hubble settled the Shapley-Curtis debate by calculating the distance of a Cepheid variable star in the Andromeda Nebula. Hubble showed that this nebula was, in fact, another galaxy beyond our own.

Interestingly, the science Noyes celebrates in *Watchers of the Sky* becomes troublesome to him in relation to the scientific developments at the beginning of the twentieth century, specifically in the field of quantum mechanics. *Watchers of the Sky*, published in 1922, could not have foreseen the implications of quantum theory; however, in the third volume of *The Torch-Bearers, The Last Voyage*, published in 1930, Noyes is fully aware of its implications, and criticizes the new or “modern” science:

[M]an still seeks it [truth] on the dwindling road
 Where Science traces great things back to less
 Till all runs out in nothing, which the fool
 Accounts the sole reality,—as of old.

Reality, and Reality—how we grope

And clutch at shadows in the shadowy flux
 Of the unsubstantial universe, O God.
 There was a time when Science walked on earth
 And found it “solid.” (406)

And in his *The Unknown God* (1934), Noyes writes, “It seems possible that scientific analysis has somehow made us lose sight of the chief values in the universe. It seems possible that it has somehow lost the real significance. . . .” (185). The science Noyes is referring to is, of course, quantum mechanics. Noyes is alarmed at how quantum physicists assert that “systems of electrons and protons are merely mathematical formulae” (186). And even more troubling to Noyes were the “direct contradictions . . . beginning to appear between the various theories of modern science, contradictions of precisely the same kind as, it used to be thought, appeared only between science and religion, and (of course) only to the disadvantage of the latter” (187). Noyes is referring to the wave-particle duality, where sub-atomic particles exhibit properties of both waves and particles. Noyes feels that the duality, “this region of indeterminacy,” renders the two theories “contradictory,”

and that “we ought not to be easily persuaded, even by science herself, that the laws and first principles of thought can be set aside, or that two theories which really contradict one another can be equally true. If things can be and not be, simultaneously, science is at an end and truth has no meaning” (188). With twentieth-century science, Noyes warns, “we are threatened with a breach in nature . . . where events may take place without any cause at all” (189), and that we must prevent science from destroying religious faith. He further writes, “This is our task: to adjust it so that we do not allow one order of truth to kill another” (192). But the “contradictory” theories Noyes is fearful of, which could perhaps be better termed as “mutually exclusive,” need not signal the demise of science or religious belief; this is merely the “true” progress of science and thought. As Michel Foucault, in his influential *The Order of Things: An Archaeology of the Human Sciences* (1966), writes, “[W]ithin the space of a few years a culture sometimes ceases to think as it had been thinking up till then and begins to think in a new way” (50). It is this sort of epistemological shift, what Thomas Kuhn calls a paradigm shift, that Noyes fears the most, as it undermines the notion that science is a cumulative process where discoveries and theories lead to one higher “truth.” For Noyes, there is only one way of seeing, as he fears God cannot be found in the indeterminate realm of quantum theory.

The grand narrative of scientific progress, with its heroes of enlightenment, may have seemed, for Noyes, an appropriate vehicle for battling the dark and chaotic times of modernity. However, a more accurate understanding of the Scientific Revolution, as well as the scientific developments at the beginning of the twentieth century, and the futility of a post-World War I era, renders Noyes’s narrative entirely inappropriate, even naïve. Rather than helping to understand the fragmented and nonlinear aspects of the modern world, Noyes’s narrative simply refuses to accept them, and, indeed, challenges them.

In “Dissemination: Time, Narrative and the Margins of the Modern Nation” (1994) critic Homi Bhabha suggests we must question the progressive metaphor of “social cohesion—*the many as one*—shared by organic theories of holism of culture and community, and by theorists who treat gender, class or race as social totalities that are expressive of unitary collective experiences” (142). The fictional creation of the nation—nation as narration—marginalizes those whose histories it purports to tell (or does not tell). The very condition of cultural knowledge, according to Bhabha, is the alienation of the subject, “graspable only in the passage between telling/told, between ‘here’ and ‘somewhere else’” (150). In “Missionary Stories: Gender and Ethnicity in England in the 1830s and 1840s,” cultural studies scholar Catherine Hall states that, traditionally, England’s national identity had been powerfully articulated by middle-class men “who claimed to speak for the nation and on the behalf of others” (241). She writes that these men

lived in a society cross-cut by complex social and political antagonisms, not only antagonism of class which they thought, spoke, and wrote about most forcibly, but also those of gender (which they silenced) and of race and ethnicity. Their search for a masculine independence, for a secure identity, was built on their assertion of their superiority over decadent aristocracy; over dependent females; over children, servants, and employees; over the people of the Empire, whether in Ireland, India, or Jamaica; over all others who were not English, male, and middle class. But this identity was rooted in an ever-shifting and historically specific cultural and political world, where the search for certainty and stability . . . masked conflict, insecurity, and resistance. (241)

For decades before the publication of Noyes's *Watchers of the Sky*, European colonial practices had been flourishing. By the late 1800s Britain and France had already staked their claims in Africa in an attempt to gain control of the major sea routes to India. And by the early 1900s the Industrial Revolution had increased manufacturing to such an extent that European countries began to expand their colonial authority in Africa as a means of economic development. However, after Britain's long, drawn-out battles in the Indian Mutiny (1857) and the Boer Wars (1899-1902) in South Africa, there seemed to be, more than ever, uncertainty and instability within the British Empire. As Jack Peck writes in *War, the Army and Victorian Literature* (1998), "This faltering of confidence stimulated the desire for new, and easy, answers. It is this desire for answers that leads to the period's need for heroes, for men who can unite the nation, producing a sense of coherence at a time when things are far from coherent" (133). And as Peck states, citing Alfred Vagts, the end of the nineteenth century effected a change "from the idea of an elite class as the functioning principle of militarism to a doctrine of race" (133).

Noyes's *Watchers of the Sky* tries to answer this call for heroes and for the reassurance of a dominant white race. The military-like tactics of Noyes's science echo the Victorian sieges and their control of indigenous populations. As Peck points out, sieges attracted much attention: "Sieges appealed, and still appeal, [to the English], for here is a microcosm of the British social order, with each rank knowing its place and playing its part, defending civilised life as it meets a challenge from an uncivilised enemy. . . . The siege becomes a definition and defense of the social order of Britain" (165). A civilized, lawful order is what Noyes believed was needed at the beginning of the twentieth century. For Noyes, empire is a metaphor for order, and order is an antidote for modernism. And to reiterate Sally Ledger's comment, theories of evolution and natural selection in biology at the end of the nineteenth century were applied to social and political theory (74).

Noyes begins *Watchers of the Sky* by describing his thoughts at the opening night of the Mount Wilson Observatory in 1917. He characterizes the modern day astronomers as “pioneers / Of science... [who] made ready to attack / That darkness... and win new worlds” (2). According to Noyes, the new 100-inch telescope with which the astronomers will “attack” the skies is “[t]he noblest weapon ever made by man” (2). Despite being “drawn away / Designing darker weapons [of war]” (2), they created a weapon of enlightenment that “no gun / Could outrange” (2). As narrator, Noyes offers an imperialist view of science, with its conquest by force, that can be seen as an explicit manifestation of nineteenth- and twentieth-century practices in European colonialism. Racial and moral supremacy had long become a part of the missionaries’ ideological framework, just as they believed that those who were colonized must submit to the authority of God. Noyes rewrites the history of astronomy as a European-made history that echoes the European (especially English) expansion and exploitation of Other worlds—the colonies. The “darkness” Noyes’s scientists will attack is similar to the darkness in Conrad’s *Heart of Darkness* (1898), also written during the height of English colonialism:

They [Englishmen] were conquerors, and for that you want only brute force—nothing to boast of, when you have it, since your strength is just an accident arising from the weakness of others. They grabbed what they could get for the sake of what was to be got. It was just a robbery with violence, aggravated murder on a great scale, and men going at it blind—as is very proper for those who tackle a darkness. The conquest of the earth, which mostly means taking it away from those who have a different complexion or slightly flatter noses than ourselves, is not a pretty thing when you look into it much. (10)

Here Conrad's satirical representation of the binary opposition of black and white, darkness and enlightenment, represents the same view that, in British society, "white" skin color possesses "superior ontological status plus great power over much of the inhabited world" (Said 226-7).⁴ Like the white missionaries who conquer the "darkness" of other worlds through the enlightenment of God, Noyes's great white men of science conquer the darkness of the universe by carrying the same torch of enlightenment. And as Said writes, "[W]e must remember that for nineteenth-century Europe an imposing edifice of learning and culture was built, so to speak, in the face of actual outsiders (the colonies, the poor, the delinquent), whose role in the culture was to give definition to what *they* were constitutionally unsuited for" (original emphasis, 228).

Noyes's science creates an edifice of European-made history, an edifice in which failure is the role of Other. The text becomes a site of cultural control, a missionary metanarrative where a white, European ideology conquers Other worlds and thought. But Noyes is blind to science's failure. Science, in Noyes's conception, doesn't fail; instead, it passes on the torch of knowledge from one scientist to another. However, Noyes's narrative of science has serious political implications. For example, Noyes argues that Isaac Newton's law of gravity knits all physical laws into one and "[i]nto an ordered *nation*" (emphasis mine, 193). Here, the politics of science are clear. Noyes states that Newtonian physics can explain how "one vast system, moons and planets wheeled / Around one sovran [sic] majesty, the sun" (195). Gravity is the force that wheels the system of planets and moons around the sun much as colonialism and its forceful tactics hold together

⁴ Of course the phrase "heart of darkness" has a twofold meaning; not only is it a metaphor for the Africans living at the heart of the Congo, but it is also a powerful statement about the hearts of the Englishmen who colonize.

the “one vast system,” the British empire, “[a]round one sovran majesty,” the King (George V, who reigned from 1910-1936).

Noyes’s narrative has at its heart his own European- and Christian-cosmological model as its dominant paradigm. Darwin’s theories are sanctioned by Noyes only in so far as they give a nodding approval to the notion that humans are the most highly evolved. Noyes’s text attempts to show that not only does science provide evidence for the existence of a controlling God, but that European (specifically English) culture is actually one step below God in the great chain of being. The throne of the King of England is compared to the “absolute throne of God,” and the harmonious advancement of Noyes’s science, if we can indeed call it science, raises humanity to a higher stage of perfection (183). Nationality, here, is equated with divine supremacy. As Patrick Brantlinger writes in *Rule of Darkness: British Literature and Imperialism, 1830-1914* (1988), “Imperialism itself, as an ideology or political faith, functioned as a partial substitute for a declining or fallen Christianity and for declining faith in Britain’s future” (228).

Fittingly, it was his futile effort to find order within the British empire and the world that would cause him to be neglected by modern readers. The immense futility and disorder of the post-World War I period, after all, resulted in a dramatic shift not only in cultural sensibilities but in the arts as well. Literary modernism reveals the distinctive break with Victorian morality and optimism, creating a profoundly pessimistic world view. As Paul Fussell contends in *The Great War and Modern Memory*, World War I “was a hideous embarrassment to the prevailing Meliorist myth which had dominated the public consciousness for a century. It reversed the Idea of Progress” (8). He explains that the Great War “was perhaps the last to be conceived as taking place within a seamless, purposeful ‘history’ involving a coherent stream of time running from past through present to future” (21). Yet Noyes, undaunted, re-emerges in 1922 with the release of *Watchers of the Sky*, still attempting to (re)define England’s position in the world

and to create a history (of knowledge) that paralleled the purposeful, orderly, and logical form and central tradition of the nineteenth century. “Unalterably opposed to radicalism, and particularly to radicalism in verse,” Noyes saw modernity as “an effort to upset necessary and logical laws” (Brenner 264). Noyes and others who clung to the sensibilities and aesthetics of the preceding century

belonged to a generation . . . whose inherited tradition and technique were utterly at variance with the material which they suddenly found themselves trying to handle. . . . [T]hey were quite unable to adjust themselves . . . to the grim realities of modern war. What men and women were experiencing and feeling, after the holocaust of the Somme if not before, could no longer be given poetic expression by writers whose sensibilities had been conditioned in Edwardian days or earlier, and whose poetic conventions were out-worn even before the war started. (Parsons 14)

While others wrote of the horrors of war, Noyes saw the war as a means of social salvation. However, it is ironic that *The Torch-Bearers* was written, ostensibly, to tell of a story other than war. Consider the following passage taken from Noyes’s *Two Worlds for Memory* (1953), in which the author describes a discussion with George Ellery Hale, whom Noyes credits as inspiring him to write *The Torch-Bearers*:

We had been talking about the way in which science was being harnessed to the war chariot. Even the astronomers were not exempt, and it was partly through methods analogous to those of astronomy that the first effective detectors of those deadly undersea planets, the submarines, were perfected. ‘The poets have written too much about

war,' he said. 'Isn't there a subject for a poem in this other fight, the fight for knowledge?' (114)

But Noyes's narrative describing this fight for knowledge ultimately reveals his own subconscious views of imperialism and nationality.

After World War I, it became nearly impossible for the English to hold onto their ideas of supremacy. In the wake of the most horrific war England had ever seen, the very notions of order, stability, and progress—the ideological infrastructure used to legitimize the concept of empire—were dismantled and subverted. *The Torch-Bearers* becomes, for Noyes, a final and desperate attempt at setting things right. This is, perhaps, why he is so fearful of the implications of the “new” science of Darwin, Einstein, and quantum physics. If Darwin is right that the evolution of humans is only a coincidence of nature, and is not controlled by a higher power; if Einstein is right about the concepts of space and time, and its implications of instability and perspectivism; and if quantum physics is right that matter, on the quantum level, can only be understood by the duality of concepts, the most strikingly non-classical aspect of twentieth-century physics, then perhaps modernism's rebellion against nineteenth-century assumptions is also right. The traditional literary forms seem entirely inappropriate for this new age—or new ways of interpreting this age. Commenting on the “disastrous effect[s] on the nineteenth century mind and its offspring in the twentieth,” Noyes says, “In contemporary literature, and the mind of the decivilized world as we know it to-day, ‘evolution’ has been made to mean something that no real thinker could accept for a moment” (*The Unknown God* 66).

The metanarrative status of Noyes's *Watchers of the Sky* lies in the fact that it purports to reveal the singular truth in science's smaller narratives. However, according to Jean-Francois Lyotard's postmodern condition, smaller narratives resist being incorporated into such larger representations. History, more accurately understood, is a product of cultural representations that

are organized by narratives. Noyes refutes modernity by resorting back to the myth of the grand narrative of scientific discovery because it is a narrative that he believes bestows legitimacy upon the established institutions of empire, and the literary forms of the nineteenth century. In organizing the succession of science's historical moments in terms of a projected revelation of meaning, Noyes has attempted to reunite "the great rhythmical laws of the universe revealed by science [with] truth and beauty" (ix). In doing so, he has rewritten the history of science to suggest that our understanding of the universe comes from the harmonious progression of accumulated discoveries and ideas. The torch of knowledge obtained through observations, discoveries, and theories (and even seemingly solid laws of science) is not passed from one to another; in fact, *we must seriously question whether there is any torch of knowledge*. The real unity of the universe does not lie in the progression of human endeavor, but perhaps in the laws of nature as different cultures constellate them.

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