16 ‘To know the story is to love it’
Scientific mythmaking and the longing for cosmic connection

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Somewhere in my turbulent and apathetic teen years, I developed a fascination with evolutionary timeframes, and with the universe generally. As I write these words, they sound almost like a confession, and, in many ways, I was saved. My salvation was helped along by great storytellers like Stephen Jay Gould, whose essays on natural history I discovered in high school. Though Gould, at the end of the day, dismissed science and religion to their separate chambers, the tales he told were deeply moral and they spoke to the crusader in me. I also fell under the spell of a still-young, black turban-wearing Carl Sagan whose Cosmos (book and TV series) I knew virtually by heart. Around age 17, I acquired a small telescope. By an incredible stroke of beginner’s luck, the first time I pointed it at a patch of the night sky I vaguely knew to be traversed by the planets, I hit upon a fuzzy yellow vibrating disc. I turned the knob and the fuzzy blob resolved itself into a perfect miniature planet: a tiny golden ball with a clearly defined ring. Saturn! I laughed as I recalled Sagan’s account of how early astronomers described the planet as having ears. That description was perfect. Now I was an astronomer too.

Then, as now, my science education was somewhat spotty and self-taught. I generally avoided “hard” science classes, but in my senior year of high school, I summoned the courage to take chemistry. I was completely charmed by the periodic table of elements which seemed to me so immensely reasonable and comprehensive, yet strange and fathomless. When I think back to this period, what most surprises me is that my wonder at these foreign realms of astronomy or chemistry had little connection to nature per se—in the sense of being our “nature”—and even less to do with what is today my chief concern, personally and academically: the state of the natural “environment.” As far as I can tell, my environmental consciousness evolved along a different path than my interest in science or the cosmos. The particular enchantment I felt in those days bore little connection to my immediate physical surroundings, yet I experienced it as a kind of sensory immersion or physical transport. What I remember vividly is the smell of my chemistry textbook when I cracked it open in the pre-dawn darkness to cram for a test. (Occasionally, I come across a book that has that exact smell and experience a wave of nostalgia.) I recall a certain headiness that came with the realisation that I actually understood the equations. Strangely, I have no memory of chemicals or chemical reactions—their explosions, odors, or colors—though a large portion of class (my least favorite part) was devoted to lab work. I had little interest in the hands-on or shared experience of chemistry. Similarly, the feeling I recall, and often have today when gazing through a telescope, was a disembodied or disconnected awe. A telescope takes one away from Earth, often in ways that are welcome—especially, perhaps, for (all-too-embodied) teenagers. The whole cosmic encounter requires mediation by tools and is, to some extent, impossible without them. As captivating as they are, one does not really “experience” celestial objects. These early encounters, in other words, lacked the immediate sensuousness of a summer rainstorm or the dusty crunch of autumn leaves underfoot. Yet my memories of that time remain potent and visceral.

Probably youth was a factor. Biologist Ursula Goodenough, who is today a vocal proponent of a grand scientific-spiritual narrative called the Epic of Evolution, recalls having had “a lot of trouble with the universe” when she was young. On a camping trip at age 20, she gazed up into a vast starry sky and experienced a kind of existential freefall so intense and frightening, she writes, that “I had to roll over and bury my face in my pillow” (Goodenough 1998, p. 9). She eventually learned to manage the “poignant nihilism” and “bleak emptiness” brought on by thoughts of the cosmos by means of an arrangement she calls her “covenant with mystery.” It was okay, Goodenough decided, at last, not to have answers to ‘Really Big Questions’ (Goodenough 2010, n.p.).

To me, Goodenough’s arrangement with the cosmos sounds more like an uneasy truce than a covenantal embrace. But then, I never had much trouble with the universe. Looking back, I suspect that part of the power I sensed during solitary moments with my telescope or chemistry textbook was my own. Perhaps turning from the cosmos to chemical elements and back, or from the history of biology to the breathtaking scale of the universe, I also experienced what Big Historian David Christian calls “the play of scales”: the intellectual and aesthetic excitement and vertiginous thrill of moving from micro to macro-realities, and of sensing the possibility of their harmony. Probably my early—positive—encounter with the cosmos has relevance for my having ended up, through a circuitous route, in religious studies (no flight from mystery here), while Goodenough went on to compose genetics textbooks and advocate for a scientific cosmology that puts the whole universe in good order.

It surely has some bearing on my having spent several years of my life critically dissecting a sprawling and ambitious set of quasi-religious cosmological narratives that presume to tell the story of everything, from the Big Bang to our present, perilous moment (Sideris 2013, 2015).

Big History, the Epic of Evolution, and the Universe Story present a sweeping narrative of cosmic and evolutionary unfolding as a modern origin story for all people. These efforts to present a complete, panoramic story display elements of our Anthropocene6 situation, for these stories narrate how we arrived at a moment where humans wield enormous influence over the biosphere, and how we might move forward without wrecking the planet or our civilization. These narratives collapse conventional boundaries between human and natural history,
implicating human agency across geological or cosmic timescales. Although their
emergence predates our current Anthropocene concept, it is possible to see these
projects as Anthropocene narratives that evoke consciousness of ourselves as a
collective entity or global agent—a species that emerged out of deep cosmic time
(Chakrabarty 2009). Perhaps a new experience of the human species is being
incubated in these cosmologies, with their religious-like mythos, rituals, and
communal practices that aim to connect humans to deep time and universal
consciousness. Specifically, they might be understood to create something that
some commentators consider virtually impossible: a “phenomenology” of
ourselves in the Anthropocene; an affective, aesthetic, or experiential identifica-
tion with the human-as-species, its peculiar forms of agency, and its emergence
in deep time (Chakrabarty 2009).

What insights might scholars—in a variety of disciplines—gain from attending
to the parallels between grand narrative projects emerging in the discipline
of history and their counterparts in religion and ethics? As a scholar trained
primarily in the latter, I find much to quibble with in these grand narratives. But
having articulated those concerns at length elsewhere (Sideris 2013, 2015), I will
focus much of my discussion here on exploring why these projects might have
popular appeal, before considering some downsides. What do people seek when
they turn to these narratives—and what might they be escaping? What, for their
own part, are cosmic storytellers offering their audiences, and why? As I have
hinted, I suspect that the appeal of these stories lies, at least in part, in the
prospect they offer of experiencing new ways of being human. Much hinges,
however, on the word experience, for these stories address problems and objects
that are not readily apprehended by humans. As historian Stephen P. Weldon
(2015) puts it, “We are now struggling to come to terms with our place in a world
that we have no intellectual and practical history with. We have no daily expe-
rience of the kinds of objects that we are interacting with as a species,” whether
those objects of inquiry are the global climate, the formation of stars, or our own
geological agency.

Telling big stories

Big History is connected to a larger constellation of movements that blend deep
historical perspectives with scientific methods and discoveries to create a cosmic
narrative that inspires wonder and (in some iterations) affective connection to
the Earth. These movements offer a sense of belonging to a shared, coherent, and
empirically true myth. Big History may be familiar to historians through the work
of David Christian, Cynthia Stokes Brown, Fred Spier, or William McNeill,
among others; my focus here is on David Christian’s Big History, owing to the
overlap and shared agenda of his project with the mythmaking efforts of some
religion scholars and religionists.

Like Big History, The Universe Story and The Epic of Evolution endeavor to
tell the whole cosmic and human story, defining humans as the universe becomes
conscious of itself (Swimme and Tucker 2011; Rue 2000). These narratives often
have an explicit environmental agenda, driven by the conviction that environ-
mental ethics and values need an orienting cosmology in which to take root and
blossom. The hope is that humans’ dawning cosmological awareness, and the
sheer awe inspired by the modern scientific story, will empower us to guide the
future unfolding of cosmic and evolutionary processes into a new era—sometimes
defined as a new geological or cosmic phase—in which humanity and nature will
flourish together (Swimme and Berry 1992; Swimme and Tucker 2011).

The prominence of these stories in religion and ethics’ suggests a deep-seated
spiritual, affective, and aesthetic—or evolutionary—need for human connection
with cosmic and deep-historical perspectives. Perhaps scientific and historical
narratives are beginning to perform a function traditionally assigned to religion
or myth. Indeed, proponents of these movements claim that this is precisely how
modern cosmology can (and should) function, and that the ascendency of these
narratives is fueled by the sharply declining appeal and functionality of the tradi-
tional world faiths (Berry 1978, Rue 2004). It is instructive to place this rationale
for why humans need a new story alongside more recent reflections on the
Anthropocene and its attendant, but elusive, mode of species-being.

Deep time, species-level thinking

Postcolonial scholar and historian Dipesh Chakrabarty (2009) argues that the
onset of the Anthropocene, and of anthropogenic climate change, entails a
dramatic scaling up of the human, and a concomitant collapse of traditional
boundaries separating natural and human history (and separating the disciplines
from one another). These interrelated claims reflect the idea that our species
has now become a planetary agent whose unprecedented power is symbolized by
our capacity to alter the chemistry of our atmosphere. Humans have always
interacted with their environment, but “it is no longer a question simply of man
having an interactive relation with nature,” Chakrabarty writes. “Now it is
being claimed that humans are a force of nature in a geological sense” (2009, p.
207). This melding of human history with geological time suggests a new mode
of “species thinking”—a collective self-recognition of humans as an abstract
spatiotemporal entity. Yet, as the quote from Weldon, above, also suggests, this
change in perspective carries with it no continuity of experience between
humanity’s past and future; as Chakrabarty says, “we never experience ourselves
as a species.” We have little way of emotionally identifying with the species
suggests that species thinking may nevertheless act as a “placeholder for an
emergent, new universal history of humans that flashes up in the moment of the
danger that is climate change” (2009, p. 221). At times, and in a move that
aligns him with thinkers such as biologist E.O. Wilson, whom he cites with
some frequency, Chakrabarty appears to suggest that deep-time, species-
consciousness is necessary for coping with the climate crisis (2009, p. 213).
Emotional, phenomenological identification with concepts beyond our grasp
may be critical to our survival.
Making the cosmic connection

Why is Big History needed? Like those offered for The Universe Story or The Epic of Evolution, rationales for Big History range from practical and pedagogical, to ethical and aesthetic, to spiritual and metaphysical. On the practical side, Big Historians frequently maintain that students are confused and uninspired by the fragmented knowledge they receive about human origins and history—a bit of foreign language here, some math there, a smattering of state or national history. Puring history into epic form arouses their enthusiasm and excitement for learning. Simply put, Big History gets results in the classroom. Moreover, proponents often maintain that a global society needs global, generalized knowledge and that “globalization itself becomes a vehicle for Big History’s expansion of awareness” (Roig et al. 2015, p. 9). Regarding ethical justifications, the claim is made that in the absence of an overarching, integrated narrative, we lose our moral compass. These claims often begin to sound circular: wthout a unified story, we cannot have unity. Unity and harmony are marshalled as self-evidently good and universally desired and desirable. Without Big History we are “fated to live within a fragmented, endlessly shifting intellectual universe, deprived of the philosophical and ethical anchors of a more unified vision of how things came to be” (Roig et al. 2015, p. 10). Big Historians are collectively “in love with the idea of such integration” (Roig et al. 2015, p. iv–v). As the language of love and deprivation suggests, many who are drawn to this sprawling but coherent vision display a kind of erotic longing, a “tormenting desire for unity”—unity of knowledge, unity of the disciplines, unity of experience (Smocovitis 1999). Again, the underlying assumption is that this unifying drive is itself a universal feature of the human species: “We believe that the aspiration for a syncretic worldview, for the comprehension of the whole of human history of this immense globe, was (and always will be) inherent in humans” (Roig et al. 2015, p. 9).

Big History aspires to “explain existence" by constructing bridges between fragmented areas of knowledge (Roig et al. 2015, p. 11).

Following Emile Durkheim, David Christian invokes our modern disorientation and lack of meaning as instances of “anomie,” while some religion scholars refer to “myth,” the absence of a plausible, comprehensive myth (Rue 2004). The “absence of a unifying story,” Christian argues, “may be an important ingredient in the pervasive quality of loss and disorientation in modern life” (Christian 2005, p. 29). Note that the claim being made here is not just that humans rely on narratives (of some sort) to make sense of their individual lives, or to negotiate their role within a given social group, as some social theorists have argued. The claim is that humanity as a whole needs a common story that encompasses everything in cosmic and human history and that gives us a place within the universe. The driving assumption is that humans were once guided by appealing, authoritative macro-narratives that served these functions. Above all, Christian believes that creation stories once operated as trustworthy, up-to-date maps—“attempts to use the best available knowledge to place society within a large, often cosmological context” (Christian 2010, p. 10, my emphasis).
Religion scholars may scoff at the highly literalist interpretation of creation myths—best available knowledge—that motivates enthusiasts like Christian to proffer a scientific-historical narrative in place of (say) Genesis creation myths; after all, only scriptural literalists or dedicated creation scientists engage mythic narratives as empirically accurate, propositional statements about the origin and history. Nevertheless, modern myths like Big History appear to be addressing a lack that is keenly felt by some (certainly by those actively promoting these narratives). Loyal Rue (2000) embraces the Epic of Evolution as a story that informs us of how things are and which things matter. Prior to his conversion to the Epic, he felt his own values to be disconcertingly unmoored, like a “moral imperative just floating loose…. I was in a search of a cosmology” (Rue quoted in Barlow 1997, p. 71). His turn to biology and other sciences led him to grasp the mythic potential of science as a full-blown, comprehensive cosmology and solid ground in which to anchor moral commitments. “All of a sudden, whoomp! It goes down like a taproot. Now it’s grounded in the cosmos” (Rue quoted in Barlow 1997, p. 71). For some adherents, then, these stories provide, or restore, a connection between existent values and a larger framework of meaning.

But these narratives also aim to provide, or restore, something more profound and nebulous: religious-like experiences of wonder and awe. Cosmic storytellers often speak of awe as a reaction to the beauty and vastness of “nature,” as when beholding the starry sky or a towering forest. But their awe is also (or ultimately) awe at the abstract “immensity of scale” of cosmic space and time. Macrohistory, Christian writes, “is about scale. It is about what musicians call ‘diapason’: the contrasts, juxtapositions and insights that can be achieved by moving through the complete range of available scales” (Christian 2005, p. 26). But what does it mean to wonder at scale itself? Is this encounter compelling enough to attract adherents? Can it turn them into dedicated environmentalists?

In making his “case for awe,” Neal Wolfe (2014) writes that Big History tells the “profound evidence-based story of how the universe as we know it began, developed, led to our emergence as a species, culminates in the present moment, and continues unfolding into the future” (Wolfe 2014, p. 339). Yet we never experience the beginning of the universe or our emergence as a species, or the continued unfolding into the future of the cosmos. We directly experience a pre-made sky, but not “how stars are formed, how far away they are,” or that we are “looking billions of years into the past” (Wolfe 2014, p. 334). Similarly, Wolfe celebrates awe at the “realization that if all the strands of DNA in a human body were strung end to end, the resulting thread would stretch to the sun and back as many as seventy times!” (Wolfe 2014, p. 337).

This brand of geo-whiz science may well provoke amazement at what Wolfe calls a realization, and yet we—especially, we without an electron microscope—have no phenomenology of DNA. This leads one devotee of Big History to ask in what sense do those who read or write grand cosmic narratives “actually live the familiar concepts” of biology, physics, or other sciences that drive the storyline? (Blundell 2015, p. 2). The intellectual dimensions of Big History need to go hand-in-hand with “the lived-experience,” so that one can somehow sense the storyline “as opposed to only knowing it” (Blundell 2013, p. 1). The experiential dimension is sometimes characterized as a mystical perception of “relational unity” with the universe, a salutary diminishment of our “habitual sense of individuation” (Wolfe 2014, p. 337). But how to create these experiences?

Some cosmic storytellers personalize and phenomenologize the story by drawing from the template of religious ritual and practice. To invoke a metaphor suggested by David Christian’s diapason, or “play of scales,” they endeavor to supply not only the written score but the music as well. Epic of Evolution evangelists Connie Barlow and Michael Dowd preside over a variety of evolutionary rituals, in religious and secular settings. We might see these performances as another kind of play—ritual or symbolic play that allows participants to engage imaginatively and bodily with what is typically remote, unseen, or incomprehensible. These rituals include a Cosmic Communion that invokes Carl Sagan; the recitation of evolutionary parables and songs; ritual use of Great Story beads that mimic rosary beads; and a candelit Cosmic Walk that symbolizes the unfolding universe (Barlow 2013).

In Cosmic Communion rituals performed in liberal churches or spiritual retreat centers, participants are “anointed with ‘stardust’ (glitter) to signify, as Carl Sagan pointed out in the 1980s, that we are quite literally ‘made of stardust’” (Barlow 2013, n.p.). They may string together Beads of the Cosmic Rosary intended to represent key moments in evolution. The shape and color of beads are suggestive of cosmic events like supernovae, or signify the evolution of particular life forms such as dinosaurs, birds, or flowers. Cosmic beads can be personalized, much like a charm bracelet.

For the Cosmic Walk, a rope is placed on the ground in a spiral shape, symbolizing 14 billion years of cosmic unfolding; candelit stations around the spiral represent cosmic and evolutionary events, such as the Big Bang, the death of dinosaurs, and the emergence of early humans (Barlow 2013). Interestingly, markers near the end of the Cosmic Walk symbolize major discoveries by twentieth century scientists, including the discovery of the expanding universe—the very discovery that “revealed” the story structure of our cosmos. In this way, the ritual becomes self-reflexive, visually evoking the central insight that humans are the universe becoming conscious of itself. Human knowledge of the cosmos is thus ritualized as an event of cosmic proportions and significance.

Proponents of scientific cosmologies have at times debated whether aesthetic accoutrements can facilitate stronger connection with the larger story. In a forum discussion in the Epic of Evolution Quarterly, Goodenough posed the question, “Does the Epic Need Art?” One respondent denied needing any array prop—paintings or poems—to evoke awe at the subatomic world or interstellar space. “Just the sheer knowledge, partial though it may be as brought to me by the various sciences, leaves me stunned and breathless” (Goodenough 1998, p. 18). Another doubted that traditional art forms could ever evoke the vast temporal dimensions of the story. “A spatiotemporal canvas is needed to capture the meaning of the scientific story of creation” (Goodenough 1998, 19).
Cosmopolitan environmentalism

This move from cosmology to ethics—zooming out in order to zoom back in with intensified ethical and emotional connection to nature—is symptomatic of our Anthropocene moment, though it has deeper roots.* For it is only with the perspective afforded by deep space and time, we are told, that humans apprehend the essence of our relationship to Earth and the radical nature of our present transformation of it. Christian, for example, claims that a "planetary scale" of 4.6 billion years is most appropriate for exploring "the human relationship with the environment and the biosphere," for it highlights the integration of our identity with the whole, interrelated organism that is Gaia (Christian 2005, p. 34). Only on this scale, moreover, can we "see" the human impact on the biosphere and compare it with other transformative impacts, such as asteroids (Christian 2005, p. 35). A similar move is made by a certain celebrity astrophysicist who, like Swinney, acts as cosmic tour guide. In the reprinted version of Cosmos, Neil DeGrasse Tyson boards his Ship of the Imagination and ferries us through our cosmic space and time. Occasionally, his narrative focuses on Earth's tumultuous climate history, thereby highlighting the relative climatic stability of the Holocene period during which our civilization arose and on which our survival utterly depends.

Not infrequently, Tyson ventures a more tendentious claim about the connection between space exploration and care for planet Earth, suggesting that the environmental movement as a whole owes its origins to the space program. On Earth Day 2015, I participated in a conference that featured Tyson as keynote speaker. In the course of his energetic and entertaining lecture, Tyson took pains to demolish the standard narrative, namely, that Rachel Carson and Silent Spring sparked the environmental movement. It was not images, conjured by Carson's prose, of DDT-ravaged eggshells or squirrels gnawing their teeth in the dust of chemical poisoning that provoked an outpouring of empathy and action. It was the image of Earth from space. Without that iconic image, we would never have begun to think "globally" (picture Whole Earth Catalog, Tyson suggests). We have NASA to thank not only for our environmental legislation, but also for organizations like Doctors Without Borders, Tyson maintains, because the image of earthrise allowed us to envision our planet without boundaries. As with David Christian's invocation of Gaian unity as a normative principle, Tyson contends that Earth as a single, unified whole—a whole with which humanity could bond emotionally—gave birth to unified, global environmentalism.

Disorder and its discontents

Unity, identity, and universality. These are the organizing principles of cosmic mythmaking. Humans require a common, comprehensive story, and a global environmental movement, we are told. To complete this vision, however, we must also achieve unity among the disciplines. E.O. Wilson refers to such unity as consilience. The quest for disciplinary unity—a seamless body of knowledge, or unifying paradigm—makes frequent appearances in these Anthropocene narratives. Christian writes that scholars who engage in work that crosses disciplinary boundaries and scales "will soon find they are taking part in the larger project that E.O. Wilson called consilience" (Christian 2005, p. 25). He promises that much will be gained from consistent "cooperation," though his descriptions of interdisciplinary evoke militaristic invasion or mutiny rather than cooperative sharing: "Macrohistory will seem like a series of booty raids into neighboring disciplines," he predicts. "There is a lot of conceptual and methodological loot out there for historians willing to do the work and take the risks ..." (Christian 2005, p. 36).

He writes admiringly of boundary-crossing historians like Alfred Crosby, praising their "sawhickling style ... suggestive of a booby raid" (Christian 2005, p. 37).

A sense of daring and excitement—bold transgression rewarded with untold glory—animates these endeavors that spur disciplinary boundaries and move breathtakingly across disparate scales. Yet, sawhickling flamboyance seems out of place with the decentered, non-individualized, mystically unbound self that we might expect to emerge from habituation to the cosmic perspective or the long durée. A paradoxical mix of humility and hubris is ever-present in these stories. Not only is cosmogenesis mythologized and consecrated, so too is our species' heroic quest to comprehend and narrate it. The adventure of mapping the universe and uniting all knowledge conjures mythic figures like Prometheus, the bringer of fire; or Icarus, who flew too near the sun. "Let us see how high we can fly before the sun melts the wax in our wings" (Wilson 1998, p. 7). Some decedent unscientific rhetoric—appeals to faith, hope or deep conviction—permeates discussions of consilience and universality. Wilson confesses a metaphysical longing for consilience—a "conviction, far deeper than a mere working proposition, that the world is orderly and can be explained by a small number of natural laws" (Wilson 1998, p. 5). Christian has faith that universal history will reveal "profound orderliness" (Christian 2010, p. 20). A more innocently aspirational mood is suggested by Christian's characterization of Big History as part "genuine attempt at prediction," part "letter to Santa" (Christian 2010, p. 7). The quest for universal history and consilient unity seems buoyed by something almost make-believe—a fervent wish, a refusal to attend to sober naysayers and their
unlovely visions. However it is expressed, the desire for unity, totality, and lawlike order has a dreamlike quality for these starry-eyed seekers. The wishful tone of these projects and their feel-good appeals to unity and harmony may mask their less egalitarian aspects. Big History and associated projects prompt us to reflect more deeply on both methodological and ethical questions that are also at the heart of Anthropocene debates. For example, scholars who engage in bridging the disparate disciplines and timescales by means of consilient passageways may find some partners to be more genuinely collaborative than others. Consilience is not necessarily a two-way street. "Scholars convinced that their method is consistently superior and universal," environmental historian John M. Meyer notes, "are most likely to pursue multidisciplinary endeavors by reducing all others to their singular preferred method. The result is holism manifest as reductivism" (Meyer 2014, p. 17).

Christian's language of looting and booty raids, as I have said, suggests something other than mutual sharing of disciplinary riches—even while he speaks of historians raiding the scientists' bounty, rather than vice versa. From the standpoint of consilient integration, however, it is often the humanities that are regarded, paradoxically, as both the poorer cousin and the primary object of conquest. Also of great concern to some environmental scholars—and I count myself among them—is that the scaled-up species vision of humanity obscures important differences among human cultures and their varied contributions to the global crisis in terms of fossil fuel consumption; it also downplays the critical role played by capitalism in fueling the Anthropocene. A given individual's "imprint on the atmosphere varies tremendously depending on where she is born," as human ecologist Andreas Malm points out. Humanity as a whole is thus "far too slender an abstraction to carry the burden of culpability" (Malm 2013, n.p.). Nor, I would argue, should this abstraction be put in the service of a global mythmaking enterprise that presumes to tell "everybody's story." In the context of the Anthropocene and the present global crisis, there can be no depoliticized story of "all of us."

There are many different stories we can and ought to tell about what it means to be human. Depending on where we choose to look, we may derive a variety of meanings and messages, many of them incommensurable. Big Historians tout the empirical and scientific basis of their mode of storytelling. Yet interrogating even just one branch of the sciences—say, biology—can produce radically different interpretations of the human and our place in planetary unfolding. The species-level view of humans as a collective agent and discrete entity might be recognizable to paleobiologists, but a microbiologist would reject this image in favor of one that regards each of us as a conglomeration of multiple species, akin to a coral reef. Where paleobiology may seem to undermine species oneness and solidarity—the ethic at the heart of Big History or The Universe Story and The Epic of Evolution—the microbiologist's perspective makes it difficult to talk about a human "we" at all. "While 99.9 percent of our human DNA is shared," historian Julia Adeney Thomas notes, "our microbial cells may have as little as 50 percent of their genetic profile in common." For scholars and laypeople who look to science to inspire a narrative of species solidarity, she notes, "this finding is disturbing" (Thomas 2014, p. 1595). Those who turn to science to craft a coherent story about who we are or what it means to be human will (if they are truly paying attention) come away perplexed and bewildered. On the other hand, equipped with the proper attitude toward this array of images and meanings—one that does not seek erasure of difference for the sake of narrative coherence and closure—we may come away with a genuine sense of awe and wonder at this diversity of disciplinary insights into who we are and where we fit in. For practical and ethical purposes, we may choose to attend to particular stories or more than others, without rejecting the multiplicity of options and scales available to us from the disciplines. Where we choose to focus will necessarily reflect our values. If a deeper sense of affective and sensory connection to the natural world and its myriad inhabitants is what we hope to foster, I would argue that it seems most appropriate to attend to something far more local than the cosmic scale, for as David Abram notes, the "sensitive world is always local, and it is never merely a human world" (Abrams 2000, n.p.). The cosmic scale can be awe-inspiring, but it is not the scale on which we find or make meaning in our day-to-day lives.

Ultimately, the vision that inspires dreamers of Big History is one of greater certainty and simplicity, a universe in which everything falls into place and each of us knows, on good authority, who and where we are. Diapason, it is worth noting, implies not just range, but emergent harmony from the play of scales. However recent the science, this harmonious vision of the cosmos is ancient. The word cosmos, Sagan liked to remind us, means order. Its antipode is chaos. These storytellers, as I have suggested, assume that their own profound longing for cosmic identity, unity, order, and harmony is itself a species-wide trait. Whether that cosmic dream—with or without a robust phenomenology—will have broad intellectual and emotional appeal remains to be seen. If, for one, will continue to register my dissent from this orderly project and its assumptions. I do not feel its power and allure, nor can I revel in its carefully managed, empirically verifiable, law-abiding forms of wonder. Whether or not a cosmic blueprint, or a complete user's guide to the planet, can inspire deeper connection and concern for nature is another question. On that score, too, I have doubts and misgivings. Time alone will tell.

Notes
1 In addition to publicly advocating for the Epic of Evolution, Goodenough teaches a course on it at Washington University in St. Louis.
2 The Anthropocene is the proposed but as yet unofficial name for the present geological epoch in which humans have become a dominant force on the Earth system.
3 Their popularity in the subfield of religion and ecology is especially pronounced.
4 Some Epic of Evolution proponents are drawn to sociobiological or evolutionary psychological explanations of the origins and adaptive function of religion or myth. Christian often refers to a return of universal history, suggesting that it once held sway (see Christian 2010).
5 The Ecocentric bears some resemblance to what some call a "good" Anthropocenes an era in which humans become wise planetary managers to the benefit of Earth and humanity (see Siders 2015).
References


