

## CHAPTER 1



# Prologue

To the few who love me and whom I love . . .

—Edgar Allan Poe<sup>1</sup>

## Entrée

This is a book about the nature of scientific imagination, but first and foremost it is a book about Edgar Allan Poe, an American icon, “quite possibly America’s most famous literary figure.”<sup>2</sup> It is not a book about all of Poe, of course, given the title of the book alone, but about a side of Poe, his science side, a side that has usually been treated either superficially or ignored altogether in Poe studies. Ironically, that side of Poe involves a topic that has usually been treated the very same way in professional philosophy and history of science. The said topic, central to Poe in his lonesome latter years, is none other than scientific imagination itself, the nature of which Poe, in those latter years, applied to the grandest topic of all: the meaning of the Universe, including the meaning of matter, life, terror, and—death. The result was the culmination or *dénouement* of Poe’s poetry and fiction and so much more, which in turn shines light back on his works of earlier years, for which he is loved by many. Given the nature and purpose of

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1. *Eureka* (Preface). *P&T*, 1259.

2. *Peebles*, ix.

the book before you, then, it is my sincerest desire that it be welcomed with an ardent spirit, to be read by the mind and grasped with the soul, especially by those who love Poe.

Today, of course, those who love Poe are not a few but countless millions, and they are not confined to the English-speaking world (Poe is big in France and Japan, for example).<sup>3</sup> Or rather, his writings are loved. But his writings are such that those who love them cannot help but feel drawn to the author himself, an affinity, even in some a feeling of identity. When most people think of Poe, however, including most Poe people, they usually think of morbid romantic poems such as “The Raven” (1845), perhaps of poems with graves and worms such as “The Conqueror Worm” (1843), or perhaps they think of tales of revenge and terror such as “The Cask of Amontillado” (1846) and “The Pit and the Pendulum” (1842), or of madness such as “Berenice” (1835) and “The Tell-Tale Heart” (1843), maybe even of supernatural horror such as “Ligeia” (1838). Far fewer are aware that Poe literally invented the modern detective mystery, beginning with “The Murders in the Rue Morgue” (1841), or that he helped modernize science fiction by combining minute scientific detail with social commentary and prophetic vision, for example with “The Balloon-Hoax” (1844), or that he wrote brilliant comedy, as with “The Angel of the Odd” (1844). Fewer still are aware that Poe was America’s first great literary theorist and critic, providing stringent theories on the body and soul of poetry and tales and over a hundred book reviews, or that he wrote essays on a wide variety of topics outside of literary studies, including genius, natural theology, and even a chess-playing automaton, or that he was a pioneer in cryptography and publicly bested all but two of over a hundred attempts designed to stump him.<sup>4</sup> And very few, relatively speaking, are aware that Poe wrote a book containing his own scientific speculations on the Universe, a book he entitled *Eureka*, written and published in 1848, the year before he died at the age of forty, which was an attempt to harmonize the science of his day with his theories of

3. See, e.g., Lois Davis Vines, ed. (1999). *Poe Abroad: Influence, Reputation, Affinities*. Iowa City: University of Iowa Press. Barbara Cantalupo, ed. (2012). *Poe’s Pervasive Influence*. Bethlehem, PA: Lehigh University Press.

4. It is no more than a “tantalizing possibility” that Poe himself was the author of the two cryptographs. *Letters*, 320.

poetry and plot so as to provide a grand and panoramic answer to the meaning of the Universe. Still fewer know that in that book he went against much of that science and anticipated at least nine major developments and theories in twentieth-century science, including Big Bang cosmogony.

This book is about that lonesome latter side of Poe, a deeper side that relatively few have explored, let alone from the perspective of philosophy of science. Written in a clear and informative style that should appeal to the general reader, and yet with enough knowledge and theory to challenge the most erudite and stubborn of professionals, this book—*highly* informed in places by the very style and humor of Poe himself, and in more ways than one—is for lovers of Poe, yes, but also for lovers of science, *real* science, and especially for those who are curious about what happens when these two loves, of two seemingly disparate worlds, are amalgamated with a single unity of effect.

Poe was a master of imagination in poems and tales. *Everyone*, of course, knows that. In fact he was arguably second to none, at least compared with his contemporaries in America.<sup>5</sup> The sensational Poe, however, is but the surface Poe. Beneath the surface there is a many-layered Poe, leading ultimately to a very deep Poe, the Poe that most people do *not* know about, and it was by far the more important part of *Poe to Poe*. My thesis is that by studying the deepest part of Poe we are directed to the role of imagination in science (among much else that is related). Poe has something important to say here, and scientific imagination was something that he himself actually exercised to a remarkable degree, such that beyond the grave, haunting us through his printed words, which start once we open the creaking lids of his memetic tombs known as books, his spirit rises up from the pages like a phantasm with vast, sable, overshadowing wings and approaches us with something he desperately wants to communicate—if only we can rise from our sleep paralysis and listen closely

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5. As recently pointed out, “one measure of the Poe renaissance is that its 2.2 million likes on his Facebook author site [it is over 3.8 million as I write this] far outstrip the combined popularity of the next ten nineteenth-century American writers.” Heyward Ehrlich (2014). “Poe in Cyberspace: To Like, Friend, or Follow? Poe in Social Media.” *The Edgar Allan Poe Review* 15 (1), 123.

to what he is trying to say. With unmoving lips he is calling us, trying to stir us from a waking dream of fleeting shadows, murmuring echoes, and unthought-like thoughts. It remains for us to rise from our beds, those lidless and sideless coffins with training wheels, to wipe away the sleep of formal education from our eyes, and to follow the clues he left behind so many years ago, years that now are out of Space—out of Time. That is the purpose of this book. There is an investigation that needs to be done and a mystery to be solved, with a much needed unity of effect.

One would naturally think that whatever the mystery it should surely have been solved by now, given the enormity of Poe scholarship and the fact that Poe died in 1849. Part of the problem, however, a large part in fact, is not only that *Eureka* is very unlike anything else in Poe's corpus and is a difficult read, but that the vast majority of Poe scholars are professors of English and of American literature, with many having accomplished much as writers of fiction and of poetry in their own right. In other words, the problem is that almost invariably they lack the necessary understanding of science and of philosophy of science, from Poe's time to the present, to see what is really going on in *Eureka*. The flipside of *that* problem, of course, is that pathetically few professional philosophers and historians of science have ever bothered to read *Eureka*, given its reputation among the literati themselves as an obscure work (and possibly a hoax) and that it was written, after all, by a mid-nineteenth-century poet and writer of horror, not a bona fide scientist or philosopher or historian of science. Having no motive to read *Eureka* in the first place, they would certainly have no motive to investigate into how *Eureka* connects with the rest of Poe's corpus—let alone into how it connects with, say, the latest research in neuroscience.

Enter yours truly and the book before you. At this point a powerful analogy will hopefully seem useful. Although the Poe community is large, intellectually rich, and is in fact a wonderful world in itself, with numerous books and articles published on Poe every year and two journals (annual and biannual, respectively) entitled *Poe Studies* and *The Edgar Allan Poe Review*, (and of course there is much more, such as the Poe Museum,) one has to recognize that sometimes an outsider can see what the professional insiders have missed, as with the team headed by Luis and Walter

Alvarez in relation to paleontologists in 1980 on the extinction of the dinosaurs. The paleontologists were for some time quite resistant to the impact theory of the Alvarezes, territorially even, but they eventually had to give in due to the evidence. The Poe community, on the other hand, is a remarkably warm and friendly community, (this is my experience,) united, on the whole, by a love for the works and person of a most singular man, such that I anticipate, or at least hope for, a hospitable reception to my interpretation of Poe as the K/T and *Eureka* as the iridium.

The audience for this book, then, is multiple. Those who love Poe for the sake of reading Poe (they are in the millions) will discover a side of Poe that they hitherto had not imagined. Moreover, I have attempted to dig deeper into Poe's thoughts on science and the scientific mind than anyone else, and also to show how those thoughts connect with much of the rest of his corpus, all the while making the book rich enough in small details about Poe's life, (where relevant,) with plenty of new facts, theories, interpretations, interpoelations, and applications,—in fact I have attempted to make this book a veritable *banquet* for those who love Poe,—that I can't imagine a single aficionado coming away feeling disappointed or unsatisfied. Professional Poe scholars should also welcome what is here, for though they may find some of their own interpretations of Poe challenged and even rejected, they will also find much to discuss that is new to them—most of all a Poe from the perspective of philosophy of science. And then we have the professional philosophers and historians of science, who if they pay attention will tend to have their feathers ruffled, too,—this is a Poe book, after all,—for they have routinely pushed imagination outside the boundary of the scientific process, as not a part of it, happy to leave the realm of imagination to artists and others. How could it be that this wordsmith named Edgar, a *Poet*, has anything to teach *them*? But even they, too, should find in these pages something new and exciting, in fact a kind of awakening.

Given that two worlds are brought together here, and vast worlds at that, this necessarily lengthy book requires a certain amount of patience on the part of the reader. In aid of that, I have endeavored to write its pages smoothly, eclectically, analytically, synthetically, even punctually, and of course with some originality. In other words, in keeping with the spirit of Poe, this book

was written to produce a degree of pleasure in the reader—which ideally is the state of mind one should have every time one opens its covers, not the sour-faced “but but but” of the critic. This is a *book*; it is sequential; criticisms will hopefully find their answers somewhere in what follows; and ultimately the book needs to be viewed as a whole. My desire is that this book be read first and foremost for pleasure, that this observance will be ongoing to the book’s end, and that the experience will be elevated by the book’s interactive nature. A balanced application of one’s critical faculties is also required, of course, but if the latter becomes predominant, as it will in some, then the overall unity of effect intended for the reader will be utterly and irretrievably—lost.

At this point track 5 of *Tales of Mystery and Imagination* by The Alan Parsons Project, with its mesmerizing riff and closing *punctus contra punctum* fit for a *Maison de Santé*, (the entire album is a magnificent musical tribute to Poe,) should be played in preparation for the following look through.

## Chapter Summaries

To jump right into Poe’s *Eureka* would be an enormous mistake. It requires careful preparation both to understand and to appreciate the nature of Poe’s magnum opus, for not only is the content not easy but the style is quite strange and unique, much like its author. Hence the necessity of the three background chapters.

In Chapter 2 we look at key features of Poe’s literary theory, as they developed chronologically, beginning with “Letter to Mr. —” (1831). We then turn to some of Poe’s book reviews, followed by his “A Chapter of Suggestions” (1845), “The Philosophy of Composition” (1846), “The Rationale of Verse” (1848), and finally “The Poetic Principle” (1850). What we shall see is an evolution of insights, particularly in response to Aristotle’s *Poetics*, especially Aristotle’s theory of a good metaphor, which Aristotle claims is “a sign of genius, since a good metaphor implies an intuitive perception of the similarity in dissimilars.” Poe’s literary theory is interesting in itself, but the main purpose of Chapter 2 is to better understand how his concepts of plot, poem, unity of effect, and metaphor inform *Eureka*. Along the way we uncover Poe’s

distinction between a “tale” and a “story,” we at long last unmask the purpose behind Poe’s *modus operandi* hoax in “The Philosophy of Composition,” which is about how he composed “The Raven” (1845), we hopefully unriddle the ultimate meaning of that poem, (which together with the previous prepares the way for Chapter 3,) and we attempt to unravel the “Prose Poem” paradox posed by Poe’s subtitle of *Eureka*.

In Chapter 3 we turn to Poe’s theology, which includes his response to the problem of evil and the meaning of life. We examine his view on artistic sensitivity, his view of the world, and his argument for God’s existence. The key to understanding the nature of the latter is aesthetic, involving Poe’s view on the relation between beauty, discord, and pleasure. Given that the ultimate discord for Poe is death, we introduce the problem of death by way of a mosaic, followed by an examination of Poe’s poems “The Conqueror Worm” (1843) and “A Dream within a Dream” (1849). It will be argued that Poe’s argument from beauty for God’s existence is really an argument from hope, given Poe’s view on the relation between beauty and hope, which puts his argument for God’s existence in an entirely different category compared with what is normally found in theology and philosophy of religion. In all of this, an examination of Poe’s theology proves necessary in order to understand the contrapuntal nature of *Eureka*, which is a harmonic synthesis of his literary theory, his theology, his philosophy of science, and his scientific speculations. Focusing on Poe’s theology might seem strange given the central focus of this book,—Poe and the nature of scientific imagination,—but it must be remembered that there are many scientists today (not the majority, since the majority are atheistic or agnostic) whose theological view of the Universe is informed, at least allegedly, by developments in modern science, such as the apparent fine-tuning for life of the cosmological constants. At any rate, one cannot possibly come to understand *Eureka* without understanding Poe’s theology.

In Chapter 4 we examine Poe’s intellectual background chronologically, for one cannot hope to properly understand *Eureka* until it is viewed as the culmination of Poe’s thinking on a lot of matters, including science, which he took very seriously. Specifically, we examine the key features of Poe’s formal education, three

of his entries in his “Pinakidia” (1836), his controversial authorship of *The Conchologist’s First Book* (1839), his series of articles in *Burton’s Gentleman’s Magazine* entitled “A Chapter on Science and Art” (1840), his criticism of the Bridgewater Treatises in his “Marginalia” (1844), the relation of *Eureka* to Chambers’ *Vestiges of the Natural History of Creation* (1844), and the main scientific sources informing *Eureka*. We then finish the chapter by examining Poe’s criteria of truth in *Eureka* and whether *Eureka* was another of his clever hoaxes, (an accusation in Poe’s time that continues to the present,) all of which needs to be dealt with before one turns to *Eureka* proper.

These three background chapters are interesting in themselves, but they are designed to serve a higher purpose, which in this book is to understand what exactly *Eureka* is about in terms of *process* (Poe’s scientific imagination) and *product* (Poe’s scientific speculations). Without a strong background in Poe’s literary theory, his theology and need to solve the meaning of life, and his understanding of the processes and products of science, one cannot possibly hope to understand let alone appreciate what really goes on in *Eureka*. To simply read *Eureka* without that collective background is a mistake made by almost everyone who has ever read it, which I suspect is why *Eureka* is among the most ignored parts of Poe’s corpus, even though he himself regarded it as his magnum opus.<sup>6</sup>

The fundamental point of appreciation is that Poe in *Eureka* anticipated at least nine major theories and developments in twentieth-century science, namely, the rejection of axioms as intuitively true, Big Bang cosmogony, (including the concepts of a primordial atom and an oscillating Universe,) the apparent fine-tuning of the fundamental laws of nature, the nonexistence of laws of nature before the Big Bang, the correct solution to Olbers’ paradox, multiverse theory, space–time interdependence,

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6. Another mistake is to focus on the mistakes made by Poe in *Eureka*. See, e.g., Peter Swirski (2000). *Between Literature and Science: Poe, Lem, and Explorations in Aesthetics, Cognitive Science, and Literary Knowledge*. Montreal & Kingston: McGill-Queen’s University Press. That approach only serves to blind oneself to the bigger picture, which is elaborated in the chapters that follow in the book before you.

matter–energy equivalence, and the rejection of the existence of the material ether. This is the focus of Chapter 5, and it is the core of this book. For each of the topics just listed, I begin with what modern scientists say, using their own language and explaining their ideas, and then in a similar manner I compare that with what Poe says in *Eureka*. This makes for nine striking comparisons, of which there may be more, but certainly these nine will do for our purposes. In all of this every effort is made to avoid the sin that historians call *presentism*, which is reading present ideas into the past without sufficient evidence.

Chapter 5 should awaken us to the realization that Poe had a faculty of imagination far greater and far more diverse than almost all of his admirers ever imagined, and also that the nature of scientific imagination is a topic that calls for serious examination. Accordingly, in Chapter 6 we turn to the field where one would naturally expect to find the answers, namely, philosophy of science, the professional field devoted to the examination of the nature of science. We begin with a brief look at the philosophies of science that Poe was acquainted with, specifically those of John Herschel, John Stuart Mill, and (indirectly) William Whewell. We then turn to the modern scene, specifically logical positivism, logical empiricism, the falsificationism of Karl Popper, the paradigmism of Thomas Kuhn, the new experimentalism, the disunity of science movement, inference to the best explanation, the epistemic virtues and values approach, evolutionary epistemology, and finally contextualist history of science, since the latter also contributes to the field.

What we shall find is that philosophy of science, considered collectively, has pushed the topic of scientific imagination to outside the circumference of the object of its study, as not belonging to the nature of science at all. This is the exact opposite of what one finds in *Eureka*, given that Poe emphasized scientific imagination as *internally* driving science. When the thought first hit me I was absolutely stunned, especially given that the norm today in philosophy and history of science is to conceive of science as a process, not as a product. In fact when the thought hit me, all at once, there came a most deadly nausea over my spirit, and I felt every fibre in my frame thrill as if I had touched

the wire of a galvanic battery. At any rate, or volt, the purpose of Chapter 6 is not merely to put Poe's views into an historical and intellectual context by means of comparison and contrast. Instead, and far more important, what we shall see is that Poe, the *artist*, actually had a *philosophy* of science, even a properly *corrective* one. In support of this conclusion, we then turn to two giants of science, namely, Charles Darwin and Albert Einstein, both for their use of imagination in their science and for their expressed views on imagination in science. The chapter ends with an argument by analogy based on the evolutionist Ernst Mayr's view of natural selection combined with my own published work on the foundation of point mutations. The conclusion is that just as mutations and their genesis should be viewed as part of the process of natural selection, (they are routinely viewed as separate from, or preliminary to, that process,) so too should the genesis of theories be viewed as part of the process of science. All in all, the chapter serves as a companion vindication of Poe, further to the scientific anticipations of *Eureka* examined in Chapter 5.

Having established the importance of pursuing an investigation into the nature of scientific imagination, in Chapter 7 we turn to Poe's own theory of scientific imagination. Since Poe wrote no single essay on the topic, we attempt to glean his theory from his various writings. We begin with a close look at what in his time was called "double consciousness," which affords us the opportunity to provide an original interpretation of Poe's poem "Ulalume" (1847), as well as an original theory for why he repeatedly cried "Reynolds" the night he died. We then turn to what was called "mesmeric consciousness," which included the possibility of a connection with the divine. From there we take a detour through a madhouse, looking for possible roles played by madness in Poe's theory of scientific imagination. We then turn to three of Poe's favorite examples of scientific imagination, notably the case of Kepler, followed by three of Poe's examples of failed scientific imagination, notably the case of Newton. These examples afford us the perfect segue into a detailed examination of the nature of Poe's fictional ace detective, Auguste Dupin, including the meaning of his narrator's "double Dupin," which when unravelled is none other than Poe's personification of the scientific mind, complete with a fully developed scientific imagination, (which is the very antithesis of Doyle's Sherlock Holmes). Followed by a close look

at what Poe says against deduction and induction, we finish with an examination of what Poe calls “the poetic intellect.”

In the final chapter, the Epilogue, (or rather Epiclogue,) we attempt to modernize what Poe had in mind all the while keeping it down to earth. Specifically, we begin with an examination of numerous eureka moments in modern science, examples of “unconscious scientific creativity,” drawn from the lives of major scientists such as Darwin, Einstein, and Crick, the “intuitive *leaps*” that are the stuff of what Poe claimed is the main driving force of science. We then search for light on the phenomenon by turning to biography and comparative psychology, including the “ten-year rule.” Following a short detour through cognitive science, the interdisciplinary approach to the mind/brain centered on the digital computer as its guiding metaphor, with thinking taken literally as information processing, we then turn to neuroscience, the study of the brain. There we focus on evidence from split-brain patients, including brain hemispheres and dreams, the problem of “metaphor blindness,” the neuroscience of metaphorical thinking and of memory, of callosal inhibition, and much more, including an interesting twist on Poe’s “double Dupin” as well as his “dream within a dream.” We then turn to evolutionary biology, the ultimate explanatory domain in biology, in which we focus on the why of the double brain, on a possible adaptive role for depression in scientific creativity, and on the creativity of terror, with a perfect illustration of “simultaneous, parallel processing” provided by one of Poe’s tales. We then finish with an homage to Poe in the form of a thirteen-paragraph mosaic in the first person, the power of Poe condensed, as if he were speaking to us in the here and now. Accordingly, for the full effect, it should be read *viva voce*.

There is still much more that needs to be said in this Prologue, however, before we turn to the chapters proper, which is where we bring Poe *back to life* in accordance with his will.

### Discovering Poe

At this point I should like to say something about how I, a mere moth of a philosopher, came to conceive and write the present book. This is a matter of considerable self-indulgence, to be sure,

and I hope it will be excused, as I suspect many will have their own interesting tales of how and why they got into Poe.<sup>7</sup>

In what is perhaps typical, I first fell in love with the writings of Poe when I was a child. In looking back, it seems to me that I was primed for it. My childhood, often a happy one, largely due to friends and pets, was too often overcast with the ominous dark clouds known as the fear of dying, either by my father who was possessed by Fiend Intemperance, in particular that demon known as Alcohol, or by my own possession, the demon known as Asthma, with an Isuprel inhaler feebly raised against it as a cross. Many were the nights I lived in terror, fearful I was going to breathe my last. During this time I remember, vividly and palpably to this day, browsing a bookstore in a shopping mall at the age of ten, and seeing on the display desk a singular-looking book, a book with a black bird on its cover. I picked it up, looked at the table of contents, and decided to buy it. (I also bought some storybooks based on TV shows.) At home I read Poe and was in, plain and simple. Like many, I would read Poe, let time go by, read Poe again, let time go by, read Poe again—again—again and even once again at varying intervals. Once you love Poe, you always love Poe.<sup>8</sup>

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7. This is a wonderful topic for a book, by the way, a collection of remembrances by Poe lovers, which occurred to me while listening to the Keynote Address given by J. Gerald Kennedy, “Why Poe Matters Now,” in which he gave his own remembrance. Further examples can be found in the delightful book by J.W. Ocker (2015). *Poe-Land: The Hallowed Haunts of Edgar Allan Poe*. Woodstock, VT: Countryman Press, 114, 163, 244, 317. This book is an absolute gem for anyone who loves Poe.

8. T.S. Eliot, allowing that “Poe had a powerful intellect,” provided a theory for “why the work of Poe has for many readers appealed . . . at the period of life when they were just emerging from childhood.” In short, “The forms which his [Poe’s] lively curiosity takes are those in which a pre-adolescent mentality delights: wonders of nature and of mechanics and of the supernatural, cryptograms and ciphers, puzzles and labyrinths, mechanical chess-players and wild flights of speculation. . . . in the end the eccentricity and lack of coherence of his interests tire. There is just that lacking which gives dignity to the mature man: a consistent view of life . . . which comes only with the maturing of the man as a whole.” Thomas Stearns Eliot (1948). “From Poe to Valéry.” In *Recognition*, 212–213. Eliot’s bloom has been heralded by others. As for Poe’s “wild flights of speculation” and “lack of coherence,” the present book serves as a reply. And as for maturity, I prefer Schweitzer to Eliot: “The

When I began university, I acquired another love, no less deep than the first. Even though I initially went to university to get into business school, which was to begin in my third year, in my first year I took a course on ancient Greek and Roman literature (because the electives I wanted were filled). The course included some philosophy readings. Perhaps because of my past already mentioned, and the dominance from my childhood's hour of an old-time religion as well, I was spellbound by Plato's *Apology*, the first work of philosophy I had ever read. Following that course I took as many philosophy electives as I could, and upon getting into business school I shortly thereafter dropped out, lacking the positive appetite for system and regularity, and the ordinary habitudes of my fellow men. I then returned to university as a philosophy major, come what may (an attitude one needs as a philosophy major).

The rest is history, as the saying goes, with much of Madness, and more of Sin, and Horror the soul of the plot. In short, I eventually went back to university for a Ph.D. in philosophy, while already working on a Ph.D. in people at a university called O'Toole's Roadhouse, where I worked with a hockey-player-turned-movie-actor-turned-bouncer by the name of George Finn. The love of philosophy renewed, my interests quickly turned to philosophy of biology, specifically the species problem, determining what a biological species is, which became the topic of my dissertation and of my first book.<sup>9</sup> My attention then turned to Darwin himself, my second book,<sup>10</sup> and to related

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epithet 'mature,' when applied to people, has always struck me as somewhat uncomplimentary. It carries overtones of spiritual impoverishment, stunting, blunting of sensibilities. What we usually call maturity in a person is a form of resigned reasonableness. A man acquires it by modeling himself on others and bit by bit abandoning the ideas and convictions that were precious to him in his youth. . . . those who have a deeper experience of life take another tone. They exhort youth to try to preserve throughout their lives the ideas that inspire them." Albert Schweitzer (1965). *The Teaching of Reverence for Life*. Richard and Clara Winston, eds. New York: Holt, Rinehart and Winston, 43–44. In Chapter 6 we shall find further support from another Albert.

9. (2003). *The Species Problem: Biological Species, Ontology, and the Metaphysics of Biology*. Lanham, MD: Lexington Books.
10. (2007). *Darwin and the Nature of Species*. Albany: State University of New York Press. For a condensed version of the basic argument and an

topics of profound interest, most notably the foundation of point mutations in quantum chance,<sup>11</sup> a kind of homage to my biology mentor, a pioneering geneticist, the late Robert H. Haynes. My interests then widened to the implications of evolutionary biology for topics usually thought of as outside the circumference of evolution proper, my third book,<sup>12</sup> which turned my focus to the implications of evolutionary history, both biological and cultural, for the topic of human rights, my fourth book.<sup>13</sup>

Then a curious turn of events occurred, a happy coincidence, what feels now like a synchronicity. The movie *The Raven* (2012) came out in the theaters, starring John Cusack, and I was not disappointed by this wonderful *tribute* to Poe—misunderstood as such by the film critics, who apparently never read much of anything on or by Poe, and who at any rate almost certainly missed the many clever allusions to his life and writings. I watched the movie twice in the theater and immediately thereafter dove, once again, into the world of Poe, the world I had loved since age ten. But this time I wanted to see what was out there in terms of the latest scholarship on Poe. Fortunately, Harry Poe's *Evermore* was fresh off the press, a remarkably well-written and insightful book (except for its *dénouement*, the unwarranted speculation that Poe had a religious revelation a few months before he died) which showed me depths to Poe's thinking that hitherto I had not imagined, especially concerning Poe's magnum opus, *Eureka*. Whatever criticisms I express of various points in Harry Poe's

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update, see my (2013). "Darwin's Species Concept Revisited." In Igor Ya. Pavlinov, ed. (2013). *The Species Problem: Ongoing Issues*. Rijeka, HR: InTech, 251–280.

11. (2001). "Quantum Indeterminism and Evolutionary Biology." *Philosophy of Science* 68, 164–184. See also my (2010). "Quantum Indeterminism, Mutation, Natural Selection, and the Meaning of Life." In Chérif F. Matta, ed. (2010). *Quantum Biochemistry: Electronic Structure and Biological Activity*. Volume 2. Weinheim, Germany: Wiley-VCH, 837–872.
12. (2008). *Evolution and the Big Questions: Sex, Race, Religion, and Other Matters*. Malden, MA: Blackwell.
13. (2013). *The Myth of Universal Human Rights: Its Origin, History, and Explanation, Along with a More Humane Way*. Denver, CO: Paradigm Publishers.

book, they should not be taken to diminish my high regard for his contribution to Poe studies.

Harry Poe's interpretive approach to Edgar Poe is primarily theological (Harry Poe is a professor of theology, and an actual descendant of one of Edgar Poe's cousins). As a philosopher of science I wanted to bring out a nontheological interpretation of Poe on imagination, since modern science itself is essentially nontheological. Stripped of the theological elements (whatever they are) in Poe's writings, it seemed to me that Poe's insights on the connection between science and imagination are genuine insights and accordingly are worth the effort at bringing to light and submitting to careful examination.

I began thinking of writing a magazine article on Poe, science, and imagination, comparing Poe with the use of imagination by Darwin and Einstein. A little later that idea turned to thoughts of writing a scholarly article. And then later still, literally while driving home from shopping, a couple of hours after I had finished two grueling weeks of checking over the typesetting for my book on human rights and making an Index,—I was almost half blind from the process,—the thought suddenly struck me, that with Poe on scientific imagination I have my next book. The division of the book into chapters began forming in my mind, along with what I would do in each chapter. When I got home I wrote it all down, for thoughts are often delicate things and easily lost. It was a remarkable experience, in itself a eureka moment, an act of unforced imagination that filled me with excitement, as if watching a griffin self-assemble right before my very eyes.

In time, during the actual writing of the manuscript, the griffin grew, of course, but beyond my original intention. And it kept growing, to my utter astonishment, from something I intended to be fairly small to something ponderously large. This was not just from the primary source materials of Poe, which are considerable, but moreso from the vast secondary sources that I increasingly found to be relevant, sources that I used as either springboards or foils.

All throughout, be this what it may, I have tried my best *not* to draw loose and weak connections in Poe's thinking, as one sometimes finds in literary criticism (and elsewhere). What some scholars do is draw connections which, albeit fascinating and highly

original, have little if any rigor in terms of logic and evidence. This is fine in itself as a matter of self-expression and creativity, but if it is truth outside of ourselves that we are after, including historical truth, then we have to ground our theories in epistemic virtues and values, given that theories are always underdetermined by the available evidence. For example, one would like to ask some literary critics what they would accept as falsifying a given claim or theory of theirs, a particular connection they have drawn allegedly from the evidence. Silence there and nothing more. In some cases it is the mere drawing of the connection that seems the important matter, like making a constellation and attaching a story to it, rather than asking whether the constellation is real or the story is true. At bottom is the double problem of standards of evidence and underlying motives, the latter basically in some cases the desire to force an ideology on others or more simply to produce a shock or sensation.

Before we begin with the rest of the present book, however, there are two interpretative approaches to *Eureka* that I want to examine as a preliminary. Their focus is on Poe's creativity, but not in the way that I approach Poe in this book. Let us therefore take a brief look at these two approaches before we proceed any further.

### Poe's House of Usher

The interpretive focus here is Poe's "The Fall of the House of Usher" (1839), widely regarded as one of Poe's best tales, including by Poe himself.<sup>14</sup> Providing various interpretations of "Usher" from the pens (keyboards, really) of various Poe scholars, Scott Peeples saves the interpretation he clearly prefers for the end of his chapter on "Usher." As he puts it in the *dénouement* of his chapter,

Reading *Eureka*, in fact, one comes to see the work not so much as a theory of the known universe but as a parallel universe created by Poe; . . . just as *Eureka* is a kind of

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14. *Letters*, 450; *E&R*, 870.

control fantasy in which Poe identifies himself with the creator of the universe, in “Usher” he identifies himself with an artist who has made his house a universe, and then he enacts the artist’s fantasy of bringing that dead house to life: . . . Paradoxically, the house comes to life only to collapse and die, but for Poe, the paradox works both ways: the fall of the house gives rise to the story, which “lives” off paradox and other uncanny verbal structures.<sup>15</sup>

There are several problems with this view, one of which is that whether Poe intended *Eureka* as a bona fide theory of the Universe is not going to be determined by examining “Usher.” For that we need to get into Poe’s biography and into *Eureka* itself, which shall occupy us in Chapters 4 and 5.

Another problem is terminological, which confronts anyone who wants to draw parallels between “Usher” and *Eureka*. One of the key terms in “Usher” is “fissure,” which is the undoing of the house.<sup>16</sup> “Fissure” in Poe’s day was a well-known physiological and medical term, (as it still is today,) applying to breaches in the skin, and also to the folds of the brain. Corroboration for this interpretation of Poe’s use of “fissure” in “Usher” is found in one of his letters to Griswold, in which he affirms that the poem “embodied” in “Usher,” “The Haunted Palace,” (which was published independently earlier the same year,) was meant “to imply a mind haunted by phantoms—a disordered brain.”<sup>17</sup> Moreover, in “Usher” Poe has the narrator state, just before he recalls one of Roderick Usher’s “rhapsodies,” which is “The Haunted Palace,” that “I fancy that I perceived, and for the first time, a full consciousness on the part of Usher, of the tottering of his lofty reason upon her throne.”<sup>18</sup> The brain, of course, may be taken to be the “throne” of the mind. Why, then, would the tale in which the poem is “embodied” be about something different than the poem itself?

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15. Scott Peeples (2002). “Poe’s ‘Constructiveness’ and ‘The Fall of the House of Usher.’” In *Companion*, 188.

16. *P&T*, 320, 335.

17. *Letters*, 272.

18. *P&T*, 325.

A further terminological clue is the name “Usher,” which quite apparently was taken by Poe from the names of Harriet Ann L’Estrange Snowden Usher and Noble Luke Usher, an older married couple who were friends of and fellow actors with Poe’s biological parents, Eliza Arnold Hopkins Poe and David Poe, Jr. While Eliza Poe was sick and dying, Harriet, calling Eliza “Betty,” fed Eliza’s children “bread soaked with gin,” and after the death of Eliza she sometimes added laudanum, to make them “strong and healthy” or to put them to sleep when needed. Her own two children, the last of their line, were orphaned in 1814 and eventually became neurotics.<sup>19</sup> Poe’s choice of their surname for his tale was almost certainly, then, neither an accident nor merely for self-amusement (although Poe’s writings have plenty of the latter, including the *Mad Trist* in “Usher”). The most likely conclusion, therefore, is the most obvious one and nothing more, that the tale is about the general truth that the state of a person’s abode is a reflection of the state of the person’s mind. Poe took this general truth and did something artful with it, making the tale about the collapse of a fissured house upon its owner, whose mind was suffering a parallel collapse due to a diseased brain, the one house the reflection of the other—an interesting twist on the cliché that there’s no place like home.

The final problem with Peeples’ view is chronological. This is because the majority of the main themes found in *Eureka* are also found identical, or nearly so, in Poe’s works from around 1844–1845, not around 1839. Specifically, in “The Purloined Letter” (1844) we find, against the smug belief in “self-evident” truth, that “Mathematical axioms are *not* axioms of general truth.”<sup>20</sup> In “Mesmeric Revelation” (1844) we find that “there are *gradations* of matter” and that the extreme of “rarity or fineness” is “God,” the “ultimate, or unparticled matter,” such that God “not only permeates all things but impels all things—and thus *is* all things within itself,”<sup>21</sup> that each of us is God “individualized” by particled matter,<sup>22</sup> that thought, whether we call it God’s or ours,

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19. *Poe Log*, 14.

20. *P&T*, 681, 692.

21. *P&T*, 720.

22. *P&T*, 723.

is unparticled “matter in motion,”<sup>23</sup> and that pleasure cannot exist without pain.<sup>24</sup> Shortly after in a July 1844 letter to James Lowell we find many of the same ideas, that “The unparticled matter, permeating & impelling, all things, is God. Its activity is the thought of God—which creates. Man, and other thinking beings, are individualizations of the unparticled matter. Man exists as a ‘person,’ by being clothed with matter (the particled matter) which individualizes him.”<sup>25</sup> In “Marginalia” (November 1844) we find that “The Universe is a Plot of God.”<sup>26</sup> In “The Power of Words” (1845) we find that “In the beginning *only*, he created,” and that “certain operations of what we term Nature, or the natural laws, will, under certain conditions, give rise to that which has all the *appearance* of creation.”<sup>27</sup> And in “A Chapter of Suggestions” (1845) we find that “Some of the most profound knowledge—perhaps all *very* profound knowledge—has originated from a highly stimulated imagination. Great intellects *guess* well. The laws of Kepler were, professedly, *guesses*.”<sup>28</sup>

All things considered, that “The Fall of the House of Usher” presages *Eureka* fails the test of evidence. The most plausible conclusion is that the house represents the mind and nothing more, whether Poe meant his own mind, overly sensitive minds, the Enlightenment mind, or the human mind in general.

### Poe’s Poiesis

A more recent interpretation of *Eureka* shares much in common with the interpretation examined above. Much like Peeples, whom he explicitly cites, Jerome McGann, also a Professor of English, sees *Eureka* as “less ‘a theory of the known universe [than] a parallel universe created by Poe.’” But unlike Peeples, McGann arrives at this conclusion by applying to *Eureka* certain features

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23. *P&T*, 720, 723.

24. *P&T*, 726.

25. *Letters*, 449.

26. *E&R*, 1316.

27. *P&T*, 823.

28. *E&R*, 1293.

of Poe's literary theory, especially his poetics (theory of poetry). One feature is the hoax, which he says "is one of the Supreme Fictions of poetic artifice . . . being at once sincere and devious, serious and ironic," such that not only is it a deliberate attempt "to undermine the verification process," but in the context of tales it can be "an especially effective device for putting readers to a test of attention." (On the latter I couldn't agree more.) Hence the imaginary epistle of *Eureka*, dated 2848, is "Poe's farewell salute to the rhetoric of hoax that he had often found so useful for his work." But in *Eureka* this device is especially important because *Eureka* was not meant by Poe as an objective, scientific treatise. It was meant, instead, to be "performative rather than expository," involving the reader as participant, such that "Poe's work assumes that a prosaic exposition will distort poetic truth, tempting readers to make a conceptual rather than an experiential engagement with the issues." One of these issues is Beauty. Hence not only does Poe in the Preface offer *Eureka* as "this Book of Truths, not in its character of Truth-Teller, but for the Beauty that abounds in its Truth; constituting it true," but in his cosmology he has the "Supernal Beauty" of the Universe collapse at the end into what he calls "Nothingness," in line with the death of Lenore in his poem "The Raven" (1845), the point being, as McGann puts it, that the end of *Eureka* is "the moment when a reader understands what Poe is saying: that a thing of beauty—*this* thing of beauty—is not and never can be 'a joy forever.' That is the ultimate meaning of Poe's mortally immortal word 'Nevermore' as well as the sign of the word's pitiless benevolence," that in line with Poe's morbid poetry there is no "compensation for the loss of loved and cherished things . . . beyond a 'mournful and never-ending remembrance.'" Hence *Eureka* is "The work that most fully illustrates and, in illuminating, *explains* Poe's poetics."<sup>29</sup>

But what about the *science* of *Eureka*? Lord Byron, the most notorious and eccentric of the leading figures in the Romantic movement, whose life and poetry was an early influence on Poe, based the flights of his imagination "on the circumstantial facts of a lived history," while "Poe's flight of imaginative theory takes off from conceptual facts and scientific information," from

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29. McGann, 217n21, 93, 8, 98–99, 95, 94, 95.