

Introduction | This Thing We Call Life

You'd think that biologists, of all people, would have words for life. But in scientific language our terminology is used to define the boundaries of our knowing. What lies beyond our grasp remains unnamed.

—Robin Wall Kimmerer, *Braiding Sweetgrass*

Ten minutes ago, there was a fruit fly quietly hovering near my bowl of strawberries. *Drosophila melanogaster*. With its wormy cousin *C. elegans*, *D. melanogaster* is a classic laboratory organism, a model system. Since Charles Woodworth first bred them for scientific use at the turn of the twentieth century, drosophilae have provided an immeasurable contribution to our understanding of life. Research on *D. melanogaster* has been awarded six Nobel Prizes. So much of what we know about basic biological processes, and especially what we know about genetics, comes from hundreds of thousands, maybe millions, of these tiny lives. Researchers have given drosophila genes cheeky names: Tinman (related to heart development), Van Gogh (related to hair swirls), and Hamlet (affects the development of cells descended from IIB progenitor cells, so “IIB or not IIB”). The average life span of fruit flies is about eight to eighty days, depending on the environment and the circumstances. This particular drosophila probably had been buzzing around my kitchen for days. I don't know if it was born there. Maybe it hitched a ride to my house on these very strawberries.

But it dared to land on the edge of my bowl, and I rendered judgment without thinking.

I think you know what happened next.

There is a difference between a dead fruit fly and a living one, but the nature of that difference is famously hard to pin down. The legendary scientist J. B. S. Haldane opened the title essay of his 1947 book *What Is Life?* with a sly dodge: “I am not going to answer this question.” Even though Haldane went on to describe life as “essentially a pattern of chemical happenings” identifiable across

a variety of organisms, his initial refusal to answer his own question is striking. Haldane later elaborated on his difficulty: “I doubt if it will ever be possible to give a full answer, because we know what it feels like to be alive, just as we know what redness, or pain, or effort are. So we cannot describe them in terms of anything else.”¹ For Haldane, the meaning of “life” is found in some indescribable, indivisible aspect of being alive. Life itself slips from his conceptual grasp as if it were a prime number, something that comes as close to the noumenal realm as a scientist can get without blushing.

The life at the heart of this book is the life that Haldane refused to define: life itself, Life-with-a-capital-L. This is not the life of the pro-life movement, whose adherents, despite professing a “culture of life,” tend not to protest the development of a wetland area or the clear-cutting of a forest.² For the pro-life movement and for many others who center life in their politics, there is an unstated qualifier: “life” is usually shorthand for some version of “human life.”³ The life of this book, in contrast (or, more accurately, in addition), is the thing you have in common with all other humans but also with owls, birch trees, and bacteria quietly living in the furthest depths of the ocean. And yes, it’s something I also share with fruit flies, along with a love of strawberries. This life is the life threatened by full-scale nuclear war, mass extinction, and runaway climate change; the ethical conundrum posed by synthetic biology; the life represented by bacteria that may be hiding in the craggy, dusty regolith of Mars; the life we have inherited from the last universal common ancestor, the progenitor of all known forms of life on Earth. As Haldane makes clear, this broader sense of life—life itself—is difficult to grasp, for life itself, writes Michel Foucault, “does not exist, *per se*; it is an abstraction.”⁴

Life is everywhere on Earth—found in the deepest recesses of its crust and in the far reaches of the atmosphere—yet it may not exist independent of the matter it classifies as animate, as organism, as *a* being, in the Western “ontological economy” at least.⁵ And yet, writes Richard Doyle, we have an impulse to “[bow] before the ineffability of the vital,” unsure of the features on the face of this god but still convinced that piety is demanded of us.⁶ *Life does not exist, per se*, yet it is of such incalculable value that philosophers struggle to provide cogent arguments for why life is good—it is just a matter of intuition, its basic premise a given. *Life may not exist, per se*, but nothing is more important. *Life may not exist, per se*, but it must be protected at all costs.

“Action on behalf of life transforms,” writes Robin Wall Kimmerer (Potawatomi).⁷ This book is an account of what compels that action, the rhetorical forms

it takes, and the kinds of transformation it brings into being. Using a variety of cases in which life itself becomes subject to moral consideration and the subject of political action—what I call *vital advocacy*—this book traces what happens when life itself is evoked through arguments on its behalf. I have no desire to look upon the true face of this god, and I join Haldane in his ontological dodge. What is this thing we call life? *I am not going to answer this question.* But if there is an answer in what follows, it is found in the echoes of its asking, a little like watching the trail of a comet you are not sure was there in the first place.

So let's begin by looking up.

The Overview Effect

The border between Earth and space is one hundred kilometers above your head, a terrestrial boundary known as the Kármán line.⁸ At this altitude, the atmosphere is not dense enough to support aeronautical flight. The Kármán line thus marks the difference between airplanes and spacecraft and names the distinction between pilots and astronauts.

In 1961, the Soviet cosmonaut Yuri Gagarin became the first human to cross the Kármán line. Three minutes after launch, officers from USSR ground control asked Gagarin for an update. “I can see Earth,” he replied in the staccato of early space communication. “I am looking at the clouds. Beautiful, so beautiful!”⁹ Gagarin’s flight was not the first time that Earth had been viewed from above: rocket-mounted cameras had been returning grainy black-and-white images since 1946. Nor was Gagarin the first Earthling to cross the Kármán line. Preceding him were fruit flies in 1947, a rhesus monkey named Albert 1 in 1948, a dog named Laika in 1957, and nameless bacteria that were almost certainly the first Earthlings to reach outer space. Gagarin’s flight was significant because he was the first human to leave Earth’s atmosphere but also because it was the first time the planet had been seen, unmediated, with human eyes and the first time it had been seen in *color*. At the press conference following his return, Gagarin described his first impression of Earth using vivid language: “The color of the sky is completely black. The stars on this black background seem to be somewhat brighter and clearer. The Earth is surrounded by a characteristic blue halo. This halo is particularly visible at the horizon. From a light-blue coloring, the sky blends into a beautiful deep blue, then dark blue, violet, and finally complete black. . . . Circling the Earth in my orbital spaceship,

I marveled at the beauty of our planet," Gagarin remarked. "People of the world, let us safeguard and enhance this beauty, and not destroy it!"¹⁰

In the years since, many spacefarers have described a similar suite of feelings in response to crossing the Kármán line, a phenomenon that Frank White has termed the "Overview Effect."¹¹ The experience of "seeing firsthand the reality that the Earth is in space," White explains, "often transforms astronauts' perspective of the planet and humanity's place in the universe. Some common aspects of it are a feeling of awe for the planet, a profound understanding of the interconnection of all life, and a renewed sense of responsibility for taking care of the environment."¹² Seeing the Earth from space is more than just an aesthetic experience, in other words; it also seems to provoke a profound ethical and political response.

This phenomenon is not limited to astronauts. *Earthrise*, a photograph taken by the Apollo 8 astronauts in 1968, and 22727, the "blue marble" image captured by astronauts on the Apollo 17 mission in 1972, were widely hailed for their power to generate powerful sentiments in viewers, and they are often credited with catalyzing the rapid growth of the environmental movement in the early 1970s.¹³ For many people, these photographs offered "seemingly incontrovertible proof that whatever else might separate us, we are all part of one species, forced to live together on the same fragile planet and sharing the same limited resources."¹⁴ Whole-Earth images thus have been heralded as a means for humans to see themselves joined not by "arbitrary signifiers" such as religion, nation, or even species but by an "unalterable presence," the "undeniable *thusness*" of Earth, a rhetorical move that Tobias Boes describes as "planetary mediation."¹⁵ For many astronauts, however, it is clear that the mediator is not just the planet but the planet as a host for life, to the point that it is sometimes spoken of as a living thing itself. "It is all connected," explains the US astronaut Sandra Magnus. "It is all interdependent. You look out the window, and in my case, I saw the thinness of the atmosphere, and it really hit home, and I thought, 'Wow, this is a fragile ball of life that we're living on.'"¹⁶ The Chinese astronaut Yang Liu describes a powerful feeling: "that the earth is like a vibrant living thing."¹⁷ The US astronaut James Irwin expresses a similar sentiment, calling the planet a "beautiful, warm living object [that is] so fragile, so delicate, that if you touched it with a finger it would crumble and fall apart."¹⁸ One does not look down at the planet and see nations, but neither does one see humanity, as Dorion Sagan explains in the interview that follows this chapter. One looks down, and in the undulating swirls of blue, white, brown, and green, it is life itself that shimmers into view.

One of the most remarkable examples of the Overview Effect is found in a speech given by the US astronaut Russell “Rusty” Schweickart to the Lindisfarne Association in 1974. Inspired by Alfred North Whitehead and Pierre Teilhard de Chardin, the Lindisfarne Association was an eclectic group that brought together artists, academics, scientists, and religious figures “devoted to the study and realization of a new planetary culture.”¹⁹ From 1974 to 1977, the association hosted an annual conference, which included themes such as “Mind in Nature” (1977), “A Light Governance for America” (1976), and “Conscious Evolution and the Evolution of Consciousness” (1975).

In 1974, the inaugural conference’s theme was “Planetary Culture and the New Image of Humanity.” Schweickart, who was part of the Apollo 9 mission to test the lunar module, was asked to speak about his experiences in space and what they meant for the future of humanity. But while he was interested in speaking to this “far-out group,” as he described them, Schweickart found himself with a terrible case of writer’s block.²⁰ “I never could prepare for the damn talk,” he remembers. “I just couldn’t ever get anything done on it, couldn’t write even a note; I just mentally blocked.” When the time for his speech came, Schweickart stepped in front of the audience without any notes, planning to give some canned remarks about the thrill of space flight. He was an astronaut, after all. *Anything* he had to say would be interesting. As he began speaking, however, something strange began to happen. Schweickart felt himself lose control over his words in what sounds almost like a dissociative experience: “I basically listened to myself give that talk,” he recalls. “It really all came out, became conscious to me in that talk. I was almost in the audience.”²¹

“Well, what should we do this morning?” Schweickart begins the speech, to scattered laughter from the audience.²² After hemming and hawing, he explains that he’d like to give the audience something close to his “experience” in space, because the experience of one individual has “very little meaning.” At this point, Schweickart then shifts his pronouns from first to second person and his tense from past to present, transforming *my experience then* into *your experience now*.

The first half of the speech walks us through the technical aspects of the mission. The astronaut describes the meticulous process of training and preparation and the launch (“somehow it’s anticlimactic” from within the actual vehicle, he notes, because “everything looks very much like the simulations”). He mentions first viewing the Earth from space but does not actually describe this moment in detail; in fact, he describes the experience as something close to a cliché. Once the craft stabilizes, Schweickart explains, “you look out the window

and you make some comment. Everybody has to make some comment when they see the Earth for the first time. You make your comment, and it's logged. Duly noted. And then it's to work, because you don't have time to lollygag and sightsee. . . . On with the job." The days whiz by, rote and mechanistic: you wake up, you eat breakfast, you put on your space suit, you test the equipment, you solve problems, you go to sleep. Repeat.

Every so often, Schweickart pauses our journey to comment on the significance of what he is doing, as if remembering that his "far out" audience expects more from him than just a story. For example, he describes the process of walking in space as severing "your umbilical to that mother," the spaceship, with echoes of Kubrick's *2001*, released just a few years earlier. But throughout the first half of the speech, he appears to emphasize his *lack* of self-reflection during the mission. The first time he takes us outside the spacecraft, for example, he calls attention to the "sunrise over the Pacific. But don't look at it. . . . You've got forty-five minutes out there."

There was one point in the trip, however, when the frantic pace slowed down, "a stroke of luck" when Dave Scott's camera jammed while the two men were outside taking pictures (fig. 1). Schweickart recalls a precious minute of calm while he waited: "just a moment to think about what it is we are doing." But then the moment passes—in the mission and in the speech—and he drops the audience back into routine. Wake up. Eat breakfast. Put on your space suit. Do your work. Go to sleep. Repeat, until the moment of relief when "splash, you're on the surface of the Atlantic. You're back in humanity again, and it's an incredible feeling." Having returned his audience safely to the surface of the Earth, Schweickart takes a deep breath, and he breathes out a sigh. And as if interviewing himself, he then asks, almost in a whisper, "And what's it all meant?"

And it is here that the speech changes in both content and delivery. The rapid pace and relentless repetition of the first half downshifts in the second to a slow, steady pulse, and each phrase becomes a stanza. Schweickart returns the audience to the moment of the camera jam; he holds us there, floating in space, outside of time, and he allows the significance of that moment to expand. Gazing down on the Middle East, he explains, "you realize that in one glance that what you're seeing is what was the whole history of man for years—the cradle of civilization. And you think of all that history that you can imagine, looking at that scene." Then it's North Africa that comes into view, then the Indian Ocean, then the Philippines, then the "monstrous Pacific Ocean," and then "you finally

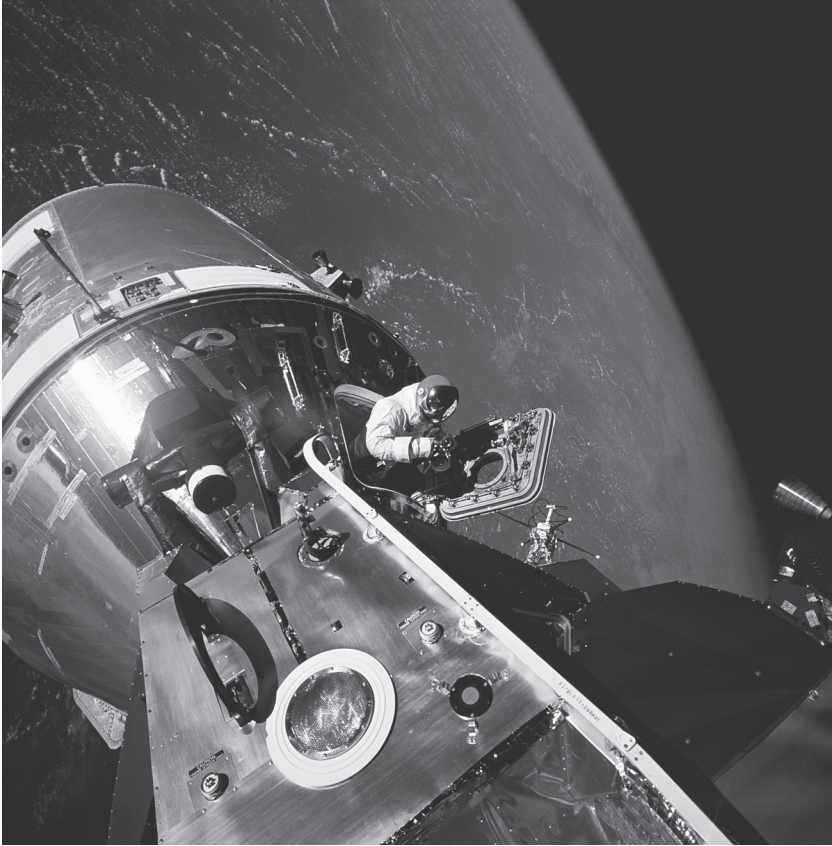


Fig. 1 | Photograph taken by Russell Schweickart from the porch of the Apollo 9 Lunar Module, March 3, 1969. NASA.

come up across the coast of California, and you look for those friendly things: Los Angeles and Phoenix and on across El Paso, and there's Houston, there's home, you know, and you look, and sure enough there's the Astrodome. You know? And you identify with that, you know—it's an attachment." The closing of Schweickart's speech extends this point, and it rewards a slow reading:

That identity! You identify with Houston, and then you identify with Los Angeles and Phoenix and New Orleans and everything. And the next thing you recognize in yourself is you're identifying with North Africa. You look

forward to that; you anticipate it. And . . . there it is. And *that whole process begins to shift what it is you identify with*. When you go around it in an hour and a half, you begin to recognize that your identity is *with that whole thing*. And that makes a change. . . . You look down and see the surface of that globe you've lived on all this time, and you know all those people down there, and they are like you, they *are* you—and somehow you represent them. You are up there as the sensing element, that point out on the end. That's a *humbling* feeling. It's a feeling that says you have a responsibility, it's not for yourself. . . . Somehow you recognize that you're a piece of this total life, and you're out on that forefront, and you have to bring that back, somehow. And that becomes a rather special responsibility, and it tells you something about your relationship with *this thing we call life*. . . .

And when you come back, there's a difference in that world now; there's a difference in that relationship between you and that planet and you and all those other forms of life on that planet, because you've had that kind of experience. And it's a difference, and it's so precious. And all through this, I've used the word "you" because it's not me—it's not Dave Scott, it's not Dick Gordon, Pete Conrad, John Glenn—it's you, it's us, it's we, it's *life that's had that experience*. . . . And I guess that's really about all I'd like to say, except that—and I don't even know why, but to me it means a lot—and I'd like to sort of close this part of it . . . with, um, uh, a poem, a poem by e. e. cummings that has just become a part of me, somehow out of all this, and I'm not really sure how.

I have listened to this speech dozens of times now, and when Rusty Schweickart reaches its conclusion, a poem by e.e. cummings thanking God for the "greenly spirits of trees," I often find that I've been holding my breath. Maybe it's his stream-of-consciousness delivery, described by one audience member as a "long, pauseless prayer."²³ Maybe it's the striking use of the second person and present tense to create the Overview Effect in his audience, an immersive, evocative *phantasia*. Maybe it is listening to this fighter pilot, engineer, and astronaut wax transcendental at the recognition that he is the "sensing element" of "this thing we call life." Seeking to communicate the meaning of his time above the Kármán line, removed from the terrestrial geography of nearly all human history, Schweickart's off-the-cuff speech transforms to prose and dissolves into poetry in the attempt to communicate his sublime experience. *Sub limen*. Beyond the line.

Bioidentification

Rusty Schweickart's Lindisfarne speech is an exemplar of the rhetorical phenomenon at the heart of this book, which I call *bioidentification*. Bioidentification names the evocation of life as a shared substance, as well as the feeling that such connection produces.²⁴ I build this idea from Kenneth Burke's theory of identification, one of the most well-known concepts in rhetorical studies. Presented first in *Rhetoric of Motives*, the second volume in Burke's intended trilogy of rhetorical theory, identification is defined as a rhetorical act in which audience members are moved by something they have in common or are led to believe they have in common: a rural upbringing, a passion for justice, an alma mater, a national identity. You persuade someone, Burke writes, "insofar as you talk his language by speech, gesture, tonality, order, image, attitude, idea, *identifying* your ways with his."²⁵

While the classic example of identification is the evocation of a commonality between a rhetor and audience, it can also be broader and more diffuse. Humans may identify, or be identified, with nonhuman animals or ideas or things.²⁶ Identification may be created not just between the rhetor and audience but also between the subject of a speech and the rhetor or between the subject and the audience. In an epideictic speech, for example, the audience may be identified with bravery, or the rhetor with kindness.²⁷ Identification may also be found in the circulation of discourse, in which ideas, affects, terms, values, and symbols—a "body of identifications"—stick to each other, to people, and to institutions through proximity and accumulation.²⁸ Writing shortly after the nuclear devastation of Hiroshima and Nagasaki, for example, Burke points to the militarization of science and technology to show how identification may operate beyond intention. When science is identified with the military, scientists are also identified with the "moral qualities" or the "motives" of the latter, Burke argues, no matter their protest to the contrary.²⁹

What I am calling *bioidentification* is a simple idea. It's not a transformation of Burke's concept but simply one form that it takes. To see how it works, let's return to Schweickart's Lindisfarne speech. Gazing down on Earth, Schweickart describes how his identity (and, through the explicit use of second person, his audience's identity) does not just shift but expands—from Houston, the place where his friends and family are, to other US cities, then to other countries, then to other continents, until he identifies with Earth itself, with "that whole thing." The people below, he explains, are "like you," but then he corrects: "they

are you”—yet he does not mean that we are *identical* to them. Nor do we merely resemble each other. Rather, it’s that we share something fundamental in common. Life, for which he serves not only as a representative but as the “sensing element,” is the thing that identifies Schweickart with all people and with the “greenly spirits of trees” but also with “all those other forms of life on Earth.”

Schweickart comments that his experience of bioidentification is “a humbling feeling,” which brings to mind Kant’s description of humility as a “*sublime* temper of the mind.”³⁰ Thinkers have long described the sublime as a feeling of pleasure, wonder, and terror provoked by an encounter with greatness, which can take the form of power, size, or overwhelming beauty. We encounter the perfect work of art, the voice of the divine, or the limitless universe, and we shake in their shadow. But this typical description of the sublime is incomplete, write Joshua Gunn and David Beard, without noting the “unsettling” shift in subjectivity that accompanies such an experience, in which “the subject is revealed to be a fragile, incomplete construction rather than an integral whole.”³¹

There’s no question that Schweickart experiences a shift in subjectivity during his time in space, but that doesn’t quite account for what is going on in this speech. In *Scale Theory*, Joshua DiCaglio suggests that the rhetorical power of the Overview Effect might be found in its capacity to elicit a “scalar experience” in the viewer. He illustrates this concept using the example of his own encounter with an image of the whole Earth:

[I] know that I perceive it, but—I seek for another means to say it but can only go to a scalar comparison to describe the experience—it is like saying I see the atoms in my hand when I look at my hand. My mind reels at the suggestion, experiencing both scales at once for a moment. *All of this here, is in that orb.* And this orb is seamless, vibrant and clear in its spherical vastness. Now the duck-rabbit switch is my existence itself, felt whole, divided, whole, divided. . . . I feel suddenly as if I speak for the Earth, like my hands type for it. . . . I can no longer tell if I am seeing the image or speaking to it—I sidle around its surface—I feel its emanation and feel how I emanate from it. I feel lost in its surface but still embedded, strikingly aware of my feet on the ground, of the pull of gravity—the testament of the immensity of this presence.³²

Edmund Burke famously argued that the terror of the sublime is linked to our mortality, the ultimate dissolution of the subject.³³ But Schweickart and DiCaglio

point to a second movement of the sublime: a scalar shift from the “diminution to the aggrandizement of the subject,” as Christopher Hitt explains it.³⁴ Schweickart’s experience of the sublime may be tied to a sense of mortality—his life protected by mere inches of fiberglass cloth—but it also seems to speak to a twinned sense of *vitality*, a profound, sublime connection with “this thing called life.”

This phrase returns us to the ontological dilemma with which we began. It also raises the question of what it means to approach life itself as separate from that which it qualifies as *living*; that is, it raises the issue of what it means to consider life as a *substance*. Substance is key to Kenneth Burke’s theory of identification even as he admits that the term is “beset by a long history of quandaries and puzzlements.”³⁵ Another word Burke uses for identification, in fact, is “consubstantiation,” which speaks to identification as a form of connection, but one that stops short of total union. In one of the most well-known passages in *Rhetoric of Motives*, Burke describes this phenomenon as follows: “A is not identical with his colleague, B. But insofar as their interests are joined, A is identified with B. Or he may identify himself with B even when their interests are not joined, if he assumes they are, or is persuaded to believe so. Here are the ambiguities of substance. In being identified with B, A is ‘substantially one’ with a person other than himself. Yet at the same time he remains unique, an individual locus of motives. Thus he is both joined and separate, *at once a distinct substance and consubstantial with another*.”³⁶

For Burke, the etymology of “substance” reveals an instructive paradox at its center. “Sub-stance” literally means *that which one stands upon*. In a similar way, Burke writes, “the word ‘substance,’ used to designate what a thing *is*, derives from a word designating something that a thing *is not*. That is, though used to capture something *within* the thing, *intrinsic* to it, the word refers to something *outside* the thing, *extrinsic* to it.”³⁷ We often assume that substance speaks to a kind of timeless essence—something that is intrinsic to some *thing*. However, the paradox of substance is that we “only ever encounter the *qualities* of the object, and never the *substance* of the object,” explains Levi Bryant.³⁸ “Each time you scrutinize a concept of substance, it dissolves into thin air,” Burke writes. “But conversely, the moment you relax your gaze a bit, it reforms again.”³⁹ *What substance is* is less important to Burke than *what substance does*; that is, substance is significant for the function it serves, the “covert influence” it exerts.⁴⁰ He “is less interested in ‘substance’ than in ‘substantiating,’” Weldon Durham explains.⁴¹ Burke approaches substance, in other words, not like a scientist or

even a philosopher but like a rhetorician—he is more interested in the symbolic work that substance does in the world, rather than what it is, *really*.

Stare at “life” too long, and it becomes an afterimage. And maybe an afterimage is all it ever was, all it ever is, an imprint with no visual stimulus, a scholarly palinopsia, a “rhetorical black hole.”⁴² To be frank, the moments when I have tried to look too closely at life itself are also the moments I have nearly abandoned this book. Sometimes it feels like I’m writing about the most important thing in the world, and sometimes it feels like I am writing about nothing at all. Life is a little like consciousness that way, in that it seems to inspire lifelong projects of futile devotion. I sometimes worry that life itself is a kind of holy grail, the pursuit of which famously drives its hunters mad. Then again, maybe a little bit of madness helps keep the scholarly eye unfocused enough to appreciate how life moves, and moves us, without getting distracted by the details.

Vital Rhetoric

In *Experimental Life*, the literary critic Robert Mitchell argues that we are in the midst of a “vital turn,” in which scholars have become enamored with “life itself as a source of mystery and provocation.”⁴³ This is not a new phenomenon: the first wave of what Mitchell calls “experimental vitalism” flourished at the turn of the nineteenth century, in which an enchantment with life occupied European scientists, physicians, and authors of Romantic literature. The second wave Mitchell locates at the turn of the twentieth century, when biologists like Hans Dietrich developed theories of life based on embryology and philosophers like Henri Bergson theorized the creative potential of an *élan vital*, thought experiments that would shape philosophy, literature, and art for a generation. In the current moment, the explosion of research in fields like molecular biology, biophysics, biogeology, and astrobiology and the existential tinkering of synthetic biology, gene editing, and artificial intelligence represents a broad scholarly interest in life itself that crosses disciplines and brings new disciplines into being. This turn is visible in several currents of inquiry in the humanities and social sciences, too: actor network theory, new materialism, the ecological turn, the post-human turn, the affective turn, as well as research on process, emergence, systems, and complexity and the library of scholarly literature inspired by theories of biopolitics.

While an exhaustive account of rhetoric's own vital turn is beyond the scope of this book, it might be identified in rhetorical research on some of the topics just listed, as well as in the emergence of critical terms like "bio-rhetoric" (which refers to the circulation of biological discourse within social and political discourses), "biocriticism" (which examines rhetoric at the "nexus of disease and culture"), "biocitizenship" (which examines the intersection of bodies, belonging, and political action), and, of course, biopolitics.⁴⁴ However, while life and death have been central themes in rhetorical studies for many years, there has been less attention to life itself as a rhetorical object, or what we might think of as "vital rhetoric."⁴⁵ I introduce this term not for the sake of adding yet another neologism to an already bloated bio-vocabulary but to distinguish the life that is the subject of this book from other important ways we might understand it.⁴⁶ Vital rhetoric names how life itself is evoked as a substance, separable, even if just rhetorically, from living things—something that comes close, perhaps uncomfortably so, to *vitalism*.

While vitalism takes several forms across history, Byron Hawk points out that all vitalisms share something fundamental in common, something I refer to in these pages as the grail question: *What is life?*⁴⁷ Ask a physicist what life is, and they might tell you that it is a temporary resistance to entropy. Ask a biologist, and they might talk to you about metabolism or autopoiesis. Ask a priest, and you might get talk of the soul or the Holy Ghost. Ask this rhetorician, and she will answer that whatever else it may or may not be, *life itself is a kind of rhetoric*. Make no mistake: I am not saying that life itself *is* rhetoric. When a fruit fly is crushed, I am not sure exactly what ceases to be, but I know that it's something more than rhetoric. But, like Burke's approach to substance, a rhetorical perspective invites us to turn away from questions of what life is and toward questions of what "life" does: what it joins together and what it divides, what it makes possible, what it prevents, and what consideration, value, and protection it guarantees.

I felt a little guilty for killing that fruit fly. Did you judge me, just a little bit? We are taught to revere life as not just valuable but invaluable, *something special*, and this specialness commands a right response. E. O. Wilson, that great aficionado of insects, has described a version of this response as "biophilia," the "innate tendency to focus on life and lifelike processes."⁴⁸ For Wilson, biophilia has an ethical dimension: life has a moral weight that seems to demand a new way of thinking (for a Western scientist, at least) about our relations and obligations to

the living world. “It is time,” he writes, “to invent moral reasoning of a new and more powerful kind, to look to the very roots of motivation and understand why, in what circumstances and on which occasions, we cherish and protect life.”⁴⁹

Note the contingency in Wilson’s call for a moral consideration based on life itself, or what is sometimes called “biocentric ethics.” As we will see in chapter 1, the meaning of “life” depends on the context in which it is evoked and understood. It is thus linguistically, culturally, and historically specific—and so are the moral frameworks in which it is ascribed value. In the acclaimed book *Braiding Sweetgrass*, for example, the environmental scientist Robin Wall Kimmerer describes how learning the language of her Potawatomi ancestors shifted her understanding of the life at the center of her work. While Kimmerer’s training had sharpened her skill at observation, she writes, its language, a “language of distance,” a “language of objects,” was “based on a profound error in grammar”: “My first taste of the missing language was the word *puhpowee* on my tongue. I stumbled upon it in a book by the Anishinaabe ethnobotanist Keewaydinouquay, in a treatise on the traditional uses of fungi by our people. *Puhpowee*, she explained, translates as ‘the force which causes mushrooms to push up from the earth overnight.’ As a biologist, I was stunned that such a word existed. In all its technical vocabulary, Western science has no such term, no words to hold this mystery.”⁵⁰

Kimmerer’s describes the Potawatomi language as a lively grammatical universe in which rocks and grandmothers are both “whos,” a linguistic realm with shades of nuance that neither science nor English has the capacity to express. Kimmerer explains that the Potawatomi grammar of animacy, which is linked to an understanding of kinship between human and other-than-human worlds, has profound ethical and political implications. It is possible that thinking of a tree as a “she” makes it harder to chop her down, she writes. “Maybe a grammar of animacy,” she suggests, “could lead us to whole new ways of living in the world, other species a sovereign people, a world with a democracy of species, not a tyranny of one; with moral responsibility to water and wolves.”⁵¹

It is tempting to suggest that the moral consideration Kimmerer grants to water and wolves exemplifies the relationship between bioidentification and vital advocacy that this book traces. However, such a claim is troublesome, a point I return to in chapter 1. I wish neither to claim that the Potawatomi grammar of animacy is *really* a form of bioidentification nor to extract this system from its original context, stripping its subtlety to suit my purposes. Kimmerer’s experience learning *puhpowee* teaches me that any attempt to examine

the questions of life, ethics, rhetoric, and politics around which this book orbits reflects the language, time, and culture in which those questions are asked. It also reminds me to consider the relationships of power and knowledge that give meaning and authority to the answers. *Puhpowee*, in other words, is not the missing answer to J. B. S. Haldane's question, and it is not the thing that Rusty Schweickart claims to be representing while gazing on the Earth from space. *Puhpowee* is not the true name for "life" any more than "life" is the true name for the force that pushes mushrooms up from the ground. *Puhpowee* is the word that the Potawatomi people found for *puhpowee*, and its place in this conversation ought to be on its own terms.

Chapter Overview

The thread that draws the chapters of this book together is *vital advocacy*: rhetorical action on behalf of life itself. The advocates in the following pages are a rather motley crew: scientists and astronauts and philosophers and activists and provocateurs and science fiction writers. Some you may see as heroes, and some you will almost certainly see as villains. I chose the case studies for their resonance but also their dissonance, which offers instructive points of tension that give this book's conversation energy and, I hope, wider significance. While the rhetorical perspective of the book draws my attention to symbols, tropes, language, meaning, and argument in its various forms, bioidentification is the term at the center of the analysis, and I return to the ethical questions and political imperatives it raises about similarity and difference, self and other, and connection and division, again and again.

As I noted earlier, the ultimate question this book asks is not *What is life?*—the grail question with which we began—but *What does "life" do?* The chapters that follow are a collection of answers to that question, and they are arranged to produce an evocative, echoing, lively conversation that adds interlocutors as it proceeds, rather than a teleological argument with a pat conclusion. In that dialectical spirit, I have included three interviews with individuals who have inspired my thinking in this book: Dorion Sagan, who has written widely on the topic of life, including a number of books coauthored with his mother, the famed microbiologist Lynn Margulis; Kyle Whyte (Potawatomi), a scholar working at the intersection of environmental and climate justice, ethics, and Indigenous studies; and Catharine Conley, an astrobiologist who served as NASA's Planetary

Protection Officer for over a decade. These conversations stand alone between chapters, and each addresses themes of the preceding chapter while also raising new lines of inquiry. How, Sagan points out, does our grammar for life, as noun or as verb, shape our understanding of it? What, Whyte asks, does kinship mean for our notions of responsibility and consent? What, Conley invites us to consider, would it mean to discover life elsewhere, and what steps should we take to protect it?

The book begins by defining bioidentification by identifying its epistemic location and defining its limits. In chapter 1, I identify the Western “locus of enunciation” of Burkean identification, focusing on a priori division that identification seeks to bridge.⁵² To identify Burke as a white Eurocentric writer or to name rhetoric as a discipline with a Western bias is the ripest fruit on the lowest branch; instead, the question this chapter asks is, Why does this matter? What does it mean to think about life itself as a Western idea? What do these locations allow us to see? What is hidden from view? The chapter then offers an “anti-case study” of the Lakota phrase *Mni Wiconi* (water is life), which achieved wide circulation during the efforts to halt the Dakota Access Pipeline (DAPL) in 2016–17. *Mni Wiconi*, and the Lakota cosmology it emerges from, reveals an approach to life not as thing but as a capacity, which binds not only humans and other humans, and humans and nonhumans, but also biotic and abiotic worlds. There is a lesson to be learned in examining the difference between Indigenous and Western perspectives on life, as the philosopher Brian Burkhart (Cherokee) argues, and in thinking through the misfit between them.⁵³

Chapter 2 takes a deep dive into deep ecology, an approach to environmental thinking, ethics, and politics that has inspired a number of radical environmental movements over the years. Instead of viewing deep ecology as a politics or philosophy, I proceed from the idea that it is best viewed as a rhetoric.⁵⁴ Focusing on the use of the term “identification” in the writing of deep ecology’s founder, the Norwegian philosopher Arne Næss, I show how deep ecologists use life to create consubstantiality with the other-than-human world, a rhetorical strategy that carries a sense of commonality, vulnerability, and obligation across species. While deep ecology’s bioidentification has been the source of positive inspiration to many environmental thinkers and activists, I conclude this chapter by showing how its biocentric worldview can lead to dark places, focusing on the writing of Pentti Linkola, a Finnish ecologist whose antihuman rhetoric has been cited as inspirational to the troubling growth of ecofascism in recent years.

Chapter 3 takes up where chapter 2 leaves off, and in some ways, these chapters are two halves of the same argument. What does it mean to understand human life as responsible for the mass death of the living world, a time that some have called the Sixth Mass Extinction? Conversely, what does it mean to imagine the death of humanity in toto as the grounds by which other life may survive? This chapter examines the rhetorical role of human extinction in two social movements—the Voluntary Human Extinction Movement and Extinction Rebellion—to consider the promise and pitfalls of gathering humanity under the banner of species. This chapter instead suggests an approach of *bioplurality*, building on insights from Hannah Arendt and Sylvia Wynter, which highlights the twinned role of identity and difference in creating solidarity among and within species.

Using the backdrop of planetary belonging, chapter 4 considers our obligations to life on Earth, understood as life *on Earth*, as well our responsibility to potential life elsewhere in the universe. Using the “humble microbe” as its artifact, and the issue of interplanetary contamination as its exigence, this chapter examines how controversies about interplanetary contamination in space policy, space science, and science fiction turn on arguments of magnitude that is given meaning by place. Beginning with the emergence of the field of exobiology in the 1950s, debates about biological threats to Earth and other celestial bodies, and concluding with the imagined terraforming of Mars, this chapter explores how relations between planets are understood as an existential threat, which can take the form of invading Martians or a mere microbe on a rover’s wheel.

The book concludes with a final brief case study, a reading of a recent essay by the political theorist Achille Mbembe, which draws out the stakes of vital advocacy in a moment beset by interlocking planetary crises. Mbembe has become well known as an influential theorist of death—at last count, his essay “Necropolitics” has been cited over eight thousand times. In this brief conclusion, I examine how the bioplurality in Mbembe’s essay reveals a radical politics of life beyond the technique of control and management identified by theories of biopolitics and necropolitics. What we see in Mbembe, I argue, is the glimmer of a future vital politics, whose task is nothing less than changing the world.

What draws scholars together in this current vital turn, Mitchell argues, is an approach to life not as “a source of perplexity that demands new modes of

conceptual and practical experimentation.”⁵⁵ In these experiments, life itself takes shape as something like an aporia—a room with no door, a conundrum without a clear answer. “If we arrive at an aporia,” writes Stuart Murray, “it means we are in doubt, we are perplexed, we are confused about how (best) to proceed. An aporia is a contradiction, a puzzle or a paradox.” An aporia may produce an impasse in thinking, but it also demands that we shift our tactics of inquiry: the questions we ask as well as the places we go to for answers. Aporias, Murray explains, following Derrida, reveal the limits of science and logic, but in so doing, they also “deliver us over to the ethical and the political,” where “new ways of speaking and thinking and relating” may be found.⁵⁶ There is not an answer to Haldane’s question in what follows, or at least not one that would satisfy a scientist like him. Confronted by the aporia *What is life?* we, like Haldane, cannot answer, but neither can we walk away; rather, as Derrida writes, “we are going to wander about in the neighborhood of this question,” examining the rhetorical, ethical, and political terrain along the way.⁵⁷ What follows, then, is my own experiment born of wandering: a rhetorical account of life itself through a multiplicity of voices telling stories about what it means, what it does, and why it matters.