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Recommended Citation

Walker, Theodore, "Edgar Allan Poe's Cosmology and Natural Theology: A Constructive Postmodern Appreciation" (2017). *Perkins Faculty Research and Special Events*. 8.
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Edgar Allan Poe's Cosmology and Natural Theology: A Constructive Postmodern Appreciation

Theodore Walker Jr.

*This 28 January 2017 document is a lightly revised version of my 5 December 2015 essay first posted online at www.poe-eureka.com/2016/05/09/358/ via *The Eureka Project* in May 2016.

Abstract-

Contrary to some literary classifications, Edgar Allan Poe's book-length prose poem *Eureka* is not intended to be fiction. In *Eureka* Poe was seriously attempting to advance 'truth' about the universe. Poe was doing natural science and poetry in the tradition of Samuel Taylor Coleridge and other natural philosophers. Poe's prose poem is natural scientific astronomy and cosmology, plus natural theology, not science fiction.

Key words: poetry, science fiction, cosmology, natural philosophy, natural science, natural theology

As graphic artists know, the frame can influence perception of the framed work, sometimes decisively. Edgar Allan Poe's little book *Eureka* [also titled *Eureka: An Essay on the Material and Spiritual Universe*; and *Eureka: A Prose Poem*, and from the first edition's book spine—*Eureka or the Universe*] (1848) is conveniently framed by fifteen of Poe's science fiction essays (chronologically, thirteen published before *Eureka*, and two afterwards) in *The Science Fiction of Edgar Allan Poe* (1976) collected and edited with an Introduction and Commentary by Harold Beaver. And, as indicated in Beaver's introduction, Poe's pioneering contributions to science fiction are celebrated.

When we are rigorously attentive to the content of *Eureka*, and wholly inattentive to its frame (science fiction), we find that in *Eureka* Poe was seriously attempting to advance 'truth' about the universe. Thus, in addition to being "a prose poem" (Poe's formal frame) framed with Poe's science fiction (Beaver's content frame), *Eureka* is astronomy and cosmology, plus natural theology, not science fiction.

For the purpose of appreciating Poe's cosmology, we can be helped by studying an unframed printing such as *Eureka / Edgar Allan Poe* (2004 [1848]) edited with an Introduction, Notes, and Textual Variants by Stuart Levine and Susan F. Levine. In this printing of *Eureka*, Poe's paragraphs are consecutively numbered, from 1 to 266. Plus, there is an Appendix featuring eighteen numbered paragraphs of Poe's Postscript to a Letter about the Lecture 'Eureka,' Notes to *Eureka* and Poe's Postscript, a seven-page Bibliography, and a fifteen-page Index.

*Hereafter, Poe's 1848 text will be referenced by Levine and Levine 2004 paragraph numbers.

As an essay in cosmology, Poe's *Eureka* is remarkable. Despite occasional errors and inconsistencies, in some important respects, Poe was well ahead of his time. For example, Lord Kelvin's quantitatively correct solution to Olbers's Paradox in 1901 was preceded by Poe's qualitatively correct solution in 1848. Cosmologist Edward Harrison says:

Lord Kelvin in 1901 tested an 'old and celebrated hypothesis' that if we could see far enough into space the whole sky would be occupied with stellar disks all of perhaps the same brightness as the Sun. Kelvin was the first to solve quantitatively and correctly the riddle of a dark night sky, a riddle that had been previously solved qualitatively by Edgar Allan Poe, and is now known as Olbers' paradox.
(Edward Harrison 1986: 417)

Poe was fifty-three years ahead of Kelvin. Furthermore, seventy-nine years before Georges Edouard Lemaître proposed that we live in a homogeneous universe of constant mass and increasing radius (1927), a universe that started from one "primeval atom" (English translation 1950); Poe had already proposed that the equable distribution of matter radiated throughout the universe started from one "primordial particle" (1848).

Lemaître's 1927 conception (of a homogeneous universe of constant mass and increasing radius) explains the red-shifted light from extragalactic nebulae first observed in 1913 by Vestro Melvin Slipher, and more fully observed by Edwin Hubble and Milton Humason in 1929.

Poe's 1848 conception (of matter equally radiated in all directions) explains the observed distribution of the stars. The stars are spherically distributed in a way consistent with light radiated equally in all directions from one central point, and "in direct proportion with the squares of the distances" from that point (Poe 1848 [2004: paragraphs 85]).

Poe was first to propose universal radiation from one originating "absolute Unity" ("multiplicity out of unity"), from the ultimate absolutely unique "*Oneness*," the "*one* particle," the one "primordial Particle," the universal singularity from which all "originally created" matter was "radiated spherically—in all directions" (1848 [2004: paragraphs 45-50]). Moreover, Poe proposed that universal "radiation"/expansion is followed by gravity powered universal "centralization"/contraction, and then by new expansions and contractions in "*limitless* succession" (Ibid: paragraph 187). Thus Poe "anticipated the expansion, collapse, and possible oscillation of the universe," says Edward Harrison in *Cosmology: The Science of the Universe* (2005 [1981]: 510). Similarly, in "*Eureka* in Context: Poe, the Newspaper, the Lyceum, and Cosmic Science" (2013) Robert J. Scholnick appreciates Poe's cosmological anticipations.

In Poe's day (1848), his conception—of universal radiation from oneness followed by universal contraction—was often regarded as sheer fiction. Such regard is not surprising. Poe's proposal came eighty-one years before the Hubble-Humason observations (1929), and ninety-eight years before George Gamow's fully modern theory of the expanding universe (1946). Physicist and historian of science Helge Kragh argues that Lemaître's primeval atom is "a condensed material pre-universe," not a singularity (1996: 54; also 1993: 373). Thus, Kragh "marks the beginning"

of fully “modern big bang theory” (1993: 377) with the publication of George Gamow’s “Expanding Universe and the Origin of Elements” (1946). And according to scientific consultant for Levine and Levine—Bruce Twarog, Poe’s cosmology is “loosely ... equivalent to the ‘Big Bang’ theory,” and his “notion of the ‘reciprocity’ of matter and energy” is “*roughly* akin to the modern understanding of the relationship represented by Einstein’s $e = mc^2$,” and one could plausibly claim Poe intuited “something roughly like a black hole” while coming “close to anticipating astrophysical speculation that the universe is ultimately going to coalesce because it lacks sufficient energy to escape its own gravity” (Levine and Levine 2004: xxi). Hence, Poe was nearly a century ahead of fully modern big bang theory, and more than a century ahead of subsequent big crunch and oscillating universe speculations.

In our day (2015f), universal radiation from oneness [singularity] possibly followed by universal contraction—has come to be taken seriously, not as fiction. Nevertheless, many scientists continue to regard Poe’s cosmology (a poetic blend of a posteriori observation, a priori logic, and imaginative-speculative intuition) as *not* scientific.

For example, Helge Kragh describes Poe’s cosmology as a “remarkable example” of “cosmogonic speculations” that “predate the scientifically argued idea” (1996: 39). Obviously, Poe was not a natural scientist in the contemporary sense sharply distinguished from a natural philosopher.

The modern natural scientist is said to be distinguished (from the early modern natural philosopher) by failure to appreciate poetry in nature, and by a corresponding failure to appreciate poetic presentations of natural scientific ideas. This late modern separation of science from poetry was marked in the year 1833 when poet and natural philosopher Samuel Taylor Coleridge lamented that his colleagues in the British Association for the Advancement of Science were not true natural philosophers. Unlike true natural philosophers, they failed to appreciate the poetry actualized in nature. See *Poetry Realized in Nature: Samuel Taylor Coleridge and Early Nineteenth-Century Science* (1981) by Trevor Harvey Levere. In responding to Coleridge’s lament, William Whewell coined the term “scientist” (analogous to “artist”). See the prologue—“Inventing the Scientist”—in *The Philosophical Breakfast Club: Four Remarkable Friends* [William Whewell, Charles Babbage, John Herschel, and Richard Jones] *Who Transformed Science and Changed the World* (2011) by Laura J. Snyder.

“When Poe called *Eureka* a poem,” write Levine and Levine, “he was placing it in a very long tradition of writings that were poetic and were at the same time attempts to grasp the nature of things” (2004: xii). Thus, Poe was doing natural science and poetry in the tradition of Samuel Taylor Coleridge and other true natural philosophers, such as naturalist-cosmologist Alexander von Humbolt, to whom Poe dedicated *Eureka* (Scholnick October 2011). And, as was the case for Coleridge, and for Humbolt; for Poe, natural philosophy includes natural theology.

Late modern scientists seldom speak affirmatively of God. By contrast, Poe attributed universal radiation to the Divine Will. The universe, says Poe, swells “into existence” and subsides “into nothingness” (expands and contracts) “at every throb of the Heart Divine” (1848 [2004: paragraph 255]). Hence, Poe rejected late modern disregard for poetry, art, natural philosophy, and natural theology.

Poe confronted disregard for his methods head-on. Concerning the role of imagination and intuition in science, Poe argued that “true Science” “makes its most important advances—as all History will show—by seemingly intuitive leaps” (1848 [2004: paragraph 14]). Poe argued at length against the conviction “that the Aristotelian and Baconian roads” are “the sole possible avenues to knowledge” (Ibid), and against “repression of imagination” (Ibid: paragraph 15), especially in cosmology where one must generalize.

Similarly, Alfred North Whitehead, in *Process and Reality: An Essay in Cosmology* (1978 [1927-28 Gifford Lectures]), explains the “collapse of the method of rigid empiricism” when seeking general truths (p. 4-5). He says:

It [collapse of rigid empiricism] occurs whenever we seek the larger generalities. In natural science this rigid method is the Baconian method of induction, a method which, if consistently pursued, would have left science where it found it. What Bacon omitted was the play of a free imagination, controlled by the requirements of coherence and logic. The true method of discovery is like the flight of an aeroplane. It starts from the ground of particular observation; it makes a flight in the thin air of imaginative generalization; and it again lands for renewed observation rendered acute by rational interpretation.

(Whitehead 1978 [1927-28]: 4-5)

In addition to affirming “imaginative generalization,” Whitehead combines natural scientific cosmology with natural theology and poetry, thereby describing God as “the poet of the world” (1978 [197-28]: 346). In appreciating poetry in nature, in appreciating natural theology, and in other important respects (such as rejecting dualism and materialism), Whiteheadian natural philosophy and science is radically different from late modern science. This “radically different” philosophy of nature is called “postmodern” and “constructive postmodern” in *Whitehead’s Radically Different Postmodern Philosophy* (2007) by David Ray Griffin. Constructive postmodern thought—of the radically different type indicated by Whitehead—enables us to better appreciate that *Eureka* is natural scientific cosmology, poetry, and natural theology.

For more about constructive postmodern appreciation of poetry, art, and natural theology in astronomy and cosmology (including Poe’s cosmology), see *The Big Bang and God: An Astro-Theology – wherein an astronomer and a theologian offer a study of interdisciplinary convergences with natural theology both in the scientific researches of Sir Fred Hoyle and in the philosophical researches of Charles Hartshorne and Alfred North Whitehead, thereby illustrating a constructive postmodern trend* (New York: Palgrave Macmillan, 2015) by Theodore Walker Jr. and Chandra Wickramasinghe.

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