

Edgar Allan Poe's Cosmic (R)evolution: *Eureka* at the Crossroads of the Physical and the Metaphysical

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Abstract Poe's cosmology *Eureka* offers a new methodology of scientific research in which the physical and metaphysical converge. Despite inaccuracies, Poe's ideas are revolutionary in that they anticipate the notion of an evolving universe. Much like a Poesque purloined letter, *Eureka* discloses an overlooked secret that should inform research across fields: namely, that science, in its desire to be impartial, must not shut out the imagination. *Eureka* suggests that the formation of the universe is analogous to poetic creation. Like cosmological detectives, scientists might turn to Poe's literary alter ego, Auguste Dupin, for inspiration. His method of *ratiocination*, or inductive reasoning, couples the power of the intellect with that of the intuitive imagination. A visionary who recognized a burgeoning and dangerous tendency of science to squash the imagination, Poe called for an interdisciplinary approach to the sciences in an age when the narrowing of specializations was becoming the norm.

Keywords *Eureka*; Poe; cosmology; imagination; science fiction; ratiocination; detective; scientific method

1 Introduction

During the last year of his short life, the American poet Edgar Allan Poe (1809–1849) published what he considered to be his greatest work, an imaginative consideration of the cosmology of the universe. Perhaps Poe sensed that his end was near, since in a letter to his aunt Maria Clemm he claimed that “[he had] no desire to live since [he

had] done *Eureka*. [He could] accomplish nothing more,”¹ yet he correctly conjectured that his contemporaries would not be ready for his thought-provoking essay. These suspicions appear to have been confirmed by the mixed responses to the poet’s first presentation of the work in the form of a lecture at the Society Library in New York on February 3, 1848. For this talk bearing the title “On the Cosmogony of the Universe,” Poe was expecting hundreds, yet only sixty people attended.² A similar overestimation on the part of the writer in regard to the proliferation of the ensuing written work also occurred when, months later, Poe suggested to his publisher George P. Putnam that he should have an initial run of 50,000 copies. Putnam, who was more conservative in his estimation, refused, with an initial run of only 500 copies and this at a fairly slow pace.³

Despite positive reactions to Poe’s lecture in the press, the immediate responses of his contemporaries to the published work were diverse. After Poe’s talk, the newspapers were fairly enthusiastic. *The Express* noted that “the work [had] all the completeness and oneness of plot required in a poem, with all the detail and accuracy required in a scientific lecture” and *The Courier and Enquirer* hailed it as “a nobler effort than other that Poe has given to the world.”⁴ In “Contemporary Reviews of *Eureka*,” Burton Pollin summarized the immediate reactions to *Eureka*, including that of the *New York Evening Express*, which in Pollin’s words fervently praised Poe’s talk as “[t]he most elaborate and profound lecture ever heard.”⁵ The reactions to the published work were much cooler, as the sluggish sales confirmed. Poe’s alterations to the ending of the printed essay also led some friends to turn away from him due to its sacrilegious and pantheistic implications.⁶ *Eureka* remains one of Poe’s more obscure works, receiving less scholarly attention than Poe’s other publications. However, thanks to the efforts of the French poet Charles Baudelaire (1821–1867), who first translated the text into

1 <https://www.eapoe.org/works/letters/p4907070.htm> (Poe’s letter to Maria Clemm on July 7, 1849).

2 Beaver 1976, 396.

3 <https://www.eapoe.org/works/editions/eureka.htm>. Also see Beaver 1976, 396.

4 Beaver 1976, 396.

5 Burton Pollin cited in Levine and Levine 2004, xxv.

6 Many friends including Louisa Shew turned away from Poe. See <http://www.poe-eureka.com/2011/03/28/the-thought-of-a-thought-edgar-allan-poe/>. Poe’s ending is pantheistic and may have been considered by some to contain hubris, since it suggests that human beings will become God. *Eureka* ends with haunting memories that speak to the reader from the “Night of Time,” summarizing the underlying essence of the universe: “These creatures are all [...] conscious Intelligences; conscious first, of a proper identity, conscious secondly and by faint indeterminate glimpses, of an identity with the Divine Being of whom we speak—of an identity with God. [...] Think that the sense of individual identity will be gradually merged in a general consciousness—that Man [...] will at length attain that awfully triumphant epoch when he shall recognize his existence as that of Jehovah.” Poe 1848, 106.



Figure 1 Cover of the Alianza editorial edition of Julio Cortázar's translation of and introduction to Poe's *Eureka* (1997). Illustration based on Sandro Botticelli's painting "Sant'Agostino nello studio."

French, international readers gained access to the essay in the nineteenth century. Future translators like Julio Cortázar benefited from Baudelaire's translation, which served as a basis for their own. (See the cover illustration of Cortázar's Spanish text in, **Fig. 1**).⁷

Thanks in part to these translations, *Eureka* has gained in estimation to the extent that it merits the attention of Poe scholars as well as modern-day scientists, who attempt to establish to what extent it anticipated modern scientific theories. In addition to shaping physical and metaphysical discourse, the enigmatic work still elicits debates regarding its genre and whether it should be taken *à la lettre*. *Eureka* was considered seriously enough to be censored in Russia in the late nineteenth century and to merit four letters by Einstein.⁸ From hoax to prose poem to scientific treatise, the text has received many labels even if it defies categorization. Poe's use of various titles to refer

7 Poe 1859–1860, translated by Charles Baudelaire. 'Eureka, poëme en prose, ou essai sur l'Univers matériel et spirituel' (this was the last of five volumes of Baudelaire's Poe translations and was published in four installments in the *Revue internationale mensuelle* in Geneva between October 1859 and 1860. The final translation was published in 1864 in Paris by Michel Lévy.).

8 Information mentioned in René van Slooten's lecture during the "Positively Poe" conference in 2013, a conference organized by Harry Lee Poe and Alexandra Urakova, many ideas of which are available at: <https://blogs.scientificamerican.com/guest-blog/edgar-allan-poe-cosmologist/>

to *Eureka* reflects the indefinite generic status of the work. For the lecture version, we find both “The Universe” (written as a lecture before February 3, 1848) and “On the Cosmogony of the Universe.”⁹ For the written work, Poe used *Eureka: A Prose Poem* on the title page and *Eureka: An Essay on the Material Universe* on the first page of the text. Another alternative reads *Eureka, A Prose Poem: Or the Physical and Metaphysical Universe* (a presumed revision of the lecture in preparation for publication, completed by May 22, 1848), sometimes found in the abbreviated form as *Eureka: A Prose Poem*.¹⁰ As Burton Pollin points out, if Poe used several titles to refer to his cosmology, one should carefully consider the significance of these choices and changes.¹¹ While the earlier title elicits expectations of a scientific treatise, the later titles include the epithet “prose poem,” emphasizing the poetic, hybrid, literary, fictional, and imaginative nature of the work. All the variants announce that the work wishes to reveal some of the hidden secrets of the universe.

The expression “Eureka” is Greek for “I have found it” and alludes to the discovery of displacement by the Greek mathematician Archimedes (ca. 287–212 BCE). The ninth book of architecture of Vitruvius recounts the famous story behind the coinage of the expression “Eureka!” Legend has it that Archimedes, after discovering that the water level rose in the bathtub when he bathed at the public bath, was challenged by Hiero of Syracuse to determine the purity of an allegedly golden votive crown. Having given enough gold to his goldsmith to make a crown of pure gold, the ruler correctly suspected that he had been cheated and given a crown that had been made using both gold and silver. Using his knowledge of displacement and weighing objects, Archimedes was able to prove that Hiero’s suspicions were correct. Upon returning to the baths and making his discovery there, the Greek philosopher exclaimed “Eureka!” repeatedly, running home naked through Syracuse. Though this is probably at least

9 Beaver 1976, 395. One source even lists “On the Cosmography of the Universe.” Hendricks 2019. <https://bigthink.com/surprising-science/poe-cosmology-eureka?rebelltitem=1#rebelltitem1>.

10 Seven historical texts exist, in addition to at least seven noteworthy reprints. In this article, I use two editions depending on the context. The first is Text 6, known as the “Nelson Mabbott copy.” See <https://www.eapoe.org/works/info/peerk.htm>. Managed by Jeffrey Savoye of the Poe Society in Baltimore, this website is the most complete and extensive resource on Poe available online, featuring various annotated editions and versions of Poe’s works. The second is the Stuart and Susan Levine edition of *Eureka*. In regard to Poe’s various titles for the work, the Levines point out that Poe may not have thought to call his work a “poem” until the idea was given to him by the reviewer of the *New York Express* in the latter’s review of the lecture. Levine and Levine 2004, xv. Throughout their introduction, the Levines seem at times reluctant to give Poe due credit for his originality, referring to the work dismissively as “patchwork fabric” (xi) and a “collage” (xviii). They seem to undermine the importance of *Eureka* by suggesting that it was a mere product of its times, one of a group of “strange mid-century works” (xi).

11 Levine and Levine 2004, xxvi.

in part fictional, ever since, great scientific discoveries from Newtonian gravity to Einstein's relativity theory have been dubbed "Eureka moments".¹²

In view of this legend, which deals with distinguishing truth from falsehoods (pure gold from a counterfeit alloy), it is no accident that "Eureka" was adopted as the motto for the state of California, where in Poe's day and age the gold rush was raging. I argue elsewhere that throughout the corpus of his works and letters, Poe subtly mocked some of his contemporaries for participating in this material quest to dig up gold. His use of this charged exclamation as a title was probably another subtle attack on these Argonauts, a way of pointing out that while they were seeking material wealth, he was instead focusing on the spiritual by unraveling the physical and metaphysical secrets of the universe. In this sense, Poe's choice of title, "Eureka," is brilliant yet ambivalent. It constitutes both a sly provocation and a genuine invitation for readers to discover the secrets that the author of the work has unraveled.¹³

2 Poe's Dedication to Humboldt

Overall, it appears that Poe took *Eureka* seriously. By dedicating his work to Alexander von Humboldt, Poe was suggesting that it was a response to the German scientist's famous *Kosmos. Entwurf einer physischen Weltbeschreibung (1845–1862)* [*Cosmos*]. Humboldt's cosmology, a synthesis of the notes he had taken for his famous lecture series at both the University of Berlin (now called "Humboldt Universität") and the Sing-Akademie in the years 1827–1828, was a great success. His lectures were extremely well attended, and when the long-awaited first volume of his work was published in 1845, it was in high demand, selling out almost overnight. Poe was familiar with the first of the five volumes, which was translated into English as well as many other European languages as of 1845.¹⁴ While no doubt more scientific than Poe's *Eureka*, it is worth noting that Humboldt's *Cosmos* was also considered by many to be a literary achievement, making the parallels between this and Poe's work even more significant.¹⁵

Undoubtedly, Poe was hopeful that he would follow in his idol's footsteps and that his work would be just as successful as that of his venerated contemporary. Poe was probably disappointed when he witnessed the mixed reactions to his *magnum opus*. By officially dedicating his work to the scientist Alexander von Humboldt, Poe seems to have wanted to suggest that his work was up to par, or perhaps even

12 Biello 2006.

13 Poe also dealt with the gold rush in other works, like the poem "Eldorado" (1849) and in the "Van Kempelen and His Discovery" hoax.

14 Cf. Botting 1973, 258–262. It could also well be that Poe's knowledge was based merely on his familiarity with reviews of Humboldt's cosmology.

15 Botting 1973, 258–262.

an improvement upon Humboldt's cosmogony. While Poe dedicates the work to the German thinker with "very profound respect," he is nonetheless bold enough to criticize the lauded scientist.¹⁶ After a series of disclaimers to ward off potential objections, Poe overtly declares his desire "to speak of the *Physical, Metaphysical and Mathematical—of the Material and Spiritual Universe:—of its Essence, its Origin, its Creation, its Present Condition and its Destiny.*"¹⁷ He then goes on to reveal that "[he] shall be so rash, moreover, as to challenge the conclusions, and thus, in effect, to question the sagacity, of many of the greatest and most justly revered of men."¹⁸ The first of these "reverenced men" whom he chooses to question is the awe-inspiring Humboldt himself. For Poe, Humboldt's survey does not "warrant deductions from its individuality" since it presents the subject "in its generality." This is gentle irony since *Eureka* emphasizes the need for an individual impression and defies the purely scientific generalists, whose imaginations do not afford them sufficient insight into this more individual impression.¹⁹

Poe coins the word "syncretical" to describe Humboldt's method, meaning that he focuses on "the universality of material relation, and discloses to the eye of Philosophy whatever inferences have hitherto lain hidden *behind* this universality." Yet for Poe, the multiplicity of these points and an abundance of detail "preclude all *individuality* of impression." When Poe accuses Humboldt of lacking "individuality of impression," this is likely code for what he referred to in earlier works as the "unity of impression."²⁰ The individuality, which Poe aspires to achieve in his "prose poem" *Eureka* is akin to his notion "unity of impression" or "unity of effect," a key aesthetic expectation he sets for poems in his essay earlier "Philosophy of Composition."

In *Eureka*, the narrator suggests that he wants to write his survey in such a way that the mind will be able to "receive and perceive an *individual* impression."²¹ He is aware, perhaps, that in its realization such an "individual impression" might not be attainable. In addition to dedicating his work to "the dreamers," he offers a memorable example to make this point: Someone who stands on top of Mt Etna and looks around only perceives the "extent and diversity" of the scene, failing to take in the complete panorama. The only way to fully appreciate the "sublimity of [Etna's] oneness" would be to whirl rapidly around on one's heel on its peak. The narrator concludes playfully

16 For Poe's dedication to Humboldt, see <https://www.eapoe.org/works/essays/eurekad.htm>. For Poe's criticism of Humboldt's "Cosmos," see <https://www.eapoe.org/works/essays/eurekar.htm>.

17 Poe 2004, 7.

18 Poe 2004, 7.

19 In addition to Humboldt, Poe also accuses Leibnitz of this limitation.

20 For instance, Poe discusses the necessity of the "unity of impression" in his "Philosophy of Composition." He calls for poems and tales that are short enough to be read in one sitting, so as not to interrupt the "unity of impression."

21 Poe 2004, 7.

that “[b]ut as, on the summit of Aetna, *no* man has thought of whirling on his heel, so no man has ever taken into his brain the full uniqueness of the prospect; and so again, whatever considerations lie involved in this uniqueness, have as yet no practical existence for mankind.” Since Etna is a volcano and no one could whirl around on top of it, this oneness of impression is a mere illusion. *Eureka* argues that complete unity can only be achieved in annihilation: “I propose to show that this *Oneness is a principle abundantly sufficient to account for the constitution, the existing phenomena and the plainly inevitable annihilation of at least the material Universe.*”²²

3 Three Caveats

Despite his cautious reproach, Poe was aware of his limitations as an *homme de lettres* in matching Humboldt in scientific expertise. He solves this problem by granting himself poetic license on three levels. First, in his publication of *Eureka*, Poe specifically subtitles his work “A Prose Poem,” perhaps to ensure that his readers would not attempt to take it as a scientific treatise. This designation is particularly enigmatic since it defies the rules Poe had himself established for a “poem.” In his earlier essays “The Philosophy of Composition” and “The Poetic Principle,” the author had called for certain guidelines for poems, one of which deemed that poems should not exceed one hundred lines in length.²³ *Eureka* spans over one hundred pages, hence clearly breaking Poe’s own rule. Of course, one might argue that the poet’s label of choice was “prose poem” as opposed to merely “poem,” and that this hybridization of the two genres of “prose” and “poetry” might have been an additional attempt on the part of the writer to stretch the genre boundary and enjoy greater freedom.²⁴

The second strategy that Poe deploys to grant himself poetic license is by clearly addressing a specific target audience. In his preface, Poe reiterates that the work is to be judged “as a poem only” after he is dead and dedicates his piece to “those who love [him],” to “those who feel,” and to “the dreamers.”²⁵ Calling his opus a “Book

22 Poe 2004, 23.

23 <https://www.eapoe.org/works/essays/philcomp.htm>. Poe 1846, 164. At times Poe perhaps deliberately delights in contradicting himself and in breaking his own rules. “The Philosophy of Composition” uses “The Raven” as its key example, a poem that has 108 lines, eight more than his guidelines called for. This is typical for Poe, who was known for his hoaxes, and who enjoyed sprinkling elements of humor throughout the corpus of his works.

24 Poe was one of the first writers to use the expression “prose poem.” For the author’s innovative hybridization of genres, see Isaak 2021 and Isaak 2010.

25 <https://www.eapoe.org/works/essays/eurekap.htm>.

of Truths,” he insists that it is not the truth-telling itself that is important, but rather “the Beauty that abounds in its Truth” that confirms its truth.²⁶

Poe’s evocation of this Keatsian equation of beauty and truth places the poetic (beauty and art) over the scientific. This is novel in that a typical function of science, truth-telling, is now given to beauty, which takes its place, or at the very least wins first place in the battle for authority between literature and science. In her analysis of the work, Laura Saltz examines how by “[p]erforming both scientific and literary epistemologies, *Eureka* stages a competition between them.”²⁷

I contend that Poe is deliberately addressing a broader audience consisting of both literati and ‘scienziati’. Nonetheless, *Eureka’s* preface serves as a disclaimer to deliberately prevent potential scientific critics from pouncing on the work. Moreover, Poe demonstrates that he is aware of his provocative nomenclature. He fears that referring to *Eureka* as a poem may be “too lofty a claim” for some, hence offering alternative labels like “Art-Product” or “Romance,” both of which suggest the supremacy of the imagination. However, he ends the preface by opting for his more audacious label, insisting that it is “as a Poem only that [he] wish[es his] work to be judged after [he is] dead.”²⁸

The third technique Poe uses to set *Eureka* off from more serious scientific treatises is that he opens the work with a humorous touch of science fiction, namely by introducing extracts from a fictitious letter from the future (specifically dated one thousand years later in 2848), which was supposedly discovered floating on the *Mare Tenebrarum*.²⁹ Both the identity of the letter-writer and the dark ocean in which the letter is found remain mysterious. Poe sarcastically adds that the ocean has been “described by the Nubian geographer, Ptolemy Hepheston, but little frequented in modern days unless by the Transcendentalists and some other divers for crotchets.”³⁰ As on numerous other occasions, Poe does not forego this opportunity to lampoon his contemporaries, the New England Transcendentalists, whose works he delighted in disparaging.³¹ In “The Philosophy of Composition” (1846), Poe criticized “the excess

26 <https://www.epoe.org/works/essays/eurekap.htm>.

27 Saltz 2018, 424.

28 <https://www.epoe.org/works/essays/eurekap.htm>.

29 <https://www.epoe.org/works/essays/eureka1.htm>. As Mihai Stroe points out, “mare tenebrarum” is reminiscent of William Blake’s cosmologic vision of a finite idea of time and infinite notion of space. See Stroe, 2010, 83.

30 <https://www.epoe.org/works/essays/eureka1.htm>.

31 In “Never Bet the Devil Your Head” (1841), Poe pokes fun at the Transcendentalists, referring to his Boston contemporaries as “Frogpondians” in allusion to the pond on Boston Common and perhaps to Henry David Thoreau’s *Walden*. He called their works “metaphor-run” and accused them of using “mysticism for mysticism’s sake.” The piece clearly alludes to the movement and its journal, *The Dial*.

of the suggested meaning [... that] turns into prose (and that of the very flattest kind) the so-called poetry of the so-called transcendentalists."³²

This sarcastic and imaginative opening of an otherwise more serious essay led many scholars to question whether *Eureka* might be considered a hoax.³³ Poe was both a notorious punster and hoaxer and enjoyed duping his readers. While the work deploys elements of a hoax, this does not seem to be its main intention. Instead, it appears that Poe strategically uses certain elements characteristic of his hoaxes to discourage purely scientific criticism of his work. One obvious element of a hoax that Poe employs is the frame that he establishes by claiming the impossible, namely that the letter that has been found is from the future. This distorts the time frame of *Eureka* by juxtaposing two competing time frames, the time of the letter, or 2848, and the time of *Eureka*, or 1848. While this juxtaposition may seem to constitute an attempt to heighten the epistemological uncertainty, any reader could readily distinguish between the distorted facts presented in the letter and the more matter-of-fact writing of Poe's ensuing essay. Moreover, much of this humorous first part of *Eureka* resembles another work by Poe, which, like *Eureka*, also contains a letter from the future (dated 2848) and which Poe claims was found on the *Mare Tenebrarum* in 1848. Much of the language in these letter passages is nearly identical. In his introduction to Poe's tale, Thomas Ollive Mabbott attributes the duplication to the two works having been conceived around the same time. In January 1848 Poe sold his story "Mellonta Tauta" to Godey for publication in the latter's magazine.³⁴ During his first public lecture on "The Universe" a few weeks later, Poe reworked passages from paragraphs seven to thirteen from his epistolary story to weave them into *Eureka*. Since publication of the "Mellonta Tauta" was delayed, *Eureka* and the duplicate passages were published first, upsetting Godey, who eventually forgave Poe.³⁵ Set in 2848, Poe's story features a series of bundled letters that the female protagonist Pundita writes to a friend to kill time while traveling on a hot-air balloon. By inserting this cross-reference to his own

32 In their introduction to *Eureka*, the Levines suggest that there are philosophical affinities between Poe and the Transcendentalists, and specifically between Poe and Ralph Waldo Emerson. After a comparison of Emerson's poem "Blight" to Poe's "Sonnet to Science," they go on to call *Eureka* a "transcendental treatise," a label that Poe would have despised. Levine and Levine 2004, xvii.

33 Even the nasty contemporary reviewers John Milton Emerson and John H. Hopkins, Jr. were cautious in their criticism, since they surmised that *Eureka* "might be a scientific hoax:" Levine and Levine 2004, xxv. The *OED* defines the noun hoax as "[a]n act of hoaxing; a humorous or mischievous deception, usually taking the form of a fabrication of something fictitious or erroneous, told in such a manner as to impose upon the credulity of the victim." See "hoax, n." The first use of the word was as a verb in 1796: "hoax, v." *OED Online*. December 2021. Oxford University Press. <https://www.oed.com/view/Entry/87427> (accessed February 24, 2022).

34 "Mellonta Tauta" is a phrase from Sophocles' *Antigone* and means "these things are in the future." See Poe 1978, 1289.

35 Poe 1978, 1289.

story at the beginning of *Eureka*, Poe further extends the imaginative impact and the fictional framework of his cosmology.

On the surface, in *Eureka* the letter's satirical language and the blending of facts and fiction might appear to point to a hoax.³⁶ Yet the satire is so heavy and Poe's game so obvious that any reader would immediately recognize that the opening of *Eureka* is meant to be comical and does not ask to be taken seriously. The letter-writer pokes fun at the established ideas and scientists, distorting commonplace names to make them ridiculous. Aristotle becomes the Turkish "Aries Tottle" and Francis Bacon becomes "Hog," or the original state of 'bacon' before the animal becomes meat. Far from providing a verisimilitude that might dupe naive readers, Poe (or the writer of *Eureka* if one wishes to consider him as a first-person narrator distinct from the author) even provides explanations for what he believes the letter-writer means. This brief passage from the fictitious letter at the opening of *Eureka* demonstrates that the humor is too obvious to have the duping quality of a hoax:

It appears, however, that long, long ago, in the night of Time, there lived a Turkish philosopher called Aries and surnamed Tottle. (Here, possibly, the letter-writer means Aristotle; the best names are wretchedly corrupted in two or three thousand years.) The fame of this great man depended mainly upon his demonstration that sneezing is a natural provision, by means of which over-profound thinkers are enabled to expel superfluous ideas through the nose; but he obtained a scarcely less valuable celebrity as the founder, or at all events as the principal propagator, of what was termed the deductive or à priori philosophy. [...] His most illustrious disciples were one Tuclid, a geometrician [meaning Euclid] and one Kant, a Dutchman, the originator of that species of Transcendentalism which, with the change merely of a C for a K, now bears his peculiar name.

By creating a fictitious alter ego in the persona of the futuristic letter-writer, Poe eludes all of the responsibilities associated with authorship. Again, he makes use of this device to make fun of the Transcendentalists, who were influenced by Kant's philosophy. Yet they misappropriate him by changing his name to "Cant," a clear pun on the homophonic four-letter insult used to refer to the female reproductive organ.³⁷ By inserting the more sober text into a witty framework, Poe automatically thwarts

36 For a full discussion of the characteristic of hoaxes, see Fleming and O'Carroll 2010, 45–59.

37 This derogatory remark on Kant is especially ironic since later in *Eureka* for his description of the nebular hypothesis for the formation of the solar system, Poe relied heavily on Immanuel Kant, whose ideas on cosmology seem to have influenced him. For details see: <http://www.poe-eureka.com/2011/03/28/the-thought-of-a-thought-edgar-allan-poe/>.

the expectations of his readers. It is worth noting that Poe makes frequent use of this device throughout the corpus of his works.³⁸

Despite these three caveats, Poe insists that his work will be pioneering, and he seems to have been on the mark, since *Eureka* has elicited reactions from well-known scientists, including the likes of Albert Einstein, and has been found to anticipate many key discoveries that have shaped our modern understanding of cosmology and the universe.

4 Poe's Main Contentions in *Eureka*

In a letter to George W. Eveleth dated February 29, 1848, Poe asserted: "What I have propounded will (in good time) revolutionize the world of Physical & Metaphysical Science. I say this calmly—but I say it." He then goes on to proudly cite positive reactions to his New York lecture, enclosing two laudatory reviews.³⁹ Poe's letter provides a brief outline of *Eureka's* main contentions for Eveleth, which is why it is included below. Providing the essence of Poe's cosmology in a nutshell, it will prove useful in the ensuing analysis.

Extract from Poe's letter to Eveleth:

The General Proposition is this:—Because Nothing was, therefore All Things are.

1—An inspection of the universality of Gravitation—i.e, of the fact that each particle tends, not to any one common point, but to every

38 Many Poe texts begin with a comical part and then become theoretical or vice versa. One need only think of "The Imp of the Perverse," which begins in an expository manner and leaves very little room for the plot of the tale itself. The students in my Poe course in the Spring-Summer Semester in 2019 at Heidelberg University observed this tendency of the author to split many of his texts in two with an expository part juxtaposed with a more creative part, often with seemingly no transition. Perhaps this phenomenon merits greater study among Poe scholars.

39 <https://www.epoe.org/works/letters/p4802290.htm>. Poe writes: "I presume you have seen some newspaper notices of my late lecture on the Universe. You could have gleaned, however, no idea of what the lecture was, from what the papers said it was. All praised it—as far as I have yet seen—and all absurdly misrepresented it. The only report of it which approaches the truth, is the one I enclose—from the 'Express'—written by E. A. Hopkins—a gentleman of much scientific acquirement—son of Bishop Hopkins of Vermont—but he conveys only my general idea, and his digest is full of inaccuracies. I enclose also a slip from the 'Courier & Enquirer':—*please return them*. To eke out a chance of your understanding what I really did [*sic*] say, I add a loose summary of my propositions & results."

other particle—suggests perfect totality, or absolute unity, as the source of the phaenomenon.

2—Gravity is but the mode in which is manifested the tendency of all things to return into their original unity; is but the reaction of the first Divine Act.

3—The law regulating the return—i,e, the law of Gravitation—is but a necessary result of the necessary & sole possible mode of equable irradiation of matter through space:—this equable irradiation is necessary as a basis for the Nebular Theory of Laplace.

4—The Universe of Stars (contradistinguished from the Universe of Space) is limited.

5—Mind is cognizant of Matter only through its two properties, attraction and repulsion: therefore Matter is only attraction & repulsion: a finally consolidated globe of globes, being but one particle, would be without attraction, i e, gravitation; the existence of such a globe presupposes the expulsion of the separative ether which we know to exist between the particles as at present diffused: — thus the final globe would be matter without attraction & repulsion: — but these are matter: — then the final globe would be matter without matter: — i,e, no matter at all:—it must disappear. Thus Unity is Nothingness.

6. Matter, springing from Unity, sprang from Nothingness:—i,e, was created.

7. All will return to Nothingness, in returning to Unity.

Poe's seven points illustrate some of the key contributions *Eureka* makes to science, explaining perhaps why Poe's unique cosmology was so groundbreaking. In the first point, Poe asserts that he has a Newtonian understanding of gravity, which serves as a basis for his discussion of the forces of attraction and repulsion.

In the second point, Poe alludes to his conviction that the universe is collapsing, and that everything will return to the state of "original unity." "Original unity" is Poe's main metaphysical principle, which pervades his work, both fictional and expository. The universe originated from a primordial particle through the first act or cause of divine volition.⁴⁰ The particle was then fragmented into atoms due to a repulsive force

40 While Poe may not have believed in established religion, he was spiritual and believed in a "Divine volition."

that diffused into space. For Poe, Newtonian gravity is the reaction to this condition brought about by this divine volition.⁴¹ The shift from the normal state of oneness and unity to the abnormal state of multiplicity and diffusion calls for gravitation, which takes place once the act of creation ceases. The diffusing atoms seek to return to their state of primal unity and by extension this is also true of the planets and stars in what Poe calls the finite "Universe of Stars." This leads to an apocalypse or the end of the universe as we conceive of it. However, Poe reassures his readers that while this universe is both finite and contracting, it is conceivable that similar universes are continuously created and that geneses of new expanding and contracting universes can be replicated infinitely.

While the notion of final collapse and annihilation is not reflected in the current state of the universe, according to astronomer Alberto Cappi, the universe could have evolved in this way.⁴² Cappi argues that "while based on undeniably metaphysical premises, *Eureka* gives us a qualitative, but reasonable, Newtonian model of the universe."⁴³ In his discussion of the second part of *Eureka*, Cappi maintains that while this second section may not be as original as the first since it summarizes key works of astronomers of his time, it is more interesting from our point of view because this astronomical knowledge is "inserted by Poe in the framework of an evolving universe." Cappi calls this "revolutionary and extraordinary synthesis" Poe's cosmology, concluding that while Poe's notion of a collapsing universe might not reflect the current state of the universe, which is continually expanding, "independently of the various metaphysical reasons which made Poe conceive of a collapsing universe," we can nonetheless appreciate it as a "legitimate cosmological model."⁴⁴

In the third point in his letter to Eveleth, Poe argues that gravity is a consequence of the "equable irradiation of matter through space" and considers it a prerequisite for Laplace's Nebular theory. He maintains that what he refers to as "the universe of the stars" is finite (point four). He later elaborates on this by stating that this finite universe of stars is in an infinite space, which anticipates modern cosmology. Point five discusses the forces of attraction and repulsion, as well as the notion of unity, that constitute matter. Poe's conclusion that "[t]hus, unity is nothingness" is somewhat unclear. It seems to reflect Poe's idea of a collapsing universe, which is also reiterated in point seven. Point six offers a theory for divine creation but might also be understood as an anticipation of the Big Bang theory. Poe, who was not a scientist, may have erred in some of his points, but in many respects, he is on the mark. In his article "The Cosmology of Edgar Allan Poe," Cappi demonstrates that Poe "develops an

41 Poe 2004, 68.

42 Cappi 1994, 185.

43 Cappi 1994, 179.

44 Cappi 1994, 185.

evolving Newtonian model of the universe which has many and non-casual analogies with modern cosmology.”⁴⁵ It is not surprising that Poe has been credited with having found a solution to Olber’s paradox and having anticipated theories such as the Big Bang.⁴⁶ Moreover, in his introduction to *Eureka*, J. A. Harrison refers to the work as a “scientific prose-poem, which many consider a remarkable anticipation of Herbert Spencer’s views on evolution.”⁴⁷ Harrison seems to be aware of Poe’s scientific and metaphysical inaccuracies, but attributes these to the poet’s personal hardships, like his wife’s passing just a year before *Eureka*’s composition.⁴⁸ Many scholars argue that Poe even anticipated Einstein’s theory of relativity and his notion of spacetime. This may appear to be the case when one reads Poe’s conclusive assertion: “[T]he considerations through which, in this Essay, we have proceeded step by step, enable us clearly and immediately to perceive that *Space and Duration are one*.”⁴⁹ However, Cappi, who sees Poe’s cosmology in the Newtonian tradition, cautions that this analogy with general relativity initiated by Paul Valéry represents a “serious source of confusion.”⁵⁰

5 Poe’s Scientific Ambivalence

As we will see, Poe’s foresight is all the more remarkable considering that he seems to have had an ambivalent stance towards science. In his early works, Poe clearly saw literature as being in conflict with science. One need only think of his famous “Sonnet to Science,” which first preceded the work “Al Aaraaf” (1829) before Poe published it separately (see illustrated antique edition of the work in **Fig. 2**).

In this poem, science is portrayed adversely as a vulture that “[preys] upon the poet’s heart,” whose wings lack imagination in that they are “dull realities.” Since it has the ability to alter all things with its “peering” or aggressive vision, it has undermined myth and has hence “dragged Diana from her car,” “torn the Naiad from her flood” and “the Elfin from the green grass.” This altered reality is one in which science has taken over and stifled creativity. The poet is now left without his muses, bereft of his

45 Cf. Cappi, 2009. On the other hand, in a paper given at the *Positively Poe* conference in Richmond in 2013, René van Slooten suggested that Poe philosophically rejects a purely Newtonian conception of the universe and his celestial mechanics. Van Slooten surmised that for Poe such a universe was too confining since free will was limited by this “clockwork-universe” and that Poe hence creates a “diverging gravity hypothesis” where gravity is no longer the primary force, but secondary to the “sympathy that acts between fundamental particles.”

46 Olber’s paradox was a riddle many scientists were trying to solve: if there is an unlimited number of stars, why then is the night sky so dark?

47 Harrison 1902, vii.

48 Harrison 1902, vii..

49 Poe 2004, 87.

50 Cappi 1994, 178.

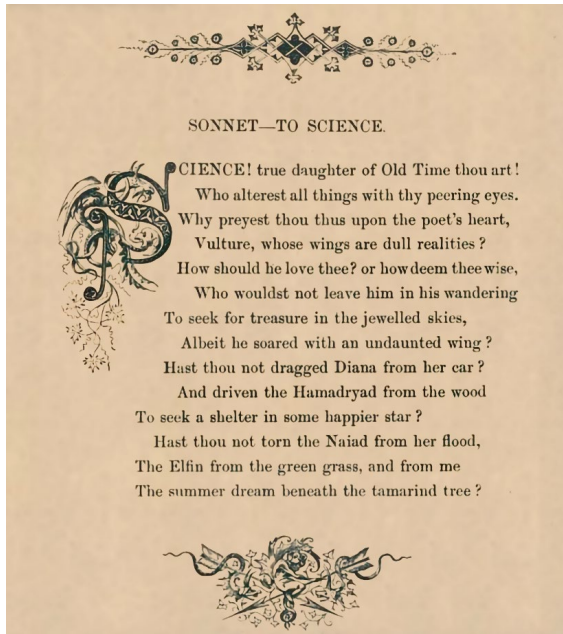


Figure 2 Edgar Allan Poe "Sonnet to Science" (published in 1845)

"dream beneath the tamarind tree."⁵¹ Accused of impeding the imagination with its piercing, objectifying gaze, science is represented as having no understanding for the "wanderings" of the poet. Despite this apparent hostility, one might define Poe's rapport with science as a "Romantic" love-hate relationship. "Al Aaraaf" demonstrates Poe's early penchant for astronomy and the "universe of stars" to which he would return at the end of his poetic career. It is striking that for a recitation at the Boston Lyceum, Poe renamed "Al Aaraaf" as "The Messenger Star of Tycho Brahe."⁵² The Danish astronomer Tycho Brahe sighted a supernova in the constellation *Cassiopeia* in 1572, which was ephemeral in that it disappeared almost as quickly as it had appeared. Poe chose to set his poem "Al Aaraaf" on this "messenger star." In the prefatory material we find the following epigram: "A star was discovered by Tycho Brahe which burst forth, in a moment, with a splendor surpassing that of Jupiter—then gradually faded away and became invisible to the naked eye."⁵³ Like his later work *Eureka*, "Al Aaraaf" is enigmatic and hence often neglected by Poe scholars. However, this early poem bears

51 It is interesting to note that this is one of the rare occasions where the poet sees himself at peace with nature. One could further remark that by selecting an exotic tamarind tree as opposed to an American pine tree, Poe was in fact deliberately emphasizing the exotic nature of this bond, or perhaps the exotic nature of the poet's dreamland.

52 <https://www.eapoe.org/works/editions/atmp.htm>.

53 Poe, "[Prefatory Material to 'Al Aaraaf']," 1829, 9, <https://www.eapoe.org/works/editions/atmpaded.htm>.

witness to his steady fascination with astronomy. Stephen Rachman cleverly observes that “‘Al Aaraaf’ (1829) and *Eureka* (1848) sit like bookends near the beginning and end of Edgar Allan Poe’s career.”⁵⁴

Poe was interested in science and incorporated scientific subjects into his work throughout his career. For instance, the science fiction story “Eiros and Charmion” (1839) deals with the hypothetical apocalyptic effects of a comet hitting the Earth. In his novella *The Narrative of Arthur Gordon Pym of Nantucket* (1838), Poe demonstrates familiarity with the hollow earth theory of John Cleves Symmes Jr.⁵⁵ While at times inconspicuously, science and scientific observation seem to permeate Poe’s works. As Mark Sigwart, a student in my class on “Poe and his Contemporaries,” observed, one might also consider Poe’s interest in human psychology to be an expression of scientific interest. After all, as has often been noted, his works demonstrate a shrewd intuitive understanding of the human psyche, anticipating Freudian psychology.

In addition to having founded the genre of detective fiction, Poe might also be hailed as one of the pioneers of science fiction, which had not yet been formally established. As Harry Lee Poe points out, for want of a term, many used the epithet “hoax” to refer to what were actually the first works of science fiction.⁵⁶ Like the hoax, science fiction blends elements of the factual with the fictional. Moreover, most of these pieces were published in newspapers and Poe employed a matter-of-fact style characteristic of journalism, further emphasizing their verisimilitude and contributing to the works as being perceived as hoaxes. While in his early career, Poe assumed a more overtly skeptical attitude towards science, his thoughts evolved and became less hostile.

6 Poe and Einstein

In researching for his authoritative biography of the American writer, *Edgar Allan Poe. A Critical Biography* (1941), Arthur Hobson Quinn (1875–1960) wrote to several scientists, including Albert Einstein, to ask their opinion of Poe’s *Eureka*. Einstein,

54 Rachman 2014, 1–19. Rachman juxtaposes Poe’s early cosmological treatment of liminal spaces in “Al Aaraaf” with the later work *Eureka*, exploring Poe’s orientalism and what he terms “orientationalism.”

55 This theory, which Symmes proposed in 1818, held that the centrifugal forces of the Earth’s rotation would gradually flatten the North and South poles, leading to a connecting passageway between them. Note that while Symmes did not write a book about his theory, Jeremiah N. Reynolds published a booklet titled *Remarks of Symmes’ Theory*, which appeared in *The American Quarterly Review* in 1827. Reynolds was one common source for both Poe’s *Arthur Gordon Pym* and Melville’s *Moby Dick*.

56 Harry Lee Poe 2012, 137. The author points out that “[w]ithout a name to classify it, science fiction was often thought of as a hoax because it dealt in a realistic way with issues that scientists thought about.”

who had previously expressed admiration for Poe in two letters addressed to the Poe scholar Richard Gimbel in 1933 and 1934, calling Poe's work "eine sehr schöne Leistung eines ungewöhnlich selbständigen Geistes" (a remarkable achievement of an unusually independent mind), surprisingly revised his opinion after his second reading. His two ensuing letters to Quinn are much less favorable.⁵⁷

In these letters, composed six years later in 1940, Einstein claims to have read the work yet to not have a distinct memory of his first reading (June 29, 1941), agreeing to read it again if Quinn sends him a copy. Einstein only vaguely recalls his first reading and now voices his opinion that "the article must be valued more from the artistic than from the scientific standpoint." In his second letter to Quinn, the German scientist expresses a sudden change of heart, claiming first that he had not in fact read the work before, that it is "quite new to [him]" and that on the whole it is disappointing. While he commends the first part of *Eureka* for being "very witty" and even "remarkable insofar as Poe clearly recognizes that true science is possible only through combination of systematic experimentation and logical construction," Einstein utters that the second part "shows a striking resemblance to the crank letters [he receives] every day."⁵⁸ He observes that Poe loses "every sense of that critical mood prevailing in the beginning pages" when it comes to the articulation and elaboration of his own "constructions." Einstein concludes with a harsh attack: "I cannot help having the impression of a pathological personality being overwhelmed by an *idée fixe* depriving him of the possibility of critical corrections."⁵⁹

One might ask why Einstein had so radically altered his opinion. Did he really have a scant recollection of his first reading or was he deliberately trying to downplay the influence Poe's *Eureka* had had on him? After all, as mentioned above, many scholars have suggested that Poe's *Eureka* anticipates Einstein's discovery of spacetime and even of the theory of relativity. Einstein's reaction is strikingly emotional and unnecessarily harsh. Clearly, he is now judging the work as a scientific treatise as opposed to following his initial intuition expressed in his first letter to Gimbel, in which he advocates reading the work from an artistic rather than a scientific standpoint. Einstein's apparent reluctance to admire Poe's blending of science and art is especially odd given the German scientist's own use of the creative, speculative imagination to discover his theory of relativity.

57 For the early letters, see Einstein and Gimbel (1933–1934): <https://albert.ias.edu/bitstream/handle/20.500.12111/2901/54424.pdf?sequence=1&isAllowed=y>.

58 For the later letters, see: Quinn, Papers, Ms. Coll. 1236, Kislak Center for Special Collections, Rare Books and Manuscripts, University of Pennsylvania.

59 Quinn, Papers, Ms. Coll. 1236, Kislak Center for Special Collections, Rare Books and Manuscripts, University of Pennsylvania.

7 Conclusion

Aside from these unique scientific anticipations of modern cosmological thinking, what is it that makes Poe's contribution to cosmology so significant? As we have seen above, Poe may have predicted such attacks from future scientists, which is why I argue he includes various disclaimers that emphasize the imaginative quality of the work. Poe appears to suggest that to be more successful, or more beautiful, science should be interdisciplinary and make room for the poetic imagination. *Eureka* seems to call for a union of science (truth) and beauty. Like the idea of original unity in the cosmos and the unity of effect in the fictional text, science and beauty should unite into an organic whole.

Eureka's originality resides in its ability to point to the intersection of the material cosmos and the metaphysical. It succeeds in establishing a connection between the physical and the metaphysical. Using intuitive leaps, Poe overcomes the juxtaposition of the factual and the fictional. A scientific treatise is embedded into a deliberately fictional context, anticipating science fiction. Poe does not hesitate to cross genre boundaries and perpetually reinvent himself and his texts.

While *Eureka* borrows from other sources, Poe steals most of his ideas from himself, purloining the letter of his own fictional character, Pundita from "Mellonta Tauta" and disclosing it for all to see in the early portion of *Eureka*. The (con)fusion of these two analogous letters from the *Mare Tenebrarum* creates further epistemological skepticism for the reader. If the author of the epistle in "Mellonta Tauta" is female, does this imply that *Eureka's* letter-writer is also female? Although, as we saw above, it appears that Poe wrote the story first, one can never be absolutely certain. Perhaps he conceived the texts simultaneously, alternating between the two, or intentionally created a *mise en abyme* by inserting one text into the other with slight alterations.

This interweaving of the scientific and the fictional also becomes evident in Poe's cosmology, in which he establishes an analogy between the universe and the fictional work. Unlike the universe, which is perfect since it is "a plot of God," in human constructions like "the construction of plot [...] in fictitious literature [...] *perfection* of plot is really, or practically unattainable—but only because it is a finite intelligence that constructs."⁶⁰ The universe itself then, is analogous to a poem conceived by a divine creator: "It is the poetical essence of the Universe—*of the Universe* which, in the supremeness of its symmetry is the most sublime of poems. Now symmetry and consistency or convertible terms:—thus Poetry and Truth are one."⁶¹

This symmetry is further underlined by the self-referentiality of the title to both the universe and its author or ratiocinative decipherer. Poe has found it ("Eureka!"),

60 Poe 2004, 88–89.

61 Poe 2004, 96.

and he will lay bare the secret information, first by disclosing the contents of his 'purloined letter' and then by making intuitive leaps akin to those of his fictional detective Auguste Dupin to decipher the physical and metaphysical enigmas of the cosmos. In disclosing some of his discoveries of the secrets of the universe, in *Eureka* Poe makes a clear cross-reference to his detective story, *The Murders in the Rue Morgue*:

Now, I have elsewhere observed that it is just by such difficulties as the one now in question—such peculiarities—such roughnesses—such protuberances above the plane of the ordinary—that Reason feels her way, if at all, in her search for the True. By the difficulty—the “peculiarity”—now presented, I leap at once to the secret—a secret which I might never have attained but for the peculiarity and the inferences which, in its mere character of peculiarity, it affords me.⁶²

This “elsewhere observed” refers to Poe's tale, in which the detective Dupin reveals his secret method for solving mysteries: one must focus on the bizarre, on “what has occurred that has never occurred before.” Using a combination of intuition and ratiocination, Dupin can solve the case before the police do. Coined by Poe in his detective trilogy, *ratiocination* is used to refer to Dupin's idiosyncratic method of inductive reasoning that couples the power of the intellect with that of the creative imagination.⁶³ This allows the detective to put himself in the mind of the criminal to solve the crime. In *The Murders in the Rue Morgue*, the police rely on more traditional and perhaps on purely “scientific” methods, whereas Poe's philosopher-detective is more unconventional. Dupin's secret resides in the fusion of the artistic—analytical (intuitive/inductive—bizarre) and the ratiocinative (logical/scientific) abilities. Poe's cross-reference to his detective fiction in *Eureka* seems to suggest that, ultimately, literature and philosophy can inform science. Akin to cosmological detectives in their attempt to decipher the workings of the world, scientists could well turn to Poe's literary alter ego, Auguste Dupin, for inspiration. *Eureka* seems to call for validation of the poet and acknowledgment of the primacy of the creative imagination. Unlike Humboldt, whom Poe accuses of being too general in his expositions in his *Cosmos*, Poe's *Eureka* is on the quest for another truth, which may appear bizarre, a truth that allows for a fusion of science and creativity, one that might not take itself as seriously, but that playfully endeavors to bridge the gap between the physical and the metaphysical.


62 Poe 2004, 40.

63 Note that Poe also uses the term in *Eureka*. Poe 2004, 49.

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Figures

Fig. 1 Eureka 1997

Fig. 2 <http://web.mit.edu/redingtn/www/netadv/WMAPQR.html>

References

Primary Sources

- Poe, Edgar Allan. 1829.** "Al Aaraaf, Tamerlane and Minor Poems," 3–9 and 23. <https://www.eapoe.org/works/editions/atmpaded.htm>.
- . **1846.** "The Philosophy of Composition" (Text 2). *Graham's Magazine* 28 (4): 163–167 (April).
- . **1848.** "Eureka [Section 01]" (Text 6). *Eureka: A Prose Poem*, 7–22. <https://www.eapoe.org/works/essays/eurekad1.htm>.
- . **1859–1860.** *Eureka, poëme en prose, ou essai sur l'Univers matériel et spirituel*. Trans. by Charles Baudelaire. Geneva: *Revue internationale mensuelle*, October.
- . **1978.** "Mellonta Tauta." In *Tales and Sketches*, ed. by Thomas Ollive Mabbott, 1289–1309. Vol. 3 of *The Collected Works of Edgar Allan Poe*. Cambridge, MA: Harvard University Press. <https://www.eapoe.org/works/mabbott/tom3to32.htm>.
- . **1997.** *Eureka*, prologo y traducción de Julio Cortázar. Madrid, Alianza Editorial.
- . **2004.** *Eureka*, ed. by Stuart Levine and Susan Levine. Urbana: University of Illinois Press.

Secondary Literature

- Beaver, Harold.** 1976. "Eureka." In *The Science Fiction of Edgar Allan Poe*, ed. by Harold Beaver, 394–415. New York: Penguin.
- Biello, David.** 2006. "Fact or Fiction? Archimedes coined the term 'Eureka' in the Bath." *Scientific American*, December 8, 2006. <https://www.scientificamerican.com/article/fact-or-fiction-archimede/>.
- Botting, Douglass.** 1973. *Humboldt and the Cosmos*. New York: Harper & Row.
- Cappi, Alberto.** 1994. "Edgar Allan Poe's Cosmology." *The Quarterly Journal of the Royal Astronomical Society* 35: 177–192.
- . 2009. "The Cosmology of Edgar Allan Poe." In *The Role of Astronomy in Society and Culture, Proceedings of the IAU Symposium* no. 260.
- Einstein, Albert, and Richard Gimbel.** 1933–1934. Correspondence. Institute for Advanced Study (Princeton, N.J.) <https://hdl.handle.net/20.500.12111/2901>.
- Fleming, Chris, and John O'Carroll.** 2010. "The Art of the Hoax." *parallax* 16 (4): 45–59. <https://doi.org/10.1080/13534645.2010.508648>.
- Fredal, James.** 2014. "The Perennial Pleasures of the Hoax." *Philosophy & Rhetoric* 47 (1): 73–97.
- Harrison, J. A.** 1902. Introduction to *Marginalia and Eureka*, by Edgar Allen Poe, vii–viii. Vol. 16 of *The Complete Works of Edgar Allan Poe*. New York: Kelmescott
- Hendricks, Scotty.** 2019. "Edgar Allan Poe: Poet, Essayist, Cosmologist?" *Hard Science*, Jan. 30, 2019. <https://bigthink.com/hard-science/poe-cosmology-eureka/>.
- Isaak, Sonya.** 2021. *Edgar Allan Poe and Charles Baudelaire's Aesthetic Architecture of Revolt: An Axial Analysis*. Heidelberg: Universitätsverlag Winter.
- . 2010. "Tracing the origin of hybrid text across cultures: The influence of Edgar Allan Poe's genre experimentation on Baudelaire's 'invention' of the prose poem." *Loxias* 28. <http://revel.unice.fr/loxias/index.html?id=6000>.
- Levine, Stuart, and Susan Levine.** 2004. *Introduction to Eureka*, by Edgar Allan Poe, xi–xxxiv. Ed. by Stuart and Susan Levine. Urbana: University of Illinois Press.
- Maddison, Carol Hopkins.** 1960. "Poe's Eureka." *Texas Studies in Literature and Language* 2 (3): 350–367.
- McGann, Jerome.** 2014. *The Poet Edgar Allan Poe: Alien Angel*. Cambridge, MA: Harvard University Press.
- Poe, Harry Lee.** 2012. *Evermore. Edgar Allan Poe and the Mystery of the Universe*. Waco: Baylor University Press.
- Quinn, Arthur Hobson.** Papers, Ms. Coll. 1236, Kislak Center for Special Collections, Rare Books and Manuscripts, University of Pennsylvania, Philadelphia.
- Rachman, Stephen.** 2014. "From 'Al Aaraaf' to the Universe of Stars: Poe, the Arabesque, and Cosmology." *The Edgar Allan Poe Review* 15 (1): 1–19.
- Saltz, Laura.** 2018. "Making Sense of Eureka." in *The Oxford Handbook of Edgar Allan Poe*, 424–443, ed. by Kennedy, J. Gerald, Scott Peeples, eds. Oxford: Oxford University Press, August 8, 2018. <https://doi.org/10.1093/oxford/hb/9780190641870.001.0001>.
- Stroe, Mihai.** 2010. "The Titanic Atom: Edgar Allan Poe's Romantic Cosmology in *Eureka*." *University of Bucharest Review* 12 (2): 81–97.
- Welsh, Susan.** 1991. "The Value of Analogical Evidence: Poe's 'Eureka' in the Context of a Scientific Debate." *Modern Language Studies* 21 (4): 3–15.

